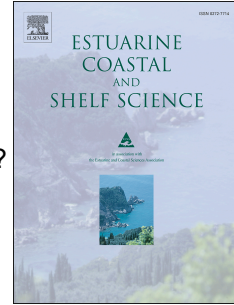


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Can citizen science contribute to fish assemblages monitoring in understudied areas?
The case study of Tunisian marine protected areas

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Tunisian marine protected areas

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Abstract

Resource monitoring is a key issue in ecosystem management especially for marine protected areas (MPAs), where information on the composition and structure of fish assemblages is crucial to design a suitable management process. Data on fish assemblage are usually collected using underwater visual censuses (UVC). However, fish assemblages monitoring in MPAs usually calls for considerable resources in terms of costs, time and technical/scientific skills. Financial resources and trained scientific divers may, however, not be available in certain geographical areas, that are thus understudied. Therefore, involving citizen volunteer divers in fish assemblage monitoring and adopting easy-to-use underwater visual census methods could be an effective way to collect crucial data. Citizen science can be used only if it can provide information that is consistent with that collected using standard scientific monitoring. Here, we aim: 1) to compare the consistency of results from a Standard scientific UVC (S-UVC) and an Easy-to-use UVC (E-UVC) method in assessing fish assemblage spatial variability, and 2) to test the consistency of data collected by Scientific Divers (SD) and Scientifically-Trained Volunteer divers (STV), using E-UVC. We used, in two consecutive years, three Tunisian future Marine Protected Areas (MPAs) and adjacent areas as case studies. E-UVC and S-UVC data were consistent. Both methods reported the same spatial patterns for the three MPAs (between MPAs and, inside and outside each one), highlighting the consistency between S-UVC and E-UVC. No significant difference was recorded between data collected by SD or STV. Our results suggest that E-UVC can provide information representing simplified proxies for describing fish assemblages and can therefore be

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