NATIONAL REPORT. 2008 UE-SPAIN

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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 Oceanografia (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 2007, together with the number of supplies used in association with Spanish boats and the number of vessels fishing in association with supplies between 1984-2007. In 2007, 21 Spanish purse seiners fished in the area, one less than the precedent year (2006).

1.1.2 Fishing effort

Table 2 shows 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 reminded stable. In 2007 the fishing effort has been reduced with respect to the historic maximum level in 2006, around a 10% in fishing days and 8% in searching days. In 2007 the Spanish purse fleet realized 5,895 fishing days and 4,916 searching days.

1.1.3 Catch

Table 3 shows the total yearly catches by species. The total catch in 2007 has reached 112,848 t (200,543 t in 2006), decreasing a more than 13% with respect to 2006 catches. The catch by species was: yellowfin tuna, 37,763 t (70,924 t in 2006), skipjack 65,006 t (118,857 t in 2006) and 9,756 t for bigeye (9,952 t in 2006). Figure 1 and 2 shows the spatial distribution of the main purse seine fleet catches on log schools and on free swimming schools in 2007, respectively.

1.2. Longline fishery

1.2.1 Fishing vessels

Since 1993 the number of Spanish longline vessels fishing in the Indian Ocean have increased gradually from 5 to 23 units in 2005 and expanded the fishing area from the West (FAO51) across the East Indian Ocean (FAO57). A total of 28 surface longline vessels were fishing in 2006, 3 of them reaching 42ºS in one experimental survey, and others 7 vessels reaching 5ºN in the other experimental survey. During 2007 a total of 25 Spanish longline vessels continued operating in the Indian Ocean.

1.2.2 Fishing effort

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

Figure 3 shows the spatial distribution of the mean nominal effort in number of hooks carried out during 2006 in the Indian Ocean by the Spanish surface longline fleet.

The surface longline fleet is part of a group of vessels which operate far from base ports and which may not call at their home ports for as long as several years. These vessels have similar

structural and fishery characteristics and undertake extremely lengthy trips in terms of time at sea. They may even change oceans between trips when they are allowed to do so under their administrative situation.

1.2.3 Catch

During the year 2006 the total catch of swordfish obtained was 5,155 t (round weight), 438 t of them caught during experimental surveys, with an overall nominal yield per thousands hooks set of 781 kg round weight (Figure 4). In 2007, swordfish landings totalled 4,796 t (round weight), with an overall nominal yield of 795 kg round weight per thousands hooks set.

The catch of the all species classified as bycatch as a whole of this fishery has been reviewed since the beginning of this fishery in 1993 to 2003 and updated for the most recent period 2004-2006. The total bycatch accounted to 46.2% as average of the total weight landed and the large pelagic sharks were the most prevalent group as far as bycatch species are concerned. In the group of large pelagic sharks, *Prionace glauca and Isurus oxyrhinchus* are the two most prevalent bycatch species, reaching 84.4% and 12.0% of the landings of this group, respectively. During the year 2006 a total catch of 3,568 t and 498 t was obtained for blue shark and shortfin mako, respectively.

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 seine 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 2002–2008. 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 2007 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.

In 2008, there were presented for first time estimations of discards of the european purse seine fleet for tunas and bycatch (turtles, birds, sharks, etc) (IOTC-2008- WPEB-12). To estimate the by-catch associated with the purse seine fishery, since 2003 there have been trips covered by observers in the Indian Ocean (7, 9, 12, 13 and 19 from 2003 to 2007, respectively, and 12 in 2008 until now).

3.2. Longline

To obtain tasks data during 2007, the information systems and net sampling have continued by means of surveys, samplings at the ports, 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 5ºx 5º-month-type format of the fleet which was already submitted to the IOTC. Information and updates on different annual bycatch for high amount of taxonomic levels has been obtained and reported. Nevertheless due to the low coverage of these bycatch species is not possible to apply the raising and substitution procedures to obtain task II in a 5ºx5º squares.

A total of 14.616 swordfish specimens were size sampled during 2007. 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 2007 a total of 31 pelagic fish were tagged and released, 12 of them were swordfish specimens and 19 bycatch fishes, without any recapture so far.

In 2008 two pilot actions of experimental fishes have been carried out in the Indian Ocean on vessels with Spanish flag.

