Analyzing the market position of fish species subject to the impact of long-term changes: a case study of French fisheries in the Bay of Biscay

Market position and its evolution were analysed in nine key fish and cephalopod species subject to long-term changes, using the Bay of Biscay fisheries as a case study. Although such long term changes have already been documented, and in some cases shown to be related to the impacts of fishing, changes in the physical environment, or both, relatively little work has been devoted to their potential consequences in economic terms. The nature and extent of these consequences was determined in the present study by looking at the composition of the affected fish production, and the status of different fish products on the markets. We propose a methodology to characterize market position for this set of nine species. The selected species represent a significant part of the gross turnover of French fishing fleets operating in the bay. These species were characterized in terms of their potential sensitivity to fishing and changes in environmental conditions due to global warming. We separated species potentially positively (Engraulis encrasicolus and Lophius budegassa) and negatively affected (Pollachius pollachius and Lophius piscatorius) by warming. Evolution of the value of production of the nine species was then depicted using analysis of macro-economic index (production and potential consumption) and price indices. This revealed the relatively high sensitivity of domestic production to the market crisis that occurred in France in the early 1990s, compared to imported and exported products. The relative position of individual species, with respect to the market and its evolution between 1990 and 2005, was analyzed by multi-factorial analysis. Results derived from the analysis clearly distinguish two groups of species, the first characterized by higher prices (monkfish, Nephrops, sole, seabass) and the second by larger volumes available on the French market (pollack, hake, anchovy, sardine, cuttlefish). We conclude that a major part (69 to 87%) of the gross turnover associated with catches of these fish species in the Bay of Biscay remains potentially unaffected by long-term changes related to climate.

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