

Modelling and management options in a context of increase fishing effort and efficiency: Case of *Ethmalosa fimbriata* in Southern Senegal

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Abstract

The bonga shad (*Ethmalosa fimbriata*) is the third exploited of the small pelagics (after *Sardinella aurita* and *S. maderensis*) in the Senegalese waters and is commonly consumed locally. This fishery is mainly practiced by artisanal fishermen and is of great importance for the Senegalese economy as for food security in the region. Our investigations are aimed to inform the selection of management tools based on the dynamics of bonga shad exploitation to increase the likelihood of fishermen. The current rate of exploitation (E) was estimated (0.8), updating current statute (fully exploited) and indicating that the bonga shad in Senegal is over-fished. Moreover, we report a seasonal variability in recruitment and biomass of the Senegalese bonga shad, and a downward trend over the study period as well as a maximum size decrease of - 8.8 cm (18 %) in 63 years. Such changes are attributed to increase in fishing capacity. To reverse the overexploitation status of the bonga shad stock, it is necessary to put the mesh of encircling nets from 40mm to 60 mm, to reduce the fishing effort drastically, apply regulations on the capture, sale and processing of juveniles and exclusion of seiners and monofilaments on the Senegalese Southern Coast.

Keywords: Fisheries, rate of exploitation, overfishing, small scale fisheries, West Africa.



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