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EUROPEAN UNION

EC-SPAIN ANNUAL REPORT TO THE COMMISSION
Part I.- Information on Fisheries, Research and Statistics

by

Program on tuna and tuna-like species.
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SUMMARY

There are two EC-Spain fishing fleets operating in the Pacific Ocean: a purse seine fleet targeting tropical tuna, and a surface longline fishery targeting swordfish.

In 2008, four EC-Spain purse seiners, all with a gross registered tonnage (GRT) over 1500, fished in the WCPFC Convention Area. Data from the observers of the Agreement on the International Dolphin Conservation Program (AIDCP) and, in the case of one vessel, logbooks (100% coverage) indicate a total landed catch of 35497 t (5751 t BET, 24987 t SKJ and 4759 t YFT). Effort, aggregated catches, discards and bycatch data are also presented.

A total of 17 Spanish flagged longline vessels targeting swordfish were fishing in the WCPFC convention area, either all year round or temporarily. The vessels involved in the fishery in 2008 presented the same average characteristics as years before -291.8 GTR, 861.8 HP and 40.8 m in length-. The gear used continued been the same, the monofilament surface longline 'American- style' gear (Florida style modified), using an average of around 1055 hooks per set. The 2007 and 2008 swordfish landings, as well as estimations of bycatch, aggregated catches and effort distribution, are provided. The estimations of landings available for 2008 indicate a total SWO catch of around 7 847 t for the entire Pacific Ocean, from which around 3 410 t are from the Western and Central Pacific Fisheries Commission Convention area.

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PURSE SEINE

The Spanish purse seine fleet started its fishing activity in the Pacific Ocean at the beginning of the 1970's. It begun operating in the Western and Central Pacific Fisheries Commission Convention Area (WCPFC-CA) east of 150ºW since 1996 (overlapping area with IATTC convention area). Since 1999, this fleet has operated in the WCPFC-CA west of 150ºW. During this period, the number of Spanish purse seiners in the Pacific Ocean has varied between 1 and 5 units. Table I summarizes the number of vessels and total gross register tonnages for this period in the WCPFC-CA.

Number of vessels

In 2008, 4 purse seiners fished in the WCPFC-CA, with gross registered tonnages of 1562, 2502, 2468 and 3200 GRT. Tuna are mainly caught by sets on FADs, but also on free schools. Catches are frozen onboard in salt vats.

Year	GRT	No. vessels
1996	1708.82	1
1997	1351.64	2
1998	9528.76	5
1999	8177.12	4
2000	9528.76	5
2001	10679.12	5
2002	10679.12	5
2003	10679.12	5
2004	6532.23	3
2005	6532.23	3
2006	6532.23	3
2007	9732.23	4
2008	9732.23	4

Table I.- Number of EC-Spain purse seiners and total gross register tonnage in the Pacific Ocean by year.

Fishing vessels operating in the eastern Pacific Ocean have 100% coverage of onboard observers, in line with the Agreement on the International Dolphin Conservation Program (AIDCP). Although this agreement applies to vessels operating in the IATTC convention area, three of the purse seiners mentioned above have carried out their activity in both regions. In the case of the remaining vessel, which has focused its activity in the WCPFC-CA, catches are registered in the logbook. Total catches reported by the observers and logbooks, catches to the east of 150ºW and discards of the three main target species are shown in Table II.

	WCPFC	WCPFC east of 150ºW	Discards
BET	5863	97	112
SKJ	25553	949	566
YFT	4789	94	30

Table II.- Total catches (in metric tonnes) of BET, SKJ and YFT from EC-Spain purse seiners in 2008 in the WCPFC convention area, in the WCPFC-CA east of the 150ºW meridian and the estimated discards.

There is no EC-Spain research program aimed at this fishery. Samplings from those vessels to correct data on species composition and to obtain size distribution of the catches is currently carried out by staff from the IATTC at the ports where the fish are unloaded.

Aggregated catches

Figure 1 shows the distribution of the catches (5º x 5º) of Spanish purse seiners in the WCPFC-CA during 2008.

