# Review of: "Reef Fish in the Vitória-Trindade Seamount Chain of the Southwestern Atlantic: Biogeographical Corridors and Impact of Fishing"

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Potential competing interests: No potential competing interests to declare.

**Introduction:** The study is based on the fact that fish populations along the Brazilian Atlantic coasts have been studied punctually, mainly through visual census underwater. Consequently, the fish fauna below 30m depth is largely unknown. The idea of this study is to exploit the data derived from the REVIZEE project, conducted from 1995 to 2005, which aimed to investigate the potential sustainability of fishing along the EEZ of the central coastal region of Brazil through the use of longlines. The project focused on information collected within the bathymetry of 50 m and highlighted the impossibility for local fish populations (indeed, only a few species were investigated) to support further exploitation. Since the longlines used during REVIZEE were positioned from 50 to 500 m, researchers thought to exploit the possibility of using biological information to know the specific composition, abundance, and spatial distribution of the deepest bottom species.

**Study Objectives:** The study aims to define the spatial distribution of large-sized fish species; analyze their distribution from a biogeographical point of view; discuss possible dispersion gradients; estimate the impact of fishing on communities in different areas through the analysis of average sizes and weights.

I believe that the study objectives, declared in the introduction phase, have been achieved.

**Materials and Methods:** I believe that Figure 1 needs improvement, as the various bathymetries are not easily identifiable; for example, the dashed line of 500m is not clear.

**Study Area:** The area is well defined and characterized, including the type of fishing practiced.

**Data Collection:** The definition of the campaigns and how the campaign that does not overlap with the other three is placed in the subsequent processing is a bit convoluted. The seasonality variable on distribution patterns was not investigated because it is argued that species, especially demersal ones, do not migrate. Although I am not familiar with the biology of South Atlantic species, several Mediterranean demersal species make movements related to reproduction, and the weight variable can be very dependent on the time of year on the same individual, so I would try to investigate this aspect. The bottom longline fishing technique, with 32mm hooks, is indeed very selective as a system. Wasn't it supposed to be a multispecific study?

**Results:** Biogeographical distribution patterns have highlighted that the species were more than 80% tropical and 52% western. DCA distinguished three groups, each separated by the two underwater mountain ranges: north, south, and

offshore groups. The same was also indicated by the cluster analysis. The LFD of all species, but carried out for each of the fishing groups identified in the DCA, highlighted higher size modes in the north (perhaps because less affected by fishing), a very pronounced low mode at 30 cm for offshore populations (highly affected), and a single mode at 50 cm in the south. Although the idea of using sizes without considering species information, I find it very useful to give a general idea of local biomass, I believe that the selectivity factor derived from the tool used should be very well considered.

At the end of the work, I would declare that this can be a database on which to base further studies in order to establish regulatory measures for fishery management and for the implementation of recovery and conservation strategies for underwater mountains, such as the establishment of two marine protected areas.