

Size Spectra Analysis of Demersal Fish Communities in Northwest Africa.

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Abstract

The present study is a contribution to ongoing research on size spectra analysis in a tropical setting, taking advantage of numerous surveys that have been undertaken in the north-western African region. Data on numbers and weights of fish caught during trawl surveys available for Cape Verde, Gambia, Guinea, Guinea-Bissau, and Senegal were compiled and standardized in order to construct size spectra slopes and intercepts. However, as length frequency measurements are lacking or partial in many of the surveys, the isometric growth model was used to construct size spectra for the complete data in order to compare across strata. For statistical analysis, stratification was undertaken to take into account the effect of factors such as area, depth, and time. Vessel and gear effects make it difficult to compare between countries, but the effects of depth and time were generally significant on different data subsets. Results indicate a decreasing trend in abundance over time, particularly for the longer time series available in countries such as Guinea and Senegal. However, the effect of time on the slope of the size spectra was not significant, indicating that this method may not be suitable to determine the effects of fishing in tropical regions. The curves of the size spectra were generally parallel with a common slope and not as would be expected, a decreasing slope with increasing fishing intensity.