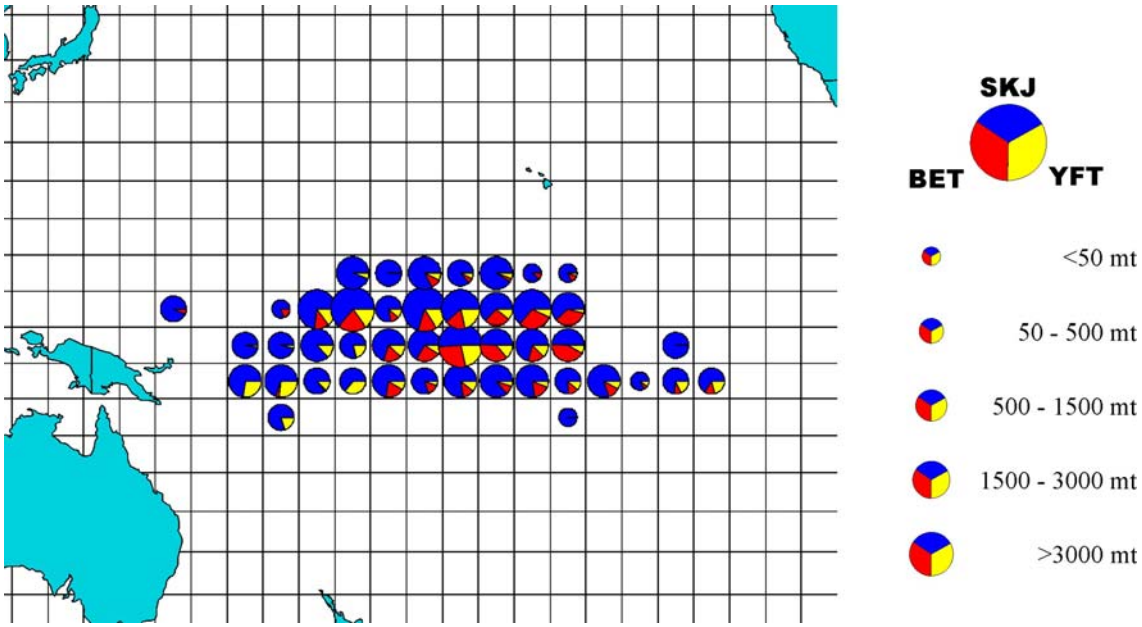

Fig. 1.- Distribution of catches by area (5ºx5º) and species.

Distribution of fishing effort

The distribution of fishing effort, by quarter, is shown in Figure 2. The fishing effort is seen to be mainly distributed around the equator (10º S to 10º N). There is no remarkable trend in the evolution of the effort troughout the year.

