

EC-SPAIN - NATIONAL REPORT 2002

1 - GENERAL STATISTICS

Two fleets are operating in the Indian Ocean: the purse seine fleet targeting tropical tuna (yellowfin, skipjack and bigeye) and the longline fleet targeting swordfish.

1.1-PURSE SEINE FLEET

Document WPTT-02-04 presented to the last meeting of the Working Party on Tropical Tuna (Shanghai, June 2002) included detailed information on this fishery.

a. Effort and fleet structure

Table 1 shows the composition of the Spanish PS fleet by size category for the period 1997-2001. The number of boats in 1997 (23) corresponds to the maximum of the historical period (1984-2001), since that year the fleet decreased to 17 boats in the last two years.

By category most of the boats are between 800 and 2 000 t. Small categories are poorly represented.

Table 1: Number of boats by carrying capacity category

Year	50-400	401-600	601-800	801-1 200	1 201-2 000	> 2 000	Total
1997	0	0	2	6	14	1	23
1998	0	0	2	6	12	0	20
1999	0	0	2	6	12	0	20
2000	0	0	1	7	9	0	17
2001	0	0	1	7	8	1	17

In 2001 a supply vessel (Spanish flagged) operated in the Indian Ocean, nevertheless the number of Spanish purse seiners working with supplies was 5 in 2001.

Table 2 shows the nominal effort as well as the number of sets by fishing mode. Nominal fishing effort seems to be stable since 1999 after the high 1997 value. Number of sets on FADs decreased since 1997. In 2001 the number of sets on free school increased to reach the higher value of the last five years.

Table 2: Nominal effort (carrying capacity, fishing days and searching days) and number of sets by fishing mode.

Year	Nominal effort			Number of sets		
	Carrying capacity	Fishing days	Searching days	FADs	Free School	Total
1997	26 128	6 407	5 584	3 004	1 588	4 592
1998	21 243	5 644	4 888	2 651	1 688	4 339
1999	20 260	5 224	4 496	2 363	1 677	4 040
2000	19 473	4 526	3 825	2 331	1 525	3 856
2001	20 479	4 940	4 214	2 088	1 962	4 050

b. Catch by species and fishing mode

Catch and effort data are collected through a logbook system. The species composition of the catch is estimated mainly from sampling to avoid the bias detected in the catch by species reported in the logbooks. The method used to correct the species composition is that defined by the ET (Analysis of the tropical tunas multi-species sampling scheme, 1995-1997) IRD-IEO coordinated research program (1996-1997) targeting the analysis and improvement of the tropical tuna sampling schemes. The method includes time-area strata as well as fishing mode (FADs-free school) and weight categories.

Table 3 shows total catch, catch by species and number of positive sets by fishing mode. Total catch dramatically decreased in 1998, recovered in 1999 and 2000 and decreased again in 2001 (12%), mainly due to changes in the yellowfin catch. The highest reduction in catches in 2001 corresponds to bigeye (23%). The decrease in the total catch in 2001 was due to the 25% of reduction in catches on FADs that was not compensated by the increase in catches on free schools.

Table 3: Catch by species (t.) and number of positive sets

Year	Yellowfin	Skipjack	Bigeye	Albacore	Total	N.positive sets
Total						
1997	60 977	62 914	15 897	1 029	141 025	3 900
1998	38 565	58 646	11 245	269	108 725	3 381
1999	51 875	74 285	16 034	232	142 426	3 219
2000	52 070	77 187	10 769	410	140 872	3 169
2001	47 571	68 346	7 930	339	124 389	3 105
FADs						
1997	38 170	54 240	14 654	63	107 127	2 892
1998	22 043	49 422	8 562	18	80 046	2 512
1999	34 689	63 459	14 301	1	112 450	2 267
2000	32 046	67 961	8 719	43	109 119	2 236
2001	18 860	56 964	6 404	4	82 415	2 004
Free school						
1997	22 807	8 673	1 243	966	33 898	1 008
1998	16 522	9 224	2 683	250	28 679	869
1999	17 186	10 826	1 732	231	29 976	952
2000	20 024	9 225	2 050	367	31 753	933
2001	28 712	11 382	1 526	335	41 974	1 101

c. Sampling

The statistical analysis made during the ET project showed that there was not a significant fleet effect regarding the samples (catch composition and size). Collecting samples from the combined fleet increases the coverage by time-area strata and fishing mode. The port sampling 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 follow "in situ" this fishery. The current system is applying to purse seiners landings in Victoria (Seychelles), Antsiranana (Madagascar) and Mombasa (Kenya).

