

THE PROJECT FOR-MARE: TRAINING AND RESEARCH IN MARINE PROTECTED AREAS, MARINE ECOLOGY AND GEBOTANY STAGES

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Abstract

The FOR-MARE project aims to create a network of expertises among Universities, Research Centres, Schools and Diving Associations in order to realize stages for students from University and teachers from primary and secondary schools. Its major objectives are: 1) expanding knowledge of the role of Marine Protected Areas (MPA); 2) promoting 'scientific tourism'; 3) helping MPAs in scientific data collection and monitoring programs.

Keywords: Marine Parks, Instruments And Techniques, Coastal Waters, Coastal Management, Monitoring

Marine Protected Areas (MPAs) represent a concrete effort of national administrations to preserve biodiversity and promote scientific research [1]. Currently, in Italy there are 20 MPA that care as a whole for about 184,000 ha of sea and 580 km of littoral. Notwithstanding their importance, Italian MPA are encountering a period of recession in relation to the world economic crisis, as they represent a "non productive sector of the national economy" in strict sense. The project FOR-MARE, namely translating from Italian to English: "Training and research in marine protected areas, stages of marine ecology and geobotany", born with the aim of broadcasting the role of MPA by creating "scientific tourism" in these areas. In June 2009 the Section of Ecology of the "Dipartimento di Ecologia del Territorio" of the University of Pavia promoted a first, pilot, taught course of Applied Ecology in the MPA of Isole Pelagie (Sicily) [2] in order to test a new teaching method in the field. Nineteen students from the University of Pavia with background experience in Biology, Ecology and Botany participated to this stage. In a week time (21/06-28/06/2009), students have been driven by teachers to prepare and present small scientific works on issues concerning population ecology of coastal marine organisms and terrestrial plants following a didactic scheme that consisted in:

- 1) providing theoretical knowledge by tutorial lessons;
- 2) conducting general surveys of the study area by snorkeling and trekking;
- 3) building up an experimental design (e.g. building also material used for visual census survey such as quadrats) (Fig. 1);
- 4) collecting biological and ecological information in the field using non destructive methodologies;
- 5) reporting scientific results to the public. The stage produced four small studies that provided new knowledge on local marine fauna and terrestrial flora:

- 1) Description and population structure of an unidentified actinia
- 2) Distribution and population density of the alien grapsid crab *Percnon gibbesi*
- 3) Morphometry and reproductive biology of *Pancreatium linosae* (Amaryllidaceae)
- 4) Floristic characterization of the southern littoral of Linosa Island

All studies produced very interesting preliminary results, worth of scientific deepening. The first study led to the characterization of a peculiar population of the common actinia *Cereus pedunculatus* that in Linosa Islands was found only in a very restricted bathymetric range (20-150 cm) of sheltered areas and is characterized by a dark-brown morph and small individuals (oral disc major axis < 5 cm). The second, revealed that the alien grapsid crab is the dominant crab species of the medium-superior infralittoral fringe; the highest density (51 ± 28 ind. $10m^{-2}$) of *P. gibbesi* is found in partially sheltered localities characterized by a microhabitat of large boulders covered by coralline algae. The third, gave the benefit of the doubt on the correct taxonomic position of the island endemic sea-daffodil *Pancreatium linosae*, that by morphometric analysis appeared more similar to the most common species *Pancreatium maritimum*. Finally, the fourth and last study revealed the presence of 11 species of local flora, not mentioned in pre-existing floristical lists of the island and of a consistent population of the Eolian endemic species *Limonium algaesae* never mentioned before. Results of the stage FOR-MARE strengthen once again the importance of volunteer based programs in scientific data collection as already pointed out by other ongoing international programs (e.g. Seasearch, UK; The International CIESM Jellywatch Program) [3,4]. A future aim of the FOR-MARE project is to establish a solid network of interest on the subject by involving administrators of the territory, universities and research institutes, schools, diving centers/associations and media.



Fig. 1. Students of the FOR-MARE pilot stage (Linosa Island, 2009) are building up survey instruments.

References

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