



Modelling the spatial distribution of the seagrass *Posidonia oceanica* (L.) Delile, 1813 along the North African coast.

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Posidonia oceanica is a seagrass species endemic to the Mediterranean sea, which is considered as an indicator of environment quality in coastal areas. This species forms large meadows, which are sensitive to several anthropogenic pressures, as a result the decrease in their extension of is considered a priority issue for the Mediterranean sea. The aim of this study was to develop a Species Distribution Model for *P. oceanica*, to be applied to the Mediterranean North African coast, in order to obtain an estimation of the potential distribution of this species in the region. As the study area is a data-poor zone with regard to seagrass distribution, the SDM was calibrated using data from 5 Mediterranean sites, located in Italy and Spain and validated using available data concerning the NA coast. The probability of presence of the species in a given area was modeled as a function of the bathymetry and some water characteristics (i.e. water transparency; dissolved organic matter; chlorophyll concentration) obtained from Earth Observations (EOs), mainly derived from MERIS imagery. Water transparency plays a major role, but also other variables, such as chlorophyll concentration (probably related to nutrients availability), are important in explaining meadows distribution. The availability of high resolution time-series of the input data allowed us to apply the validated model to the whole NA coast. These results (maps of potential distribution) are combined with the use of ecosystem service indicators in order to assess the importance of seagrass habitat within the NA coastal ecosystem.