AN OVERVIEW OF THE ACTIVITY OF THE SPANISH SURFACE LONGLINE FLEET CATCHING SWORDFISH (XIPHIAS GLADIUS) DURING THE YEAR 2002, WITH SPECIAL REFERENCE TO THE ATLANTIC OCEAN

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SUMMARY

This paper presents data on catches, nominal effort and nominal catch rates in 5x5 degree square formats of the activity of the Spanish surface longline fleet targeting swordfish (Xiphias gladius) carried out in 2002 in international waters of the Atlantic (including the Mediterranean), Indian and Pacific Oceans. Graphics and a descriptive summary are also provided. The nominal catch in round weight of swordfish taken in the Atlantic Ocean by surface longliners during 2002 was 9695 tons and 1347 tons in the Mediterranean. Nominal catches in the Indian and Pacific Oceans were 3502 and 5629 tons, respectively.

RÉSUMÉ

Le présent document fournit les données sur les captures, l’effort nominal et les taux de capture nominale dans un quadrillage de 5x5° de la flottille palangrière de surface espagnole ciblant l’espadon (Xiphias gladius) qui a opéré en 2002 dans les eaux internationales des océans Atlantique (Méditerranée comprise), Indien et Pacifique. Des graphiques et un résumé descriptif sont également fournis. En 2002, la prise nominale en poids vif de l’espadon capturé dans l’océan Atlantique par les palangriers de surface s’élevait à 9.695 t et 1.347 t dans la Méditerranée. Les prises nominales dans les océans Indien et Pacifique ont été de l’ordre de 3.502 t et 5.629 t, respectivement.

RESUMEN

En este documento se presentan los datos sobre capturas, esfuerzo nominal y tasas de captura nominal en formatos de cuadrículas de 5°x5º para la actividad de la flota de palangre de superficie española dirigida al pez espada (Xiphias gladius) durante 2002, en aguas internacionales de los oceans Atlántico (incluido el mar Mediterráneo), Índico y Pacífico. También se presentan gráficos y resúmenes descriptivos. La captura nominal en peso en vivo del pez espada realizada por los palangreros de superficie durante 2002 ascendió a 9.695 t, en el océano Atlántico, y a 1.347 t in el mar Mediterráneo. Las capturas nominales en los océanos Índico y Pacífico ascendieron a 3.502 y 5.629 t, respectivamente.

KEY WORDS

Swordfish, Longline, Spanish fleet, CPUE

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1. Introduction

Descriptive information is an important tool for the preliminary and correct interpretation of several parameters commonly used as indicators of these fisheries and in defining accurate models for assessment as well as for the biological interpretation of the data. This paper includes plots and general descriptions of the activity of the Spanish fleet during the year 2002 and updates the information provided in earlier documents.

Scientific statistical information on the activity of the commercial Spanish longline fleet is routinely reported to different Regional Fisheries Bodies (such as ICCAT, IOTC, IATTC) for different scientific purposes within these multilateral organizations.

2. Material and methods

The data bases from the year 2002 have been plotted and reflect, above all, the activity of the Spanish surface longline fleet catching swordfish in the Atlantic areas and Mediterranean Sea. However, additional information from the Indian and Pacific Oceans was also plotted to provide a broader overview. These data bases include information by 5x5 degree squares about catches, nominal effort (thousands of hooks), nominal CPUEs in number of fish and weight (kg round weight) per thousand hooks and size data, representing the complete activity of this fleet for scientific purposes, generally reported as ICCAT task 2 data.

The nominal CPUE in weight by quarter (Q) is also included (Q1: January, February, March; Q2: April, May, June; Q3: July, August, September; Q4: October, November, December). The nominal CPUE in number by size category (CAT) was plotted defining three size groups. Size CAT 1: sizes LJ-FL <= 120 cm., Size CAT 2: sizes 125 cm<= LJ-FL<=160 cm., Size CAT 3: sizes > 160 cm LJ-FL. Additional information on methodological bases can be found in previous papers (MEJUTO et al. 1997, 1998, 1999, 2000, 2001, 2003, 2004).