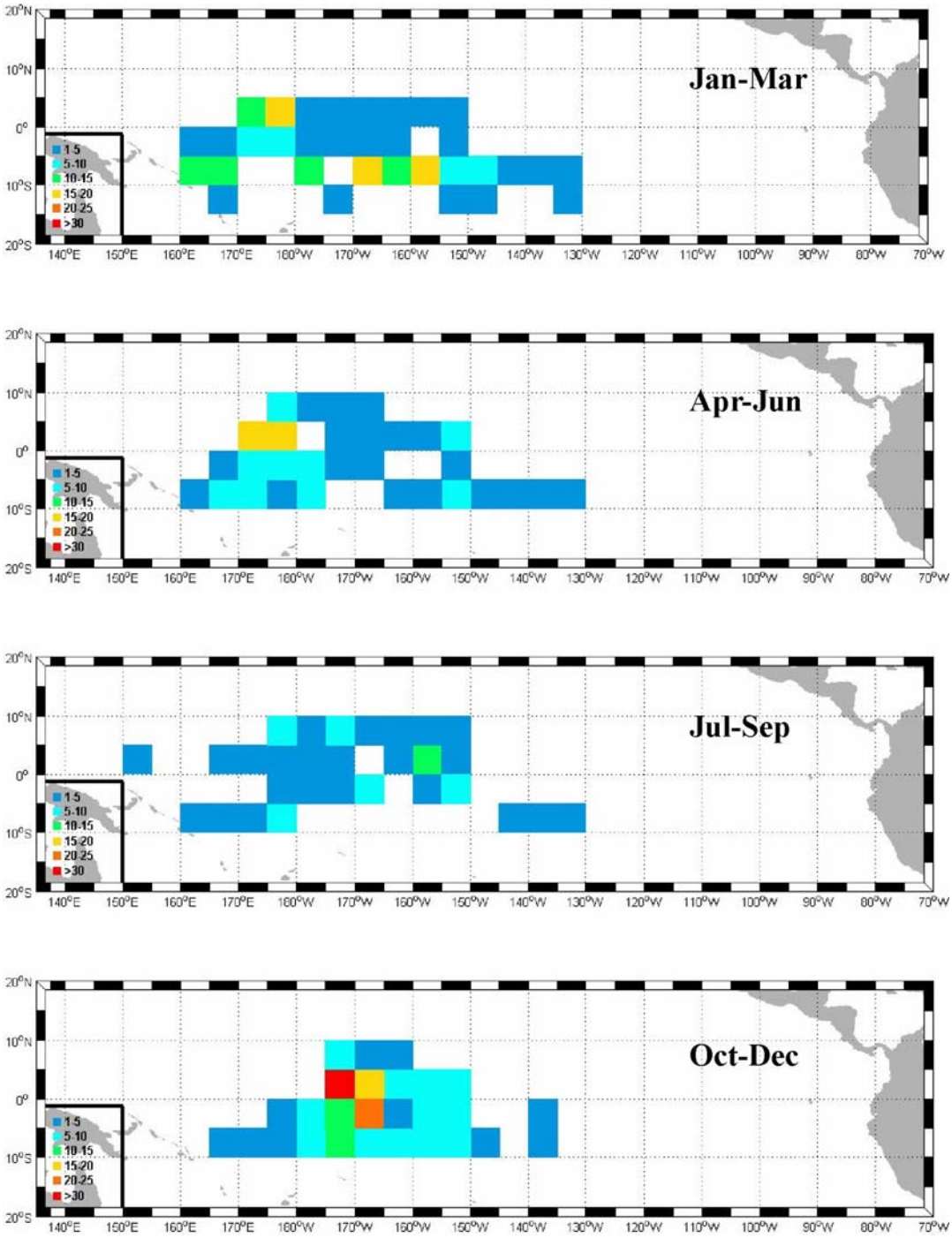

Fig. 2.- Distribution of the effort, in fishing days, by area (5ºx5º) and quarter.

Bycatch

Table III summarizes the bycatch by species. In most cases, only the number of fish of each species per set is recorded by the observers. The total weight has been estimated by multiplying the number of fish by an average weight for the purse seine fishery provided by the IATTC.

Only seven species or groups: *Carcharhinus falciformis*, *Makaira nigricans*, *Acanthocybium solandri*, *Coryphaenidae*, *Elagatis bipinnulata*, *Coryphaena hippurus*,

Coryphaena equiselis, Rhincodon typus and Balistidae account for more than 90% of the total bycatch in weight.

There is a mandatory Spanish protocol for releasing marine turtles caught by purse seine alive. Thus, interaction with turtles has not been included in table III.

	Species	WCPFC	East of 150 º W
BILLFISH	*Makaira indica*	2.59	0.20
	Makaira nigricans	28.65	5.36
	Makaira, Tetrapturus	1.17	0.19
	Tetrapturus angustirostris	0.11	<0.01
	Tetrapturus audax	1.82	0.61
	Istiophoridae, Xiphiidae	0.30	<0.01
SHARKS	*Carcharhinus falciformis*	46.26	11.35
	Carcharhinus longimanus	0.76	0.10
	Rhincodon typus	4.13	<0.01
	Sharks, nei	0.28	0.25
OTHER FISH	*Ablennes hians*	<0.01	<0.01
	Acanthocybium solandri	14.73	1.03
	Aluterus monoceros	0.01	<0.01
	Aluterus scriptus	<0.01	<0.01
	Balistes polylepis	0.03	<0.01
	Balistidae	3.75	0.4
	Canthidermis maculatus	2.63	0.05
	Caranx sexfasciatus	0.05	<0.01
	Coryphaena equiselis	5.10	1.15
	Coryphaena hippurus	7.02	1.35
	Coryphaenidae	7.36	2.11
	Decapterus macarellus	0.11	<0.01
	Elagatis bipinnulata	7.14	0.06
	Kyphosus elegans	0.01	<0.01
	Kyphosus spp.	0.01	<0.01
	Lobotes surinamensis	<0.01	<0.01
	Mobula spp.	0.04	<0.01
	Naucrates ductor	<0.01	<0.01
	Sectator ocyurus	0.50	0.24
	Seriola rivoliana	0.15	<0.01
	Seriola spp.	<0.01	<0.01
	Sphyraena barracuda	0.32	0.03
	Uraspis helvola	0.05	<0.01
	Mola mola	0.45	0.29

