

Introduction to the model of the Guinea-Bissau Continental Shelf Ecosystem and an exercise on simulating the effects of fishing.

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Abstract

The model for the Guinea-Bissau continental shelf and adjacent areas is presented, aiming to provide an important tool for the understanding of ecosystem dynamics and the effects of fishing in a multi-species context. The model refers to the period between 1990 and 1993, covering an area of 40816 km² and a total of 31 ecological groups, and includes major improvements on the first “preliminary” model such as the incorporation of reliable estimates on artisanal catches and biomass estimates for benthos groups, leading to a better definition of lower trophic levels.

An exercise on simulating the effects of fishing was undertaken with Ecosim, based on a possible scenario of fishing situation in Guinea-Bissau during the last decade. We assume a gradual increase in fishing effort from 1993 until 1998, where fishing decreased as a result of the Civil War, and a recent recovery to previous levels of fishing up until 2000. This simulation exercise indicates that the artisanal fisheries have a strong impact, particularly on shallow water species as mullets. Finally, the present study is a first attempt to address spatial structure of the model, using Ecospace, considering the distribution of groups and fishing activity along a depth gradient.