

NATIONAL REPORT. 2007 UE-SPAIN

Instituto Español de Oceanografía – IEO

1. General Fisheries Statistics

Since the beginning of the tropical tuna, purse seine, Spanish fishery in 1984, data of catch and effort have been collected by a logbooks system created to get information on the fleet in the Indian Ocean. Sampling of sizes landed has been conducted under the control of experts of the Instituto Español de Oceanografía (IEO) and Spanish Fishing Agency in close collaboration with the Seychelles Fishing Authorities (SFA) and the IRD's scientist team. Since the beginning of the 90's a Spanish expert on fisheries has been permanently based in Mahe, Seychelles Islands, in order to monitor "in situ" this fishery.

The Spanish surface longline fishery targeting swordfish (*Xiphias gladius*) started its activity in the Indian Ocean in the mid-nineties. The basic data for the scientific monitoring of this fleet have been collected by logbooks and an observer program that provide detailed information on the activities of the fleet and biological information on the individual swordfish caught.

1.1. Purse seine fishery

1.1.1 Fishing vessels

Table 1 shows the carrying capacity (in tons) and number of boats by category of the Spanish purse seine fleet from 1984 to 2006, together with the number of supplies used in association with Spanish boats and the number of vessels fishing in association with supplies between 1984 - 2006. In 2006, 22 Spanish purse seiners fished in the area, same number that in 1996, and two more that the precedent year (2005).

1.1.2 Fishing effort

Table 2 show the nominal effort in fishing days and searching days. After the higher level of the last nineties, since 2000 the nominal effort has been reduced and remind stable but in 2006 the fishing effort reaching a high historical level: 6,462 fishing days and 5,180 searching days.

1.1.3 Catch

Table 3 shows the total yearly catches by species. The total catch in 2006 has reached 200,543 t (182,562 t in 2005), reaching the historical high catches. The catch by species was: yellowfin tuna, 70,924 t (77,519 t in 2005), skipjack 118,857 t (94,312 t in 2005) and 9,952 t for bigeye (10,290 t in 2005).

1.2. Longline fishery

1.2.1 Fishing vessels

Since five Spanish surface longline vessels began operating in the international waters of the Indian Ocean on the basis of the fishery prospecting cruises conducted in the West Indian Ocean in late 1993, one or two vessel continued fishing in the area (FAO51) until 1998. Since then the number of vessels fishing in the Indian Ocean have increased gradually to reach 24 units in 2004 and expanded the fishing area across the East Indian Ocean (FAO57). A total of 23 surface longline vessels were fishing in 2005, 10 of them in experimental activities. During 2006 a total of 28 vessels continuing operating in the Indian Ocean, 11 of them in experimental activities.

1.2.2 Fishing effort

The type of gear used was mostly the monofilament 'Florida style' fishing gear with slight variations.

Figure 1 shows the spatial distribution of the mean nominal effort in number of hooks carried out during 2005 in all of the oceans where the Spanish surface longline fleet was operating.

The surface longline fishery was originally carried out in waters to the West of 80°E at the start of the Spanish fleet's activity in the Indian Ocean. The fishing areas were later expanded to include zones in the South Central Indian Ocean and as far as 95°E. In the year 2003 during the course of a experimental fishery cruise the fishery zones extended across 110°E. Between the end of the year 2005 and April 2006, two new experimental surveys operated in the Indian Ocean, in the southeast areas reaching 42° South and in Central areas of the Indian Ocean (5°North-10°South / 60°-95°East).

1.2.3 Catch

The catch levels of swordfish taken by the Spanish surface longline fleet have increased gradually over the past few years. During the year 2005 the total catch of swordfish obtained was 5,079 t (round weight). In 2006, swordfish landings totalled 5,155 t (round weight), 438 t of them caught during experimental surveys and with an overall nominal yield per thousands hooks set of 787 kg round weight (figure 2)

2. Report on the implementation of recommendations of the Scientific Committee

All national research programs include as part of their objectives the main recommendations made by the Scientific Committee in research and statistics.

In particular, in 2004 a logbook system has been established for the supply vessels, in purse seiner fishery, in order to get detailed information on its activities and, in 2005, the collection of the logbook information has begun. In 2006 was presented preliminary information of this fleet.

