

PRELIMINARY RESULTS ON THE EFFECTS OF MOBILE FISHING GEAR ON BENTIC HABITAT OFF THE CATALAN COAST

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The fishing activity in the Catalan coast uses a variety of mobile gear types. The most common are bottom trawl and dredge. The impact of these harvesting methods may have on fishing stocks and the habitat supporting them is still to be determined. The main objectives of this study are: a) to analyze and compare the effects of the disturbance of these two gears on the benthonic macrofauna, in terms of abundance (n° species caught per taxonomic group, in percentage) and of biomass (Kg* h^{-1}), and b) an initial assessment of the survival rates alteration of the animals caught. The data analyzed were collected in two Catalan ports : Sant Carles and Vilanova.

Impact on the benthonic macrofauna. The impact of the bottom trawl on the four main exploited groups, shows slight differences between the results obtained in terms of abundance and those obtained on biomass (Fig.1). The impact of the dredge on the same four taxonomic groups presents very marked differences between abundance and biomass.

The results indicate that, while the two gear types catch virtually the same groups of species, the importance of each of them in the total catch differs as a function of the gear considered. This difference between the two gear types is even sharper if we compare the biomass results. In the case of the bottom trawl, fish represent the largest group in both the number of individuals and in biomass. In spite of being one of the targets of bottom trawl fishery, not all of the fish caught are marketed. Part of catch is discarded. The largest group in the dredge landings, particularly where the biomass is concerned, are the molluscs. Of this group, there is a high percentage of the two target species : *Bolinus brandaris*, representing 20.7% of the total catch, and *Chamelea gallina* with 37.16%. The remainder of the catch consists mainly of non-commercial species, which are also discarded.

Surviving the net. The survival rate of the organisms discarded show a wide intra-specific variation. Assessing the by-catch groups of the hauls of dredge by port, in Sant Carles the most strongly affected are the echinoderms (Fig.2). Of these, the flexible types, such as holothuroids, asteroids and ophiuroids show a net survival rate of practically 90-100%. The sea urchins which are easily smashed and exposed them to predation, has the highest mortality. In Vilanova, the sessile organisms, such as posidonia, are the most disturbed by catch group, in that none of them survive. In biomass, their catch is 11-12 kg/h, the highest value in the entire haul. The tunicates, which are also flexible animals and the second most important group by weight, present a very high net survival rate. In general, the discarded fish caught with bottom trawl exhibit a minimum survival rate, for the majority of the fish are already dead when they reach deck of the boat. In contrast, the general discards of dredge show a very high survival rate, since the great majority are non-commercial molluscs, gastropods and bivalves. Practically all of them are still alive after they have been caught and put on the deck. There is little evidence of the effect of disturbance due to dredge on the commercial species, like in fish, which are currently exploited with bottom trawl. On the other hand, it was found that this type of gear can have a very negative effect on all the species caught which are not commercial, as is the case with the posidonia and the sea urchins. Furthermore, what must also be considered is the possible benefit that the organisms able to survive the discards may have gained from the effect of the disturbance of mobile gears in the long-term.

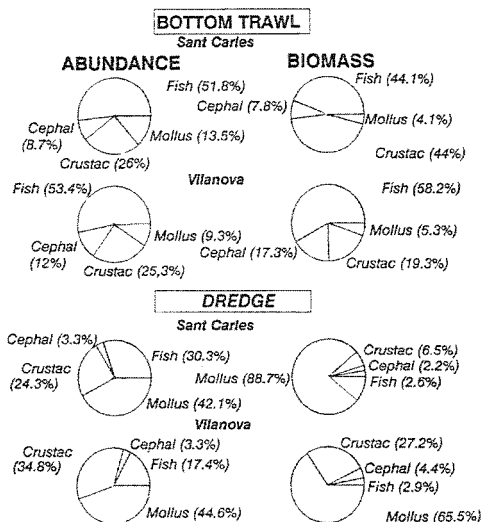


Fig. 1 : Catches (%) of main exploited groups

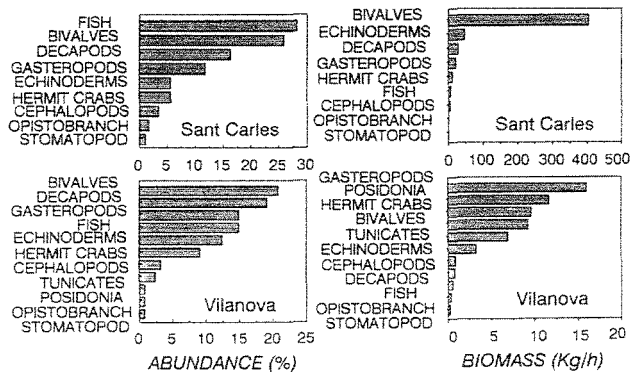


Fig. 2 : Organismes caught with dredge

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