Table III.- Bycatch in metric tonnes in the WCPFC-CA and in the WCPFC-CA east of meridian 150ºW. These figures have been estimated from the bycatch records of the trips carrying observers of the AIDCP (60% of the total catch in weight in the WCPFC-CA), assuming a similar composition of the bycatch in trips without observers onboard.

SURFACE LONGLINE

As already reported, experimental fishery activities were done during the first quarter of 2004 targeting swordfish with surface longline gear in areas located between Melanesia, New Zealand and Australia -some commercial sets were done by one regular longliner also during December 2004-, eventhough the Spanish surface longline fleet has been operated in the SE Pacific areas since 1990.

Number of vessels

During the year 2007 and 2008 a total of 32 and 34, respectively, Spanish flagged longline vessels targeting swordfish were fishing each year in the Pacific Ocean, 17 of them in the WCPFC convention area, either all year round or temporarily. The vessels involved in the fishery in 2007 and 2008 presented the same average characteristics as years before -291.8 GTR, 861.8 HP and 40.8 m in length-. The gear used by commercial boats is the monofilament "American longline style" presently used by most of the Spanish longlining fleet in most regions with a mean number of around 1000–1400 hooks per set/vessel. The gear is usually set between late afternoon and midnight (night sets) to take advantage of the nocturnal near-surface feeding habits of swordfish. The line is kept close to the surface by numerous buoys which are attached to the monofilament mainline via separate buoy lines. Additional radio buoys are also used to locate the mainline. There were over 260 buoys on a line and on average, 5 branch lines between buoys. Around 1000–1400 hooked branch lines are attached to the mainline. Branch lines over 14 m long are spaced evenly along the mainline at a mean distance of roughly 80 m. The branchline may be made up of several parts; an upper section, a swivel, a plumb trace, another swivel, a steel line, an electric lightstick (green or blue) and a baited hook (baited by hand). All Spanish flagged longliners process the swordfish on board in dressed weight (eliminating the head, viscera and fins) and keeping it frozen.

Landings

The 2007 and preliminar 2008 swordfish landings are provided, and scientific estimation of overall bycatch landings data are also included (Table IV). Swordfish landings for 2007 were 8 430 t for the entire Pacific Ocean from which around 4 217 t are from the Western and Central Pacific Fisheries Commission Convention area (518 t from the West convention area of the WCPFC overlapped the IATTC convention area -east of 150º W-). Estimations of swordfish landings for 2008 are 7 847 t for the entire Pacific Ocean from which around 3 410 t are from the Western and Central Pacific Fisheries Commission Convention area (2 281 t from the West convention area of the WCPFC overlapped the IATTC convention area -east of 150º W-).

Catch-boat coverage was kept at 100% of their fishing activity. In 2007 and 2008, swordfish size sampling reached an individual sampling coverage of 17.0% and 17.5% of the total number of swordfish caught in all Pacific areas combined. The size sampling coverage for the WCPFC areas was of 17.4% and 12.9%, respectively.

	2007				2008			
Species	**IATTC**	**WCPFC**	**OVERLAP**	**Tot. PACIFIC**	**IATTC**	**WCPFC**	**OVERLAP**	**Tot. PACIFIC**
SWO	4730008	4217400	517644	8429764	6717560	3409726	2280579	7846707
BY-CATCH	4516330	5666255	633433	9549153	6395501	3820480	1992591	8223390
TOTAL	**9246338**	**9883655**	**1151077**	**17978917**	**13113061**	**7230206**	**4273170**	**16070097**

Table 1V. Estimations of landings (kg round weight) of target species and the overall bycatch of the most prevalent species or groups of species taken by the Spanish surface longline fleet in 2007 and 2008 for the convention areas of the Pacific Commissions (Overlap: area pertaining to the two Commissions)

Aggregated catches

Figure **3** shows the nominal CPUEs obtained for Spanish longline fishery during 2007 and 2008 in the Convention Areas of WCPFC and IATTC, respectively.