The first one (17/11/2007 to 15/03/2008) was realized by one vessel in the confluence of the Atlantic and Indian oceans (25ºS-35ºS and 30ºE-50ºE). Abundant biological information was obtained and 57 tunas were tagged with conventional tags and 6 with pop-up tags during the pilot action.

The second pilot action (01/07/2008 to 31/10/2008) was developed by two vessels in different areas (0º-20ºS and 50ºE-60ºE the first one; 20ºS-30ºS and 35ºE-65ºE the second one). Experiences of fishes on tropical tunas together with an opportunistic tagging of 30 tunas with conventional tags were carried out during this pilot action.

4. Any other relevant information

In 2008 twelve documents have been presented to the different working parties, in those that diverse Spanish scientists participated:

One paper was submitted to the *Working party on tagging Data Analysis* (IOTC-2008-WPTDA-09), two papers were submitted the *Working Party of Billfish* (IOTC-2008-WPB-05, IOTC-2008-WPB-06), three papers were submitted to the Working Group on Ecosystems and Bycatch (IOTC-2008-WPEB-03, IOTC-2008- WPEB-08, IOTC-2008- WPEB-12) and six papers were submitted to the Tropical Tunas Working Group (IOTC-2008-WPTT-05, IOTC-2008-WPTT-07, IOTC-2008-WPTT-18, IOTC-2008-WPTT-24, IOTC-2008-WPTT-26 and IOTC-2008-WPTT-INF02).

Scientific statistical information on the activity of the commercial Spanish purse seine and longline fleets 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.

Table 1. Number of Spanish Purse seiners by category, carrying capacity in tons, number of supplies used in association with Spanish boat 1984 - 2007.

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	-
2007	0	0	1	4	11	5	21	29438	13	-

*Vessel associated with supply

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
2007	5895	4916

Table 2. Nominal fishing effort in fishing days and searching days of the purse seine Spanish fleet (1984–2007).

Table 3. Spanish purse seiners total catch by species in the Indian Ocean, 1984-2007.

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
2007	37763	65006	9756	246	112848

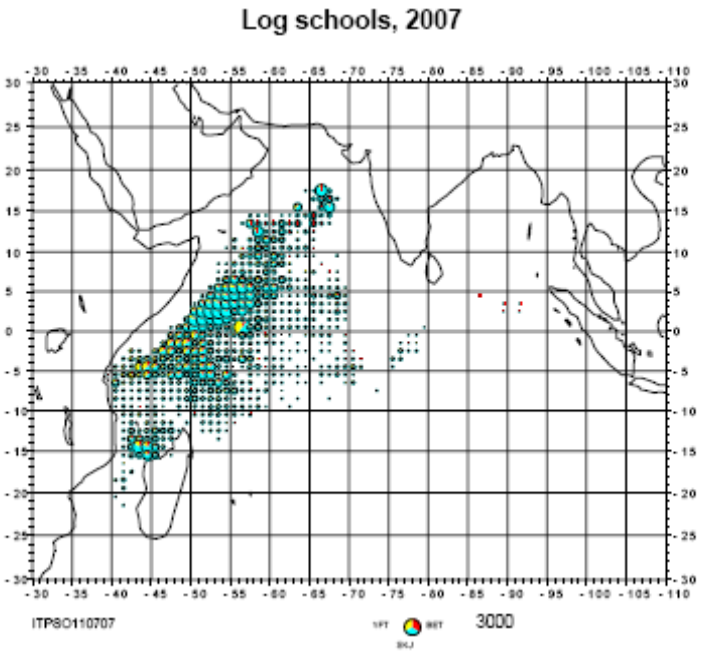

Figure 1: Spatial distribution of the main purse seine fleet catches on log schools in 2007.