3. National Research Programs currently in place

3.1. Purse seine

The European Union has initiated a Data Collection and Management Programme for the period 2002 – 2007. This programme is aimed at procuring information on catch, effort and biological parameters of all the fisheries undertaken in European waters and/or by fleets flying the flags of community countries. Within this programme, a number of trips were covered by observers on tuna purse-seiners, both in the Indian and Atlantic oceans, so as to obtain information about tuna discards and species associated with these fisheries, namely cetaceans, sharks, swordfish, and turtles. Although the observer programmes are national, that is, performed independently by each country, the programme project: definition of forms, selection criteria, training course content, trip planning, etc, has been carried out in a coordinated fashion between both European countries with a tropical purse-seine fleet (France and Spain), and through their corresponding research institutes (IRD, IEO and AZTI).

In 2006 the collection of purse seine fishery and size data have continued as well as the biological sampling program (sex ratio, maturity) in the Seychelles cannery started in 2003.

To estimate the by-catch associated with the purse seine fishery, a total of 7 trips have been covered by observers in the Indian Ocean in 2003, 9 trips in 2004, 12 in 2005, 13 in 2006 and 16 in 2007 until now.

3.2. Longline

The data to obtain tasks during 2006 continued to be gathered by means of surveys-samplings at the ports, through information provided by on-board scientific observers on long-distance vessels as well as other sources of voluntarily information. These combined sources of information are making possible –albeit with some technical difficulties– for us to carry out swordfish task II (catch, effort and size) in a 5°x 5°-month-type format of the fleet which will be made available to the IOTC. Information on different bycatch species is been obtained and processed. Updates of already reported bycatch levels will be scientifically reported in a multi annual scope.

A total of 32,888 swordfish specimens were size sampled, accounting for an overall coverage in size sampling of 30% of the total number of swordfish landed during 2006. The biological

sampling of the swordfish has continued to obtain size-sex variables by spatial-temporal stratum as well as other biological parameters.

Traditional opportunistic tagging is still being carried out tentatively on both swordfish and other associated species by the voluntary tagging done by the commercial fleet and by the scientific observers on board. During the year 2006 a total of 359 fish were tagged and released, 171 of them were swordfish specimens and 198 bycatch fishes –mainly sharks were tagged–. Two swordfish and two blue sharks were recaptured during 2006.

In November 2007 will begin a Pilot Action in a Spanish longliner in waters to the south of the two oceans, Atlantic and Indian, in their confluence area.

Also biological and fishing data, we will proceed to tagging with conventional and pop-up tags (10 in each ocean) on diverse species of tunas. The duration of the experience will be four months and the first results will be in the middle of 2008.

4. Any other relevant information

In 2007 nine documents have been presented to the different working parties, in those that diverse Spanish scientists participated:

Two papers were submitted to the Workshop on the Depredation in the Tuna Fisheries in the Indian Ocean (IOTC-2007-DWS-A1-12 and IOTC-2007-DWS-A1-13), two documents were submitted to the Working Group on Ecosystems and Bycatch (IOTC-2007-WPEB-04 and IOTC-2007-WPEB-05) and five papers were submitted to the Tropical Tunas Working Group (IOTC-2007-WPTT-05, IOTC-2007-WPTT-07, IOTC-2007-WPTT-08, IOTC-2007-WPTT-17, and IOTC-2007-WPTT-26).

Scientific statistical information on the activity of the commercial Spanish longline fleet is routinely reported to the different tuna RFOs (such as ICCAT, IOTC, IATTC and WCPFC) for different scientific purposes such as the correct interpretation of the indicators to define accurate models for assessment within these multilateral organizations.

Additionally, another paper with information about the Indian Ocean Spanish SWO fisheries, was presented to ICCAT: ICCAT-SCRS-2007-110. This paper includes plots and descriptive information of the activity of the Spanish surface longline fleet in different oceans during the year 2005, including Indian Ocean fishing areas.

Table 1. Number of Spanish Purse seiners by category, carrying capacity in tons, number of supplies used in association with Spanish boat 1984 - 2006.