3. Results

Figure 1 shows plots of landings in number of fishes and in kg of round weight, as well as nominal effort in thousands of hooks set by the fleet during the year 2002. The data from the Atlantic areas continues to suggest a certain continuity in the resource among most of the fishing areas, as described a number of years ago (FARBER 1988), suggesting difficulties in defining stock boundaries from the general fishery descriptions. However, a finer scale description could help achieve this aim.

A total number of 70,236 fishes were individually size-sampled in the Atlantic Ocean, 25,978 in the Mediterranean Sea, 28,126 in the Indian Ocean and 19,044 in the Pacific Ocean, during the year 2002. Some information on the activity carried out in the Indian and Pacific Oceans was also included in this document for general comparative and broader descriptive purposes.

Figure 2 shows plots of nominal CPUEs in number and round weight, respectively, obtained during 2002. The low nominal CPUE obtained in the NE Atlantic areas contrasts with the high catch rates occurring in a large number of squares of the SW Atlantic, as well as in most areas of the Indian and Pacific oceans. These differences might be affected by the disparity in abundance among areas but they also may be attributed to the change in the longline type used among areas. The preferential gear used by the Spanish surface longline fleet in the SW Atlantic, Indian and Pacific was the ‘American’ longline style gear, which shows a higher nominal CPUE when measured in relation to the number of hooks set (Mejuto & García-Cortés 2003), although this style was also introduced by a large number of boats in the North Atlantic in recent years. Additionally, the North and South Atlantic fleets are now targeting swordfish and large pelagic sharks (Mejuto & de la Serna 2000). So, the difference in targeting intensity on both species among areas-boats may lead to differences in the nominal CPUE of the swordfish observed.

The overall nominal CPUE in kg of round weight obtained by the Spanish swordfish fishery in the year 2002 by ocean was: 496.82 for the Atlantic as a whole (387.20 in the North and 617.15 in the South), 1010.53 for the Indian and 804.70 for the Pacific.

Figure 3 shows nominal CPUEs in weight (kg, round weight) by thousand hooks obtained by quarter in the year 2002. The highest CPUEs were obtained in the SW Atlantic areas for Q1 and Q2. The highest CPUE in weight was found in both the NW and SW Atlantic during Q3 and Q4.
The catch rates (CPUE) in number of fishes per size category are shown in Figure 4 for the year 2002. The values obtained by area for the three size categories defined were similar to those obtained in 2001, with the highest values in the NW Atlantic and Mediterranean Sea for CAT1. High values were also observed in both the North and South Atlantic for CAT2, with lower values in the Mediterranean areas. The highest values of CAT 3 were observed in South Atlantic areas. The values obtained for CAT2 and CAT3 were particularly high in the SW Atlantic. These differences in catch rates obtained for any of the size categories between the SE and SW Atlantic areas would be related to the different thermal conditions of the surface sea layers between both areas, as previously described, and also probably to the different fishing strategy applied by the Spanish fleet in terms of the target species in both regions.

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References


Figure 1. Number of swordfish landed (Panel A), swordfish landings in weight (kg of round weight) (Panel B) and nominal effort in thousands of hooks (Panel C) carried out by the Spanish surface longline fleet in the year 2002.
Figure 2. Nominal CPUE in number (A) and nominal CPUE in kg of round weight (B) of swordfish landed per thousand hooks set by the Spanish surface longline fleet in the year 2002.

Figure 3. Nominal CPUE in kg of round weight of swordfish landed by thousands of hooks set by the Spanish surface longline fleet by quarter (Q) of 2002 in the Atlantic Ocean.
Figure 4. Nominal CPUE in number of swordfish by size class (cm, LJFL): CAT1 < 125 cm; CAT2: 125-160 cm; CAT3 > 160 cm; during 2002 in the Atlantic Ocean.