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A new ecological index for the status of mesophotic megabenthic assemblages in the Mediterranean based on ROV photography and video footage

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Abstract

A new index of ecological status, named Mesophotic Assemblages Ecological Status (MAES) index, was elaborated on the basis of ROV (Remotely Operated Vehicle) photography and video footage in order to assess the status of mesophotic megabenthic assemblages from hard bottom. The index was tested on seven sites located between 50 and 150 m depth in the Ligurian and Tyrrhenian seas (western Mediterranean Sea). The MAES index considers three main parameters: i) the community structure (number of megabenthic taxa, percent biotic cover in the basal layer, density of erect species); ii) the condition of the dominant erect species (average height, percent of colonies with epibiosis/necrosis); iii) the visible human impact (density of marine litter, including lost fishing gears). Two versions of the index have been elaborated, the complete version (MAES) and the quick version (*q*-MAES), which showed comparable results, therefore suggesting the possibility of fastening