



An ArcGIS decision support tool for artificial reefs site selection (ArcGIS ARSS)

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Although the use and benefits of artificial reefs, both socio-economic and environmental, have been recognized with research and national development programmes worldwide their development is rarely subjected to a rigorous site selection process and the majority of the projects use the traditional (non-GIS) approach, based on trial and error mode. Recent studies have shown that the use of Geographic Information Systems, unlike to traditional methods, for the identification of suitable areas for artificial reefs siting seems to offer a number of distinct advantages minimizing possible errors, time and cost.

A decision support tool (DSS) has been developed based on the existing knowledge, the multi-criteria decision analysis techniques and the GIS approach used in previous studies in order to help the stakeholders to identify the optimal locations for artificial reefs deployment on the basis of the physical, biological, oceanographic and socio-economic features of the sites. The tool provides to the users the ability to produce a final report with the results and suitability maps. The ArcGIS ARSS support tool runs within the existing ArcMap 10.2.x environment and for the development the VB .NET high level programming language has been used along with ArcObjects 10.2.x. Two local-scale case studies were conducted in order to test the application of the tool focusing on artificial reef siting. The results obtained from the case studies have shown that the tool can be successfully integrated within the site selection process in order to select objectively the optimal site for artificial reefs deployment.