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ANNUAL REPORT TO THE COMMISSION
PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

WCPFC-SC6-AR/CCM-05

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.
Instituto Español de Oceanografía

August 2010

Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by April 2010	NO
If no, please indicate the reason(s) and intended actions Annual catch estimates were provided by 30 April. Aggregated catch and effort data were also provided for the purse seine by 30 April. In the case of the longline, due to the far seas nature of this fleet and the observer coverage, logbooks data must be submitted once the vessels arrive to port, entered and processed. These data have been sent to the WCPFC Secretariat upon the submission of this report.	

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 2009, 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 25462 t (3767 t BET, 18686 t SKJ and 3009 t YFT). Effort, aggregated catches, discards and bycatch data are also presented.

A total of 9 Spanish flagged longline vessels targeting swordfish were fishing in the WCPFC Convention Area in 2009, either all year round or temporarily. The vessels involved in the fishery presented the same average characteristics as years before- 291.8 GTR, 861.8 HP and 40.8 m in length. The gear used is the monofilament surface longline gear (Florida style modified), using an average of around 1100 hooks per set. The 2009 swordfish landings, as well as estimations of bycatch, aggregated catches and effort distribution, are provided. The estimations of landings available for 2009 indicate a total SWO catch of 1721 t from the WCPFC Convention Area (674 t from the WCPFC-CA east of 150º W-).

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1.- 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 (overlap 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.

1.1.- Annual catch and effort by primary species and gear in the WCPFC Convention Area.

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 during 2009. In the case of the remaining vessel, which has focused its activity mainly in the WCPFC-CA, two trips were not covered by observers of the AIDCP and data were collected from the logbooks. Total catches reported by the observers and logbooks, catches to the east of 150ºW and discards of the three main target species during 2009, as well as in previous years, are shown in Table I.

	2009				2008			
	WCPFC	east of 150ºW	Discards	No. Sets	WCPFC	east of 150ºW	Discards	No. Sets
BET	3816	35	49		5863	97	112	
SKJ	19677	198	991	417	25553	949	566	434
YFT	3070	22	61		4789	94	30	

	2007				2006			
	WCPFC	east of 150ºW	Discards	No. Sets	WCPFC	east of 150ºW	Discards	No. Sets
BET	3282	175	45		1997	642	17	
SKJ	15354	699	88	415	8347	2858	153	140
YFT	4322	97	63		690	359	1	

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

There has been a decrease in the catches (*c.* 25%) and the effort between 2009 and 2008, which seems to be partially due to the implementation of CMM2008-01.

1.2.- Number of vessels by size

As in previous years, 4 purse seiners fished in the WCPFC-CA in 2009, with gross registered tonnages of 1562, 2468, 2502 and 3200 GRT. Tuna are mainly caught by sets on FADs, but also on free schools. Catches are frozen onboard in salt vats. Table II summarizes the number of vessels and total gross register tonnages from the beginning of the fishery in the WCPFC-CA.

Year	GRT	No. vessels
1996	1351	1
1997	1351	1
1998	4419	3
1999	8176	4
2000	6887	4
2001	9172	4
2002	9172	4
2003	10678	5
2004	6532	3
2005	6532	3
2006	6532	3
2007	9732	4
2008	9732	4
2009	9732	4

Table II.- Number of EC-Spain purse seiners and total gross register tonnage in the WCPFC-CA by year.

1.3.- Fishing patterns

Figure 1 and Figure 2 show the distribution of the catches (5º x 5º) of Spanish purse seiners in the WCPFC-CA during 2009 and 2008, respectively.

