

MARINE BIOLOGICAL VALUATION MAPS AS A TOOL FOR VALUATION OF THE BELGIAN COASTLINE

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Increased anthropogenic pressures on the marine environment and multiple use conflicts have led to a worldwide interest in spatial planning with particular emphasis placed upon innovative, holistic approaches to management such as Ecosystem-Based Marine Spatial Planning (EB-MSP). It is important to remember that we can only plan and manage human activities in marine areas, not marine ecosystems or ecosystem components (Ehler & Douvere, 2009). Solid and meaningful biological and ecological information is as such needed to inform and underpin sustainable management approaches. Coastal planners and marine resource managers have used various tools for assessing the biological value of the marine environment in the past. These approaches vary in information content, scientific rigor and the level of technology used (Derous et al., 2007a & b).

The present work aims at establishing a spatial biological valuation of the Belgian coastal zone, using the marine biological valuation method (Derous et al., 2007b). The Belgian coastal zone hosts a complex of space- and resource-use activities with a myriad of pressures impairing environmental conditions both on the coastline and on coastal waters (Willekens & Maes, 2008; De Smet et al., 2010). Specifically at the beach zone, predictions on sea-level rise and flood risk for the North Sea have led to action plans and future coastal defense projects for strengthening the Belgian coastline (Roode et al., 2008). Among these plans, the soft engineering solution known as beach nourishment has been the most widely accepted for its lower ecological impacts (Greene 2002; Hamm et al. 2002; Hanson et al. 2002) and clear benefits to the tourism industry (Phillips & Jones 2006), which alone represents 2.8% of Belgium's gross domestic product (WTTC 2003). The word 'nourishment' means supplying a beach with sand because its sand has either flown away with the wind or got washed off with the waves. If implemented without good ecological practice (Speybroeck et al., 2006) and in combination with other recreational and management activities, beach nourishment potentially threatens habitats which are valuable to several beach-dependent organisms (Speybroeck, 2007). There is a clear need for integrative and ecosystem-based strategies to sustainably manage ongoing space-use activities at the Belgian coast. Therefore, a scientifically sound and spatially-based biological valuation of the Belgian coast would potentially assist local decision-makers and allow for the integration of "nature" at an early stage of policy implementation, for example through the Provincial Spatial Implementations Plans (PRUPs) (Maes & Bogaert, 2008). For practical purposes, two main scenarios of space-use conflict at the Belgian coast are investigated: beach nourishment and nature conservation. This bottom-up approach is an important step towards cross-sectoral, integrative and ecosystem-based management policies for the Belgian coast.

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