

Assessing the Ecological Status of the Moroccan Mediterranean Sea: An Ecopath Modeling Study

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Abstract : In order to understand the structure, functioning, and current state of the Moroccan Mediterranean Sea ecosystem, an Ecopath mass balance model was applied. The model was based on 31 functional groups, which included 21 fish species, 7 invertebrates, 2 primary producers, and one detritus group. The trophic interactions between these groups were analyzed, and the system's average trophic transfer efficiency was found to be 23%. The total primary production and total respiration were calculated to be greater than 1, indicating that the system produces more energy than it respire. The ecosystem was found to have a high level of respiration and consumption flows, and indicators of stability and development showed low values for the Finn cycle index (13.97), system omnivory index (0.18), and average Finn path length (3.09), indicating that the ecosystem is disturbed and has a linear rather than web-like trophic structure. Keystone species were identified using the keystone index and mixed trophic impact analysis, with other demersal invertebrates, zooplankton, and cephalopods found to have a significant impact on other groups.

Keywords : ecopath, food web, trophic flux, moroccan mediterranean sea

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