Class	50-400	401-600	601-800	801-1200	1201-2000	>2000	total	C.Cap.	Supp	VAS*
1984	-	-	2	5	5	0	12	5343	-	-
1985	-	-	2	5	7	0	14	9142	-	-
1986	-	-	2	5	3	0	10	8793	-	-
1987	-	-	2	4	6	0	12	10504	-	-
1988	-	-	2	6	8	0	16	14361	-	-
1989	-	-	3	8	9	0	20	20050	-	-
1990	-	-	3	8	9	0	20	17908	-	-
1991	0	0	3	6	8	0	17	16568	-	-
1992	0	0	1	6	11	0	18	16711	-	-
1993	0	0	1	6	11	1	19	18953	-	-
1994	0	0	2	4	11	1	18	18779	-	-
1995	0	0	2	5	11	1	19	20908	-	-
1996	0	0	2	6	13	1	22	24090	-	-
1997	0	0	2	6	14	1	23	26128	-	-
1998	0	0	2	6	12	0	20	21243	-	-
1999	0	0	2	6	12	0	20	20260	6	7
2000	0	0	1	7	9	0	17	19473	7	9
2001	0	0	1	7	9	0	17	20479	5	5
2002	0	0	1	6	10	1	18	20490	8	9
2003	0	0	1	6	9	2	18	21007	8	9
2004	0	0	1	4	10	5	20	23832	15	-
2005	0	0	1	4	10	5	20	29052	13	-
2006	0	0	1	5	11	5	22	31224	13	-

Table 2. Nominal fishing effort in fishing days and searching days of the purse seine Spanish fleet (1984 – 2006).

YEAR	F.DAYS	S.DAYS
1984	1713	1432
1985	2846	2379
1986	2634	2161
1987	2938	2300
1988	3331	2613
1989	5164	4241
1990	5006	4205
1991	4325	3544
1992	4296	3591
1993	4565	3842
1994	4463	3771
1995	5221	4470
1996	5793	4925
1997	6407	5584
1998	5644	4888
1999	5224	4496
2000	4526	3825
2001	4940	4214
2002	4570	3889
2003	4468	3671
2004	4730	3891
2005	5808	4619
2006	6462	5180

Table 3. Spanish purse seiners total catch by species in the Indian Ocean, 1984-2006.

TOTAL CATCH BY SPECIES					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	11453	6393	759	197	18802
1985	18431	18643	1330	145	38549
1986	20030	19108	1845	0	40983
1987	26301	27936	4974	4	59215
1988	44948	39742	6810	65	91565
1989	41146	64003	5863	0	111012
1990	43728	47926	4867	145	96666
1991	44023	41790	6005	1066	92923
1992	37836	46694	3638	1461	89629
1993	47792	51272	5418	904	105385
1994	43128	61608	5924	1773	112433
1995	65143	69587	12233	561	147524
1996	59431	66276	11374	826	139134
1997	60977	62914	15897	1029	141025
1998	38565	58646	11245	269	108725
1999	51875	74285	16034	232	142426
2000	52070	77187	10769	410	140872
2001	47571	68346	7930	339	124389
2002	53205	91462	11096	217	156386
2003	78968	88035	8544	520	176200
2004	80810	64393	8634	76	154106
2005	77519	94312	10290	48	182562
2006	70924	118857	9952	438	200543

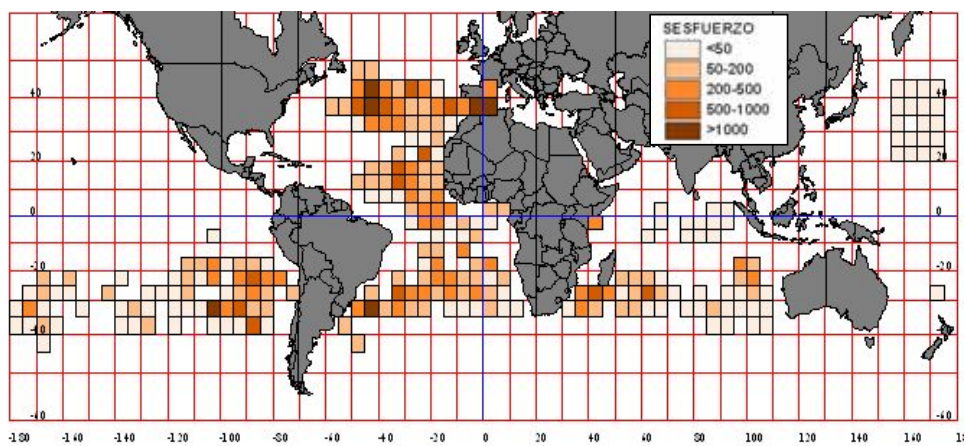


Figure 1. Nominal effort, in thousands of hooks, carried out by the Spanish surface longline fleet in the year 2005 (source ICCAT SCRS/2007/110).