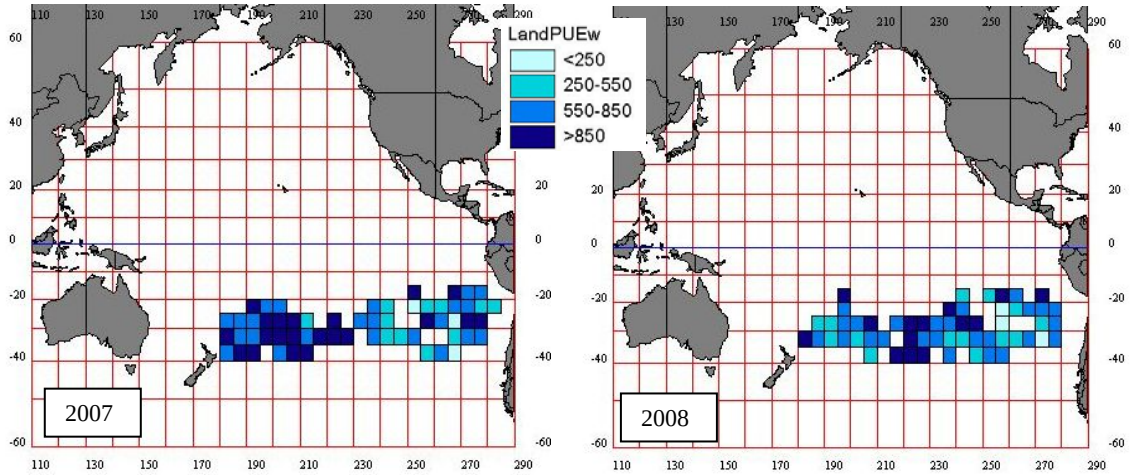

Fig. 3. Nominal CPUE of swordfish (kg round weight per thousand hooks) of the EU-Spanish fleet in 5x5 degree squares during the years 2007 and 2008 in WCPFC areas and areas of the IATTC as reported to both RFOs.

Fishing effort

Figure 4 shows the nominal effort aggregated by area (5ºx5º) in the Convention Areas of WCPFC and IATTC, respectively during 2007 and 2008.

