



Assessing the state of the adoption of Nature-based Solutions for coastal risk management in the Mediterranean basin

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The ineffectiveness of traditional grey engineering infrastructures to counteract coastal risks such as erosion and flooding, combined with the exacerbation of climate change impacts, is leading scientists, experts and decision makers to devise and implement more adaptive, cost-effective, resilient, sustainable and environment-friendly risk management measures. Nature-based Solutions (NbSs), as an alternative or complement to traditional grey infrastructures for coastal risk management, are gaining importance in the international and EU debate. The Mediterranean Basin is considered one of the most vulnerable regions worldwide mainly due to its population density and concentration of economic activities along the coasts and its borderline climatic balance. It is defined as one of the most critical erosion hotspots in Europe, due to the degradation of coastal areas and the overexploitation and unsustainable practices along the coasts and in the sea, heavily affecting beach tourism, agriculture and fishing activities. Moreover, the Mediterranean coasts are affected by impacts of other phenomena (e.g. storms, floods), exacerbated by climate change. To mitigate and adapt to such environmental and climatic changes, NbSs are considered a promising step-forward, as it is based on the principle that the enhancement and protection of natural processes provide multiple benefits to society, thus ensuring a sustainable provision of benefits and co-benefits and counteracting the negative climate change impacts.

This paper seeks to bring a comprehensive understanding of the state of the adoption of NbSs for coastal risk management in the Mediterranean. To assess the goal, an in-depth analysis based on a literature review of past and current implemented NbSs for coastal risk management in the Mediterranean has been performed. Starting from 162 scientific papers and documents, only 23 fit the goal of the work. Through the support of an innovative four-dimensional matrix, the operationalized classification of the NbSs has been performed. The main result reveals a lack of consideration of NbSs for coastal risk management in the Mediterranean leading to difficulties in helping to facilitate NbS mainstreaming and uptake.

The current study raises the necessity to examine the reasons behind the difficulties in implementing NbSs for coastal risk management in a complex system such as the Mediterranean, by identifying strengths and gaps.

