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Trends in fish biomass off Northwest Africa, 1950-1999

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Abstract

We estimate the biomass of demersal and large pelagic fishes (i.e., excluding small pelagics such as 'sardinella') off Northwest Africa at a spatial scale of _ degree latitude by _ degree longitude over the time period from 1950 to 1999, based on 20 spatialized, ecosystem models covering different periods. These data were used to derive a multiple-regression model that describes the abundance of fishes as a function of year, primary production, depth, upwelling intensity and catch composition. We then used this model to predict the spatial abundance for all Northwest African spatial cells for each year from 1950 to 1999. The results indicate that the biomass of fishes other than small pelagics has declined to less than a quarter of its 1950 level. Catches, which had increased from less than 100 000 tons in the early 1950s to 2 million tons in the mid 1970s, have then stagnated in spite of a tremendous, and still ongoing, increase in fishing pressure. Consequently, fish biomass has declined during the period studied and now stands at less than a quarter of the value it had in the early 1950s. Our results raise serious concern for the future fish supply of Northwest African countries and suggests a strong need to reduce the operation of distant water fleets of West Africa.

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