

Modeling of the impact of fishing on the temporal evolution of the fish communities of West Africa by the multivariate methods of analyses under constraints.

Authors D. Jouffre, G. Domalain, S. Traoré, D. Thiam; F. Domain, C. Inejih

Abstract: The faunistic composition revealed at the time of scientific trawling campaigns in West Africa is analyzed by means of factorial methods on variables instrumental (ACPvi type or Analyzes canonical correspondence). The introduction of an instrumental variable of type "activity of fishing" allows a modeling of the impact of fishing on the structure of the fish communities. Within total faunistic variability, the model separates (and quantifies) the share explained from that not explained by this factor fishes (the not explained share = that due to other structuring factors + alea). The factorial analysis of first share (explained by fishing) makes it possible to classify the species compared to their sensitivity to this factor. By way of illustration, the majority of the target species appear to have a negative sensitivity (rarefaction and decrease of their abundance with the intensification of fishing), whereas the octopus presents a diagram overall reverses (positive sensitivity to fishing: or increase in the occurrence and relative abundance over the period considered). These differences in behavior reinforce and specify the interest of the taking into account of the interspecific relations in the impact study of fishing on the resource.