



APPLICATION OF UNDERWATER VISUAL CENSUS METHODS TO STUDY THE FISH ASSEMBLAGES OF THE MARINE PROTECTED AREA OF BERGEGGI (WESTERN LIGURIAN SEA)

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Underwater visual census was largely applied inside MPAs because of their efficacy and capability to be sea-friendly, in particular for fish, one of the main component to be managed by the protection measures.

The coastal area of Bergeggi is become an Italian MPA in 2007. A preliminary study on fish was conducted in 2001 in order to get data prior the institution of the reserve, applying two visual census techniques, paths of a time lapse of 15 minutes, to estimate species richness, and stationary census, within a radius of 5 m, to collect quantitative data. After the institution of the MPA, in 2009 and 2010, another study was performed applying the same methodologies.

Census samples were stratified according to 3 bottom typology (rocky, *Posidonia* and sand) and 3 depth ranges (0-3, 4-7, 12-16 and 24-30 m).

78 taxa, belonging to 27 families, was identified, increasing the number of species recognize in 2001 (57 species). Rocky habitat present the higher number of species while sands the poorest. To be noted the presence of thermophile species not previously recorded (*Diplodus cervinus*, *Parablennius pilicornis*, *Scorpaena maderensis* e *Sphyrna viridensis*).

The comparison of data collected in 2001 with those collected in 2009 and 2010 provide information on the increase of density especially in the A zone.

Recorded data put in evidence how the first two years of protection were useful for coastal fish assemblage, especially for target species for fishery such as groupers. These results point out the relevance of collecting historical series of data using non destructive methodologies such as visual census, to evaluate the effect of protection and the biodiversity status of Mediterranean coastal areas.