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Eyes Wide Shut: Managing Bioinvasions in Mediterranean Marine Protected Areas

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**Abstract**

The degradation of Mediterranean habitats has prompted calls to increase the number and spatial extent of ‘protected areas’, meant to provide protection to habitats, biodiversity and ecosystem services, and insurance against environmental or management uncertainty. Networks of marine protected areas (MPAs), spaced to match the scale of dispersal and connectivity of key components, are currently the favored marine conservation strategy. It is, however, questionable whether MPAs, singly or clustered, provide effective protection to native biodiversity under high load of non-indigenous species (NIS).

Surveys conducted in MPAs situated along the Levant and in Sicily, Italy, documented established populations of NIS that are frequently the most common species encountered and dominate the littoral. Yet, half the MPA managers were ignorant of the status of NIS in their area, and the responsible regional and national authorities and organizations have largely failed to addressbioinvasions and manage them.

Considering the high connectivity of the Mediterranean Sea (by natural means and through anthropogenic-induced interlinkages), MPAs will not be free of NIS unless embedded in an integrated ecosystem management regimen that reduces their propagule load. Scientifically sound policy and coordination among all Mediterranean countries to ensure consistency in legal rules and standards and address all major vectors/pathways, are crucial to achieve the long term objectives of MPAs.

If not acted upon with alacrity, protected effectively and managed efficiently, MPAs under high propagule pressure of NIS, may serve as ‘seed banks’ for invasions inducing ‘spill-over effect’ to adjacent areas, rather than valued tools for native biodiversity conservation.

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