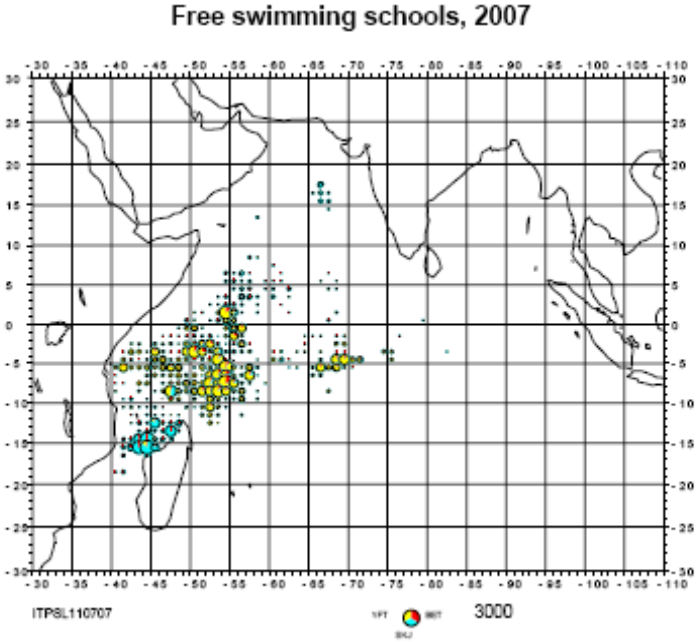

Figure 2: Spatial distribution of the main purse seine fleet catches on free swimming schools in 2007.

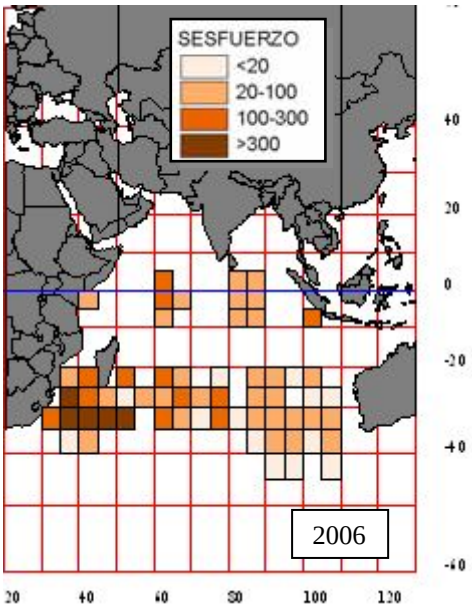

Figure 3. Nominal effort, in thousands of hooks, carried out by the Spanish surface longline fleet in the year 2006 (source IOTC-2008-WPB-05).

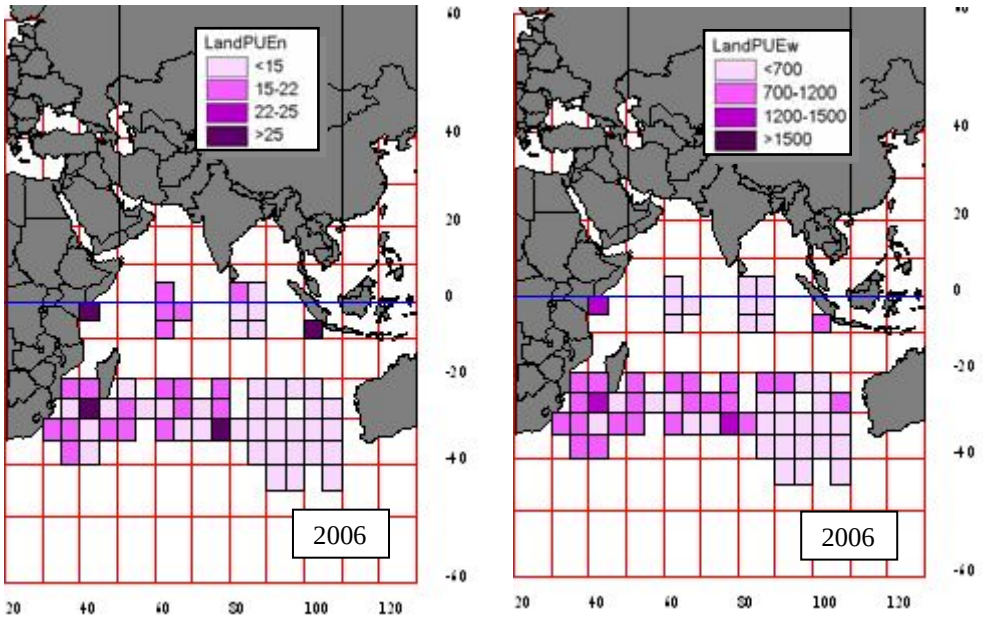

Figure 4. Nominal CPUEn in number and CPUEw in kg of round weight of swordfish landed per thousand hooks set by the Spanish surface longline fleet in the year 2006 (source IOTC-2008-WPB-05).