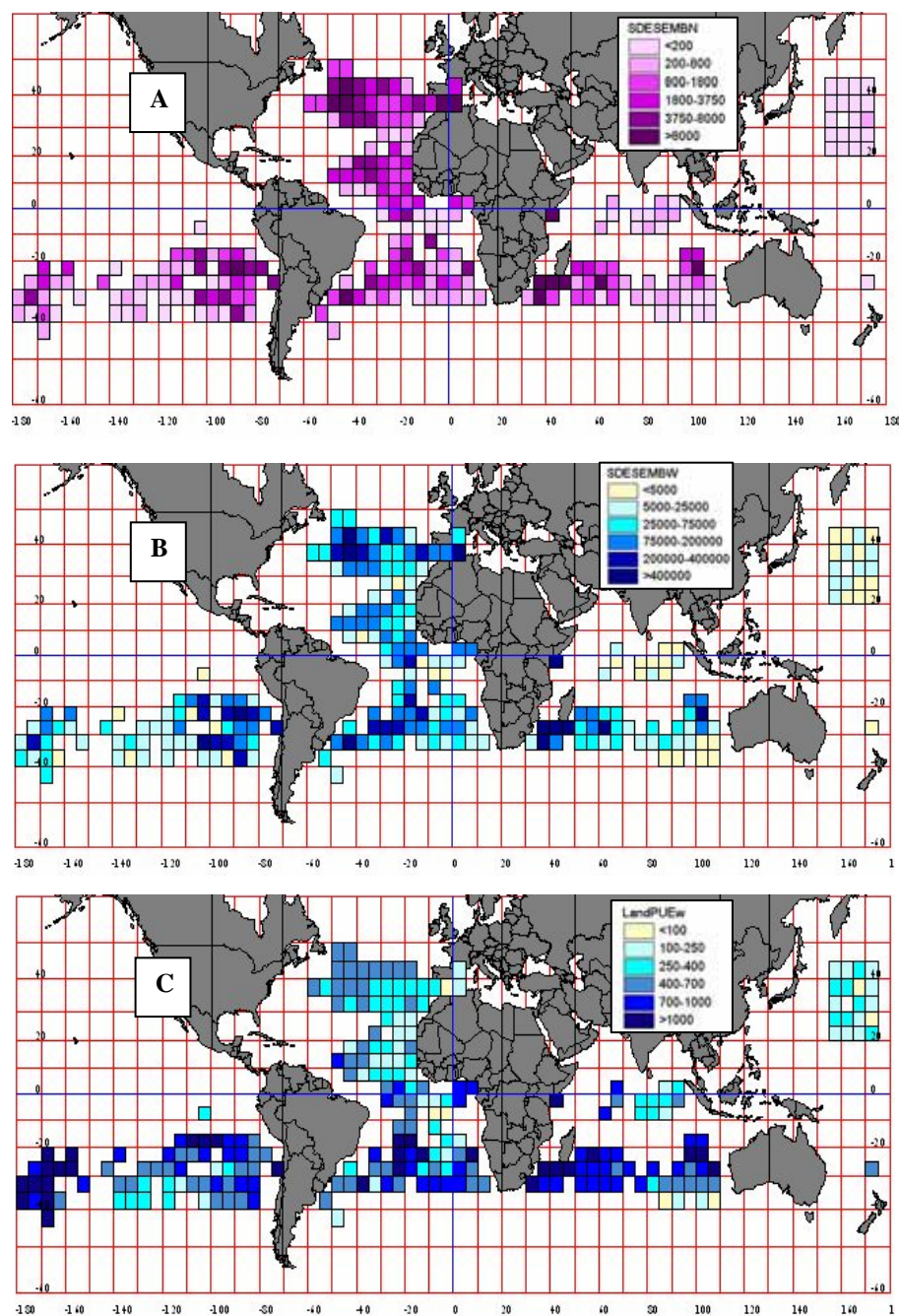


Figure 2. Number of swordfish landed (A), swordfish landings in kg of round weight (B) and nominal CPUE in kg of round weight of swordfish landed per thousand hooks set (C) by the Spanish surface longline fleet in the year 2005 (source ICCAT SCRS/2007/110).