

# THE SWORDFISH FISHING BY HARPOON IN THE STRAIT OF MESSINA

T. Romeo\*, S. Ancora<sup>1</sup>, A. Manganaro<sup>2</sup>, F. Andaloro<sup>3</sup> C. Fossi<sup>2</sup>

\*Istituto Sperimentale Talassografico (CNR), Messina, Italy - teresa.romeo@tiscalinet.it

<sup>1</sup> Dipartimento di Scienze Ambientali, Università di Siena, Italy

<sup>2</sup> Dipartimento di Biologia Animale ed Ecologia Marina, Università di Messina, Italy

<sup>3</sup> ICRAM, Istituto Centrale per la Ricerca Applicata al Mare, Roma, Italy

## Abstract

This study reports results on two years investigation (1999-2000) focused on a traditional Sicilian fishing : swordfish catching by harpoon. Census of fisheries, amounts caught of swordfish and the by-catch species were described. Only for one sample-boat were reported also data on weight, lower jaw fork length, and sex of samples caught. Results show a peak of catches in June and July and a higher percentage of female specimens. For the relatively poor impact of this fishing activity on resource and other characteristic, authors underline the need of a revaluation of harpoon fishing also as tourist-fishing activity.

*Keywords* : Strait of Messina, pelagic.

## Introduction

The sword-fish fishing (*Xiphias gladius* L., 1758) by harpoon has been practised in the Strait of Messina since many years ago (1). During the summer in the Calabrian and Sicilian coasts some particular fishing boats, called "motopasserelle" or "feluche" daily sail from early in the morning until the sunset for the sword-fish catching.

## Material and method

The investigation was carried on between 1999 and 2000, from April to August in the Strait of Messina and in the neighbouring areas (Aeolian islands, Ionic Calabria). The census of the boats has been made by considering the mean characteristics of length (m), horse power (hp), Gross Registered Tonnage (GRT) and year of building. The daily landings have been collected from the ground about all the fishing boats as well. For which concerns the sample-boat, the length (LFJL cm) and weight (Kg) measures have been divided according to their sex, that was determined through macroscopic observations. The mean daily landings, expressed in weight, have been worked out by taking in consideration the useful days. Besides, the effect of this kind of fishing on other species has been observed, during the two years of activity.

## Results and discussion

This two years investigation led to the conclusion that the swordfish catching by harpoon is practised in Sicily by 8 boats distributed in the fishery of Torre Faro (ME) and Ganzirri (ME), and by 5 boats in Calabria. Our investigation only refers to the Sicilian fishing boats with the following mean characteristics : length 16 (m), horse power 249 (Hp), GRT 12 (t), year of building 1969.

For the sample-boat, during the fishing season of 1999, 112 specimens were sampled, of which 45 males and 67 females; 101 specimen were sampled in 2000, of which 38 males and 63 females, that is to say a total of 213 specimen. The length of the specimen were included between 110 and 215 cm of LFJL, both for the males and females. The sex-ratio has shown the predominance of the females specimen, that represents the 61.03% of the total (tab.1). In particular this predominance concerns the classes of size up to 135 cm, as other authors stated (2,3). From the analysis of the catches worked out on all the boats, it has emerged that during 1999, the main catches were the ones of June and July, with values respectively of 6745 and 5879 Kg. The total catches of the whole season was of 16606 Kg. During the fishing season of 2000, the most catches were the ones of June and July, with a rise in the weight in comparison with the previous seasonal with values respectively of 8603 and 6646 Kg. The mean daily was worked out monthly and it registered the highest mean values in June and July, with values respectively of 34.9 and 32.6 kg for the season 1999 and of 41.3 and 36.3 Kg for the 2000 (tab.2). The analysis of the by-catch showed representative catches of pelagic species as Spear-fish (*Tetrapturus belone*), Bluefin tuna (*Thunnus thynnus thynnus*) and Dolphin-dish (*Coryphaena hippurus*). The spear-fish, the most representative, was mainly caught in August and has increased from 1999 to 2000; the other two species showed a decrease (tab. 3) .

Tab.1 – Number of species for sex at different length frequency

LFJL	105-135 cm	>135 cm	Total
Females	66	64	130
Males	65	18	83
% females	50,4	78.0	61.03

Tab.2 – Monthly, total and mean catches of swordfish fishing by harpoon during the years 1999-2000.

Months	N. boats		Days		(kg/d)		Total (kg)	
	1999	2000	1999	2000	1999	2000	1999	2000
April	0	1	0	6	0	30	0	180
May	7	7	82	119	38.1	25.8	3131	3075
June	8	8	193	208	34.9	41.3	6745	8603
July	8	8	180	183	32.6	36.3	5879	6646
August	8	8	112	109	7.59	12.7	851	1385
Total			567	625	29.3	31.8	16606	19889

Tab.3 – By-catch of swordfish fishing by harpoon.

Species	Total landing (Kg)	
	1999	2000
<i>T. belone</i>	1519	1911
<i>T. thynnus</i>	686	518
<i>C. hippurus</i>	74	45

Our investigation showed that this kind of fishing is highly selective, in fact it affects a group of adult specimen. It is practised only during the summer for this is the only period in which the favourable atmospheric conditions let the use of these particular fishing boats; it is based only on the sighters' and harpooners' skills, who take advantage of the habits of the swordfish, that often returns in pairs on the surface or jumps out the water. The selection of the specimen to catch is visually made according to the fishermen's experience and its effect on the resource can be considered less considerable in comparison to the other kinds of fishing; suffice it to think about the number of boats using drifting gill-net and long-line that, in the same period land huge quantities of fishes and, besides, work the whole year in the sicilian fishery (4-5). It would be interesting to maintain this traditional kind of fishing, that, by respecting the environment and the resource, could also be turned into an activity of touristic fishing and become an alternative source of profit in an island where many traditions have been abandoned for a long time.

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