

Citizen science as a tool for the environmental quality assessment of Mediterranean Marine Protected Areas

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The growing need to assess the environmental status of Mediterranean habitats and the large availability of data collected by Reef Check Italia onlus (RCI) volunteers along subtidal rocky shores and in coralligenous habitats suggest the possibility to develop innovative and reliable indices that may support decision makers in applying conservation strategies, particularly important for Marine Protected Areas (MPAs). The reliability of data collected by RCI volunteers was tested and it resulted comparable to that of marine biologists. The biology and ecology of the taxa included in the RCI protocol have been deeply reviewed in order to define their sensitivities toward natural and anthropic disturbances and the aptitude as indicators of ecological status and environmental quality. Based on data collected by RCI volunteers, three main categories of indices were developed and proposed: indices based on species diversity, indices on the occurrence of single indicator taxa, including several protected species and three non-indigenous species (*Caulerpa cylindracea*, *Caulerpa taxifolia* and *Rapana venosa*), and indices on species sensitive toward different pressures and impacts, as expected by the European Marine Strategy Framework Directive. As case studies, indices were applied to some Italian Marine Protected Areas and compared with independent assessments. Although these indices still require fine-tuning, the preliminary results are very promising. Their application, however, requires greater collaboration between MPA managers and dive centers, which ultimately should share the same goal: a sustainable fruition of natural resources.

2.2 Poster presentations

A baseline for the coastal benthic assemblages of the Tremiti Islands MPA (Italy)

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Altogether, small environmental variations can lead to profound long term ecological changes, but are unlikely to be perceived by humans because too small and slow compared to their life. Measures of conservation need adequate "baselines" to track changes over time, whether they are of natural or anthropic origins. With this aim, benthic assemblages surrounding San Domino, Caprara, San Nicola and Cretaccio Islands were recorded along 42 benthic transects perpendicular to coasts, during summer 2013. Obtained data were graphically represented in vertical sections and mapped using graphical and statistical routines in R and Quantum Geographic Information System. The study was carried out thank to a collaboration between Tremiti Island MPA (Gargano National Park), local dive centres and master students selected after a competition. Results offered the possibility to create both an extended baseline for next monitoring programs and a book for dissemination purposes, where the description and the distribution of the most important species are available.