

Mixed demersal/deep-water hook and line small scale fishery from the Azores

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Summary

Mixed demersal/deep-water fishery from the Azores is a complex multifleet, multigear, multiarea and multispecies small scale fishery. Different vessels types using different hook and line gear configurations, operating in different discrete fishing areas (islands coasts/seamounts), targeting different species assemblages structured by depth and landing on average eight different commercial species by trip are the main fishery characteristics. The usual conflicts between large and small scale are observed at three dimension: a) Local level between regional fleets; b) Local level between regional and European Union fleets; c) International level through impacts on shared stocks. A spatial management zoning by vessel and gear type is in place on the Azores resulting in practice with longliners operating on the seamounts and hand lines in all area, mainly on the island coasts. In this study we resume the distribution of the species by depth and allocate the fisheries to species assemblage according the regional regulations in order to discuss fisheries management option in the context of the technological multispecies fishing on the discrete seamount ecosystem of the Azores.

Introduction

The ecosystem of the Azores has been defined as oceanic characterized by abundant abyssal area (average depth of 3000m) by a narrow or absent coastal platform and punctuated by some banks and seamounts (Pinho & Menezes, 2006). The dynamic of the resources and the interaction between the different habitats (islands, banks and seamounts) are poorly known. The resources are considered intensively exploited although results of the stock assessments are considered uncertain (Pinho et al, 2014). This poster is an attempt to describe this fishery and discuss management aspects related to space.

Material and methods

Spring bottom longline survey data, by year, depth and species from 1995-2013 was used. Details on the survey design can be found in ICES (2010). An index of abundance in weight, weight by the depth strata size was computed by year and species. An average index of abundance was computed for the study period and a proportion of abundance by depth estimated and mapped by species. Assemblage by depth were defined as: Shelf <200m; 200<Slop<700m and Deep>700m. This classification follows the regional legislation for licencing the demersal/deep-water fishery. Species were then allocated by assemblages according the mode of distribution of abundance. The species occurrence was classified as: Dominant (D); Frequent (F); Common (C) and Rare (R) by defining thresholds on the proportion of the abundance. The species classified as rare were eliminated from the study. Spatial fishing areas of operation by gear and vessel type, as described by the local legislation, were map.

Results and discussion

About 38 species among 141 caught with the bottom longline gear were considered as commercial important (Fig. 1). Most of the species are found on shelf (41%) and slope (39%) assemblages. Only 20% of the species were selected on deep-water assemblage because the gear is not design for most of this species. Assemblages are well mapped (Black areas on Fig. 1) but the interactions between them are high (grey areas on Fig.1). Dominant species are mainly found on slope and deep-water species covering almost all the strata. *Pagellus bogaraveo* is the main target

species common to all components of this fishery. In practice two boxes were created around the islands, to protect small-scale fisheries (one and six nautical miles boxes) from which longline gears are forbidden. However, technological interactions occurs at regional level between fleets/métiers (gears, areas and resources). Some interactions are also observed with pelagic longline fisheries competing for the same spatial areas. Interaction between regional and international fleets, sharing the same resources, also occur due to the spatial connectivity of the deep-water species. The resources are overexploited due to concentration of fishing effort on patches areas. How can we sustainably manage the different trade-offs?

References

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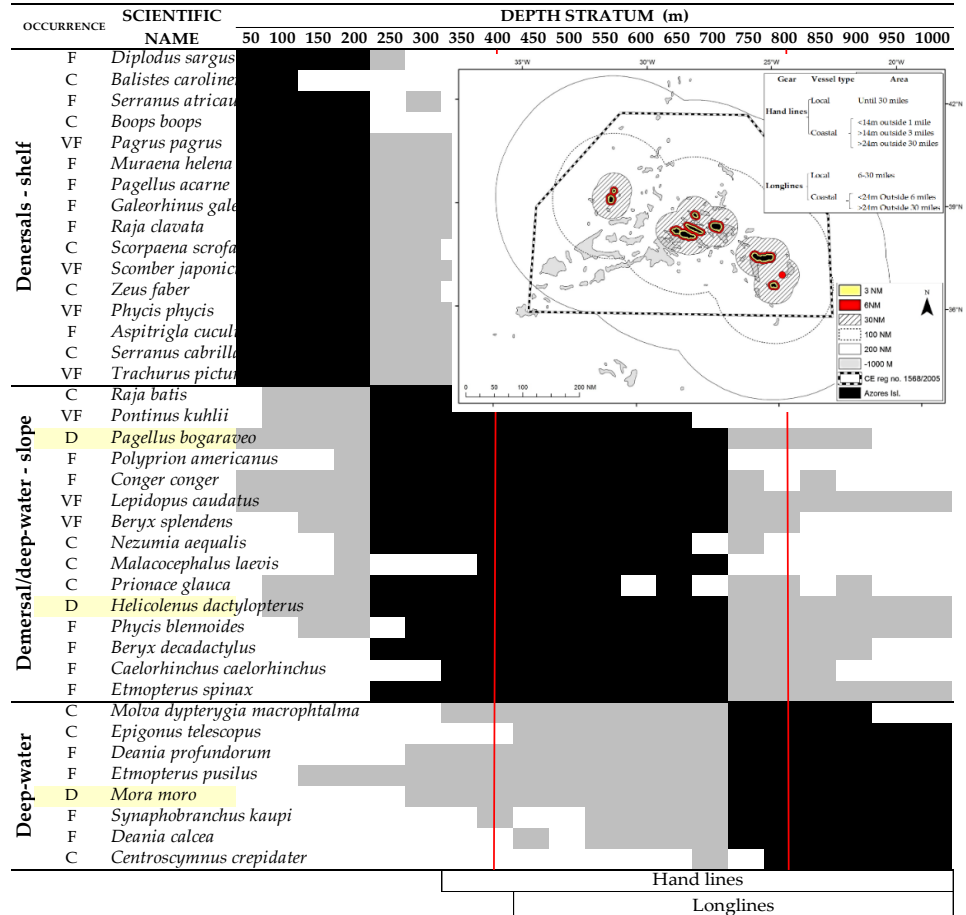


Figure 1. Demersal/deep-water assemblages by species and depth. On the graph are also shown the operational area by métiers (assemblages, gear type and vessel type).