

## Environmental impact identification along the Corsican coast (Mediterranean sea) using image processing

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### Abstract

Endowed with an exceptionally rich natural heritage, the Mediterranean islands are subject to degradation exacerbated by their insularity (e.g. the influx of tourists in the summer). The management of these coastal areas thus requires the identification and quantification of anthropogenic impacts which affect the distribution of seagrass beds. To this end, studies were carried out along the Corsican coast by combining image processing of (i) aerial photographs for the surface layer (from 0 to –20 m) and (ii) sonograms, generated by side scan sonar, for the deeper layers (from –20 to –40 m). These techniques, which are particularly adapted to the analysis of vast areas with a precision of less than 2 m, were used to identify and accurately evaluate the impact of natural and anthropogenic pressures (e.g. fresh water input, coastal facilities, mechanical aggressions). In addition to a decline in the surface area occupied by seagrass beds, significant erosion of the coastline (80 m in 25 yr) was observed, brought about by the building of marinas. Based on the results generated in the present study, it would appear that these techniques may prove useful in the examination of other coastal regions. ©1999 Elsevier Science B.V. All rights reserved.

*Keywords:* Mediterranean; *Posidonia oceanica*; Image processing; Aerial photography; Side scan sonar; Human activities

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