Health assessment of a marginal reef site in Southeastern Brazil: integrating ecological indicators and anthropogenic pressures to guide management decisions.

Themes: Integrative Frameworks to link environmental and biological drivers of biodiversity + Linking biodiversity to ecosystem function and services + Biodiversity tools & Data

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Coastal marine ecosystems provide important services yet have been under increased local and global anthropogenic pressures worldwide. Hence, health assessment studies are necessary to guide management actions ensuring biodiversity conservation and the maintenance of ecosystem services. We applied a protocol previously developed by our group for the Food and Agriculture Organization (FAO) to assess the health of a marginal reef ecosystem at Armação dos Búzios, Southeastern Brazil - a touristic destination that has experienced a rapid urbanization since the last decades. The protocol evaluates temporal trends in Ecological Indicators (diversity, singularity and species substitution) and an Environmental Pressure Index. Quantitative benthic and pressure data obtained for 11 sites in 2000/2001 were used as the baseline and compared to data generated in 2016/2017. Most sites showed a decreased singularity and increased diversity over time. This suggests sites are becoming more homogenous in terms of species composition. Despite some variability among sites, the Environmental Pressure Index exhibited almost the same pattern as ten years ago with the same sites ranked as the least and the most subjected to anthropogenic pressures. Differences among sites were mainly driven by urban development. This study represents an important tool for the ecosystem management of the area.

Key-words: Ecosystem health, Ecological Indicators, Environmental Pressure, management.

Short title:
Health assessment of a marginal reef