Table 5 shows the number of samples and fish measured

Table 5: Number of samples and number of fish measured by species.

Year	N. of samples	Number of fishes measures				
		Yellowfin	Skipjack	Bigeye	Albacore	Total
1997	202	55 369	26 332	28 684	685	111 070
1998	170	12 426	27 429	4 363	59	44 277
1999	205	17 173	49 757	5 893	184	73 007
2000	294	21 201	35 625	4 743	388	61 957
2001	850	80 389	32 790	21 509	2 031	136 719

Coverage in 2001 has increased as a result of improvements in the sampling strategy and better implementation of the new sampling system.

Table 6 shows the average weight of the catch by species and fishing mode.

Table 6: Average weight by species and fishing mode

Species	YFT			SKJ			BET			ALB		
	Fads	F.school	Total	Fads	F.school	Total	Fads	F.school	Total	Fads	F.school	Total
1997	4.7	26.6	6.8	2.3	2.8	2.4	3.7	13.0	3.9	27.6	26.9	27.0
1998	6.9	14.5	8.9	2.6	2.5	2.6	5.3	9.2	5.9	27.4	29.5	29.3
1999	4.6	22.5	6.3	2.5	2.5	2.5	4.9	8.9	5.2	27.4	25.3	25.3
2000	6.0	23.6	8.4	3.0	3.2	3.1	4.9	13.7	5.6	27.7	25.2	25.4
2001	4.6	29.7	9.4	2.6	3.6	2.8	3.6	14.5	4.2	29.7	27.3	27.3

d. Recent changes in the sampling scheme and data processing

The results of the ET research program, funded by the European Union, have considerably improved the sampling system as well as the procedure to estimate species composition and size distribution of the catches. This new system has been applied since 2000.

According to the development of the new system, an overall system of validation of data has been implemented in order to validate both recent and historical data.

Documents (GTDS-99-09) and (GTDS-00-10) presented to the Working Party on Statistics in 1999 and 2000 present detailed information of the new procedure.

1.2 - LONGLINE FLEET

a. Catch and effort

In 2001 the number of longliners operating in the Indian Ocean was 10 although only two of them operated during the whole year. Swordfish catch in 2001 was 1.871 t. and fishing areas were 10°-30° S and 35°-70° E. Since 2001 part of the fleet has introduced the "Florida Style" longline with slight modifications.

b. Data Collection

Information on statistics to implement the IOTC task II (5°*5°-month) has been obtained by different sources: port sampling and interviews, logbooks and scientific observers. In 2001 more than 8.000 swordfish have been measured which represent a 23% of the total landed fishes. Sex at age for temporal-spatial strata has been obtained by biological sampling.

2 - IMPLEMENTATION OF THE SCIENTIFIC COMMITTEE RECOMENDATIONS

- General information on the supply vessels, as number, number of purse seiners working associated with supplies and estimation of yearly effort in days at sea is available since 1999. A logbook will be specifically designed to collect information from the activities of these vessels.
- Regarding the information on FADs a special form has been developed and will be filled by the observers.
- To estimate discards and by catch an observers program coordinated by the IRD, AZTI and IEO and funded by the European Union will start in 2003. Details of this program are included in document IOTC-SC-02-Inf.5.
- Supporting the large scale tagging project a regular budget for tagging has been included in the Data Collection National Plan. In particular a joint French-Spanish tagging project (TAGFAD) targeting fishes aggregated to FADs will start in 2003 together with another European project (FADIO) targeting the behavior of fishes aggregated to FADs.
- 300 swordfishes and other by catch species (sharks and billfishes) from the longline fishery have been tagged in an opportunistic way. There have not been recoveries in 2001 despite the effort made in advertising the fleet.
- The ESTHER project (IOTC-99-SC-08), funded by the EU improved our knowledge on the technical equipment of boats. Using this information standardized yellowfin catch rates were obtained and presented to the WPTT in 2002 (WPTT-02-27).

3 - RESEARCH

Two Spanish Research Institutes (IEO and AZTI) are involved in the tropical tuna researches. The IEO is also involved in the swordfish research.

Scientists involved in these fisheries have actively participated in the works of the WPTT, WPB and the SC.

Several documents have been presented to these groups during this year, WPTT documents: 06, 16, 20, 21, 22, 25, 26, 27, 28 and IOTC SC-02-Inf.5.

New tagging and observers project (see item 2) will start in 2003.