

Assessment of the Impact of Trawling Activities on Marine Bottoms of Moroccan Atlantic

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Abstract : Since the early 70s, the Moroccan Atlantic sea was subjected to the pressure of the bottom trawling, one of the most destructive techniques seabed that cause havoc on fishing catch, nonselective, and responsible for more than half of all releases of fish around the world. The present paper aims to map and assess the impact of the activity of the bottom trawling of the Moroccan Atlantic coast. For this purpose, a dataset of thirty years, between 1962 and 1999, from foreign fishing vessels using bottom trawling, has been used and integrated in a GIS. To estimate the extent and the importance of the geographical distribution of the trawling effort, the Moroccan Atlantic area was divided into a grid of cells of 25 km² (5x5 km). This grid was joined to the effort trawling data, creating a new entity with a table containing spatial overlay grid with the polygon of swept surfaces. This mapping model allowed to quantify the used fishing effort versus time and to generate the trace indicative of trawling efforts on the seabed. Indeed, for a given year, a grid cell may have a swept area equal to 0 (never been touched by the trawl) or 25 km² (the trawled area is similar to the cell size) or may be 100 km² indicating that for this year, the scanned surface is four times the cell area. The results show that the total cumulative sum of trawled area is approximately 28,738,326 km², scattered throughout the Atlantic coast. 95% of the overall trawling effort is located in the southern zone, between 29°N and 20°30'N. Nearly 5% of the trawling effort is located in the northern coastal region, north of 33°N. The center area between 33°N and 29°N is the least swept by Russian commercial vessels because in this region the majority of the area is rocky, and non trawlable.

Keywords : GIS, Moroccan Atlantic Ocean, seabed, trawling

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