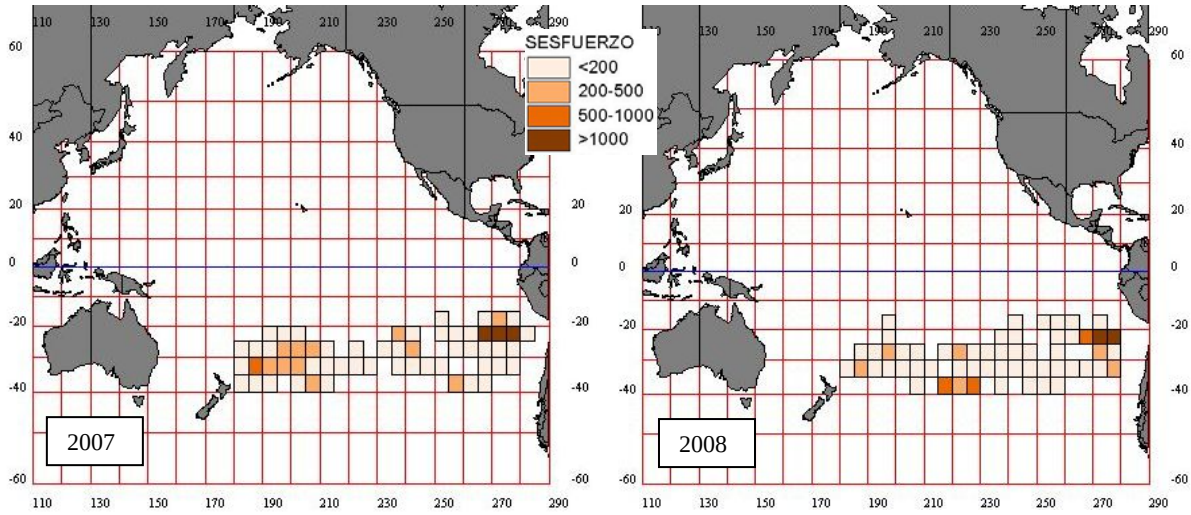

Fig. 4.- Nominal fishing effort in thousands of hooks set by the Spanish surface longline fleet fishing during 2007 and 2008. All Pacific fishing areas are included as reported to both RFOs.

Bycatch estimations from all species and covering all historical period fishing in the Pacific areas have been recently presented to the IATTC bycatch working group (Mejuto *et al.*, 2007), and data have been updated (Ramos-Cartelle *et al.* in press). Data on fins-body weights ratios of shark species and other biological parameters were also obtained from updated analyses previously done (Mejuto *et al.* in press, Espino *et al.* in press, Lorenzo *et al.* in press).

Table **V** summarizes the bycath landings during 2007 and 2008 by groups of species (swordfish not included), where BIL includes all billsfish species, SHK includes all pelagic sharks, TUN all tuna species and OTH other different species.

	2007				2008			
Group of spp.	**IATTC**	**WCPFC**	**OVERLAP**	**Tot. PACIFIC**	**IATTC**	**WCPFC**	**OVERLAP**	**Tot. PACIFIC**
BIL	266895	347822	39930	574787	268391	167693	94654	341430
OTH	299200	360903	40499	619604	384833	181029	49155	516707
SHK	3678517	4693540	530051	7842007	5305742	3285200	1802637	6788304
TUN	271718	263990	22953	512755	436535	186558	46145	576948
TOTAL ByC	**4516330**	**5666255**	**633433**	**9549153**	**6395501**	**3820480**	**1992591**	**8223390**

Table V.- Estimations of landings (kg round weight) of the bycatch by groups of species taken by the Spanish surface longline fleet in 2007 and 2008 for the convention areas of the Pacific Commissions (Overlap: area pertaining to the two Commissions)

Research activities

During 2008, in the framework of a collaboration between the Spanish Institute of Oceanography (IEO) and the Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO), a total of 13 pop-up tags where deployed in swordfish.

This activity was carried out in collaboration with the longliners association ORPAGU and took place during may-september 2008. Although most of the tags have already popped-up, information is still being analysed.

Information on pop-up satellite tags deployed in swordfish and shortfin mako shark during 2007 in the Sourtheastern Pacific Ocean has been processed and submitted to an international peer-reviewed journal, and is currently being evaluated.

A total of 6 working papers and one information paper were presented during the SC4, including information on genetic profiles of swordfish in the Pacific Ocean, sex-ratio and gonadosomatic indices distribution of this species by area and time of the year, growth parameters estimates for swordfish, catch composition in the tropical purse seine fisheries, standardized swordfish CPUE trends, bigeye stock structure and bycatch estimation of the Spanish pelagic longline (Fonteneau; Fonteneau and Ariz; Kasapidis et al.; Mejuto et al. a; Mejuto et al. b; Mejuto et al. c; Valeiras et al.).

Studies on the ratio between fin and body weight have also been performed during 2008 (Lorenzo et al. in press; Mejuto et al, in press).

An updated document on the Spanish surface longline bycatch in the WCPFC-CA, during the period 2006-2008, is presented during the SC5 under the Ecosystems and Bycatch SWG (Ramos-Cartelle et al., 2009).

FUTURE RESEARCH ACTIVITIES

At present, funding limitations for research does not allow a precise projection about future research activities.

A pilot project, aimed at studying the acoustic selectivity of the main target species of the purse seine fishery, i.e. bigeye, yellowfin and skipjack tuna, that was initially planned for the end of 2008. will begin by the end of 2009 and will be undertaken in 2010 on two tuna purse seiners that usually fish on FADs in the Pacific Ocean. Data will be collected at sea for a period of three months using echosounders (with several working frequencies) and through identification of fisheries.

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