



STe

21 / 25
SEPTEMBER
2015 | ROME

STe

**ECOLOGY
AT THE
INTERFACE**

PALAZZO
DEI CONGRESSI
EUR

ABSTRACT BOOK

CS12.5 - LANDSCAPE METRICS AS INDICATORS OF COASTAL MORPHOLOGY AND ITS USE IN ECOLOGICAL NICHE MODELLING OF SEAGRASS SPECIES

R. Chefaoui^{1*}, J. Assis¹, C. Duarte², E. Serrão¹

¹*Centro de Ciências do Mar (CCMAR), Universidade do Algarve, Faro, Portugal*

²*Red Sea Research Center (RSRC), University of Science and Technology, Thuwal, Kingdom of Saudi Arabia*

* e-mail: rosa.chef@gmail.com

Dependence of some species on landscape structure has been proved in numerous studies. So far, however, little progress has been made in the integration of landscape metrics in the prediction of species associated with coastal features. Specific landscape metrics were tested as predictors of coastal shape using three coastal features of the Iberian Peninsula (beaches, capes and gulfs) at different scales. We used the landscape metrics in combination with environmental variables to model the niche and find suitable habitats for a seagrass species (*Cymodocea nodosa*) throughout its entire range of distribution. Landscape metrics able to capture variation in the coastline enhanced significantly the accuracy of the models, despite the limitations caused by the scale of the study. We provided the first global model of the factors that can be shaping the environmental niche and distribution of *C. nodosa* throughout its range. Sea surface temperature and salinity were the most relevant variables. We identified areas that seem unsuitable for *C. nodosa* as well as those suitable habitats not occupied by the species. We also present some preliminary results of testing historical biogeographical hypotheses derived from distribution predictions under Last Glacial Maximum conditions and genetic diversity data.