

IMPLEMENTING AN INTEGRATED MULTIMETHODOLOGICAL APPROACH TO ASSESS MARINE NATURAL CAPITAL AND ECOSYSTEM SERVICES: A CASE STUDY IN THE MEDITERRANEAN SEA

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Marine and coastal ecosystems are recognized among the most productive ecosystems in the world. In the Mediterranean Sea, the Strait of Sicily has been recognized internationally as an "Ecologically or Biologically Significant Area" able to provide multiple benefits, supporting human life at different scales. Nevertheless, the Strait of Sicily is one of the most threatened areas in the Mediterranean basin. Anthropogenic pressures are degrading its natural capital and ability to provide ecosystem services, negatively affecting human well-being. In this context, the study and conservation of marine ecosystems in the Strait of Sicily represents an urgent need. Although several studies on the Strait of Sicily have been conducted over time, there is a knowledge gap on multimethodological approaches to comprehensively assess natural capital stocks and ecosystem service flows. The present study aimed to implement a multimethodological assessment framework combining environmental accounting methods and conventional ecological indicators. In particular, the eco- exergy method, coupled with the Shannon diversity index, was implemented to account for the complexity and organizational level of marine ecosystems in the Strait of Sicily, to find hotspot areas for conservation purpose. Approximately 58,000 records from the "International bottom trawl survey in the Mediterranean" (MEDITS) program were analyzed. In addition, the "System of Environmental-Economic Accounting Ecosystem Accounting" (SEEA-EA) framework was applied to assess a set of ecosystem services provided by the Strait of Sicily, in both biophysical and monetary terms. Results will be useful to policymakers in charge of developing strategies to achieve impelling conservation actions and sustainability goals.

KEYWORDS

NATURAL CAPITAL, ECOSYSTEM SERVICES, CONSERVATION, BIODIVERSITY, MEDITERRANEAN SEA