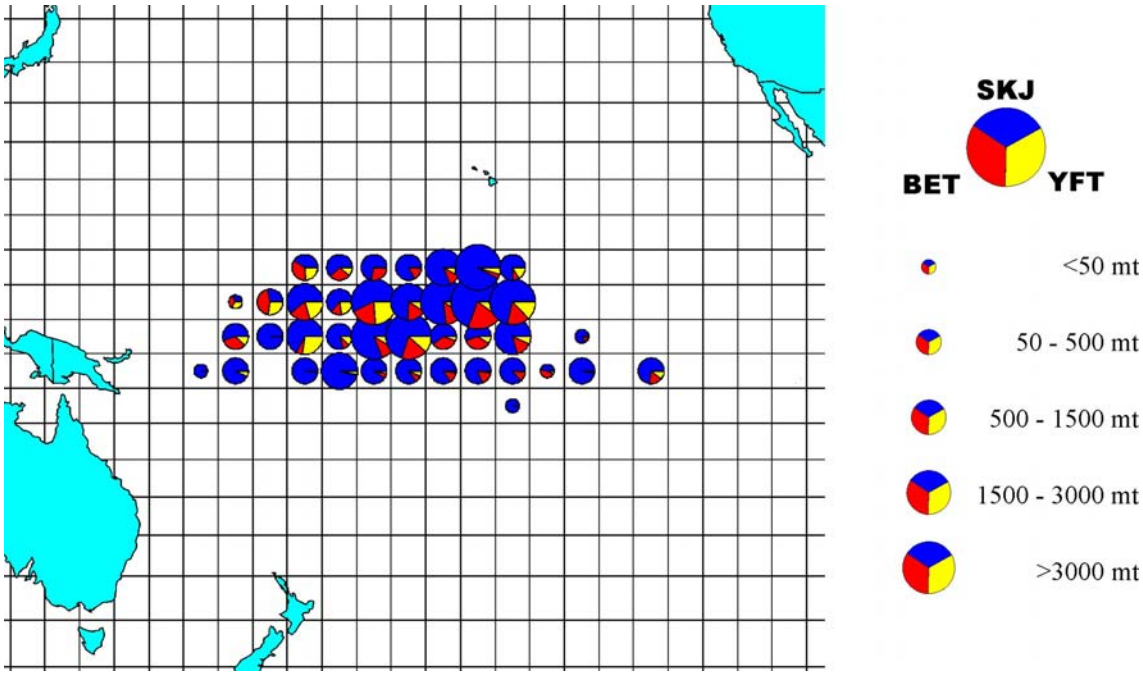

Fig. 1.- Distribution of catches by area (5ºx5º) and species in 2009.

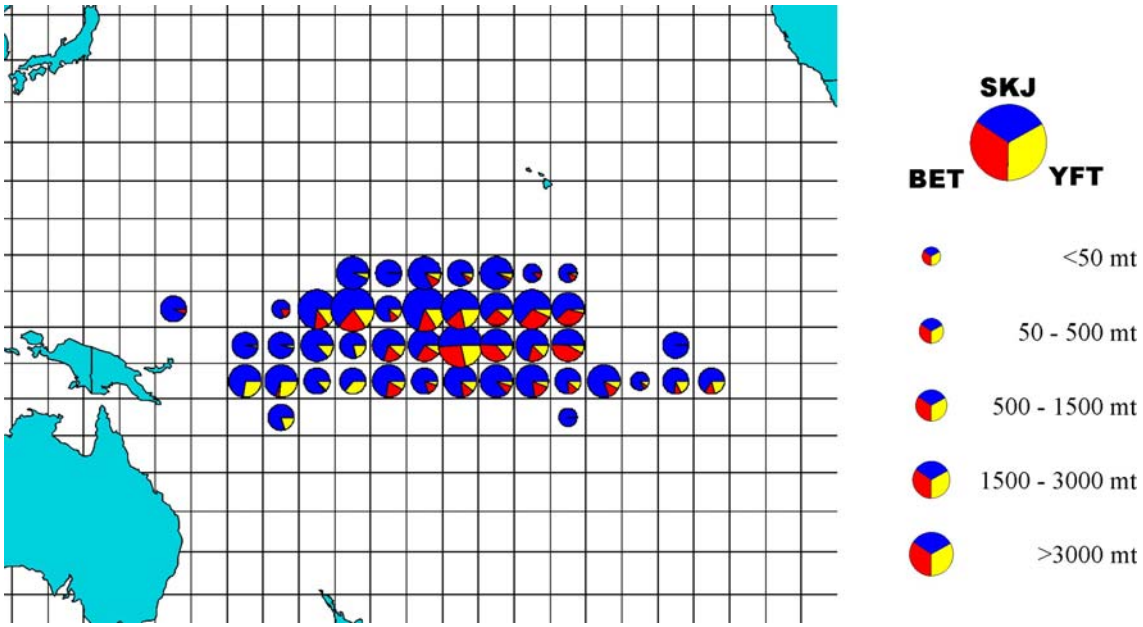

Fig. 2.- Distribution of catches by area (5ºx5º) and species in 2008.

The distribution of fishing effort during 2009, by quarter, is shown in Figure 3. 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, but a clear decrease during the third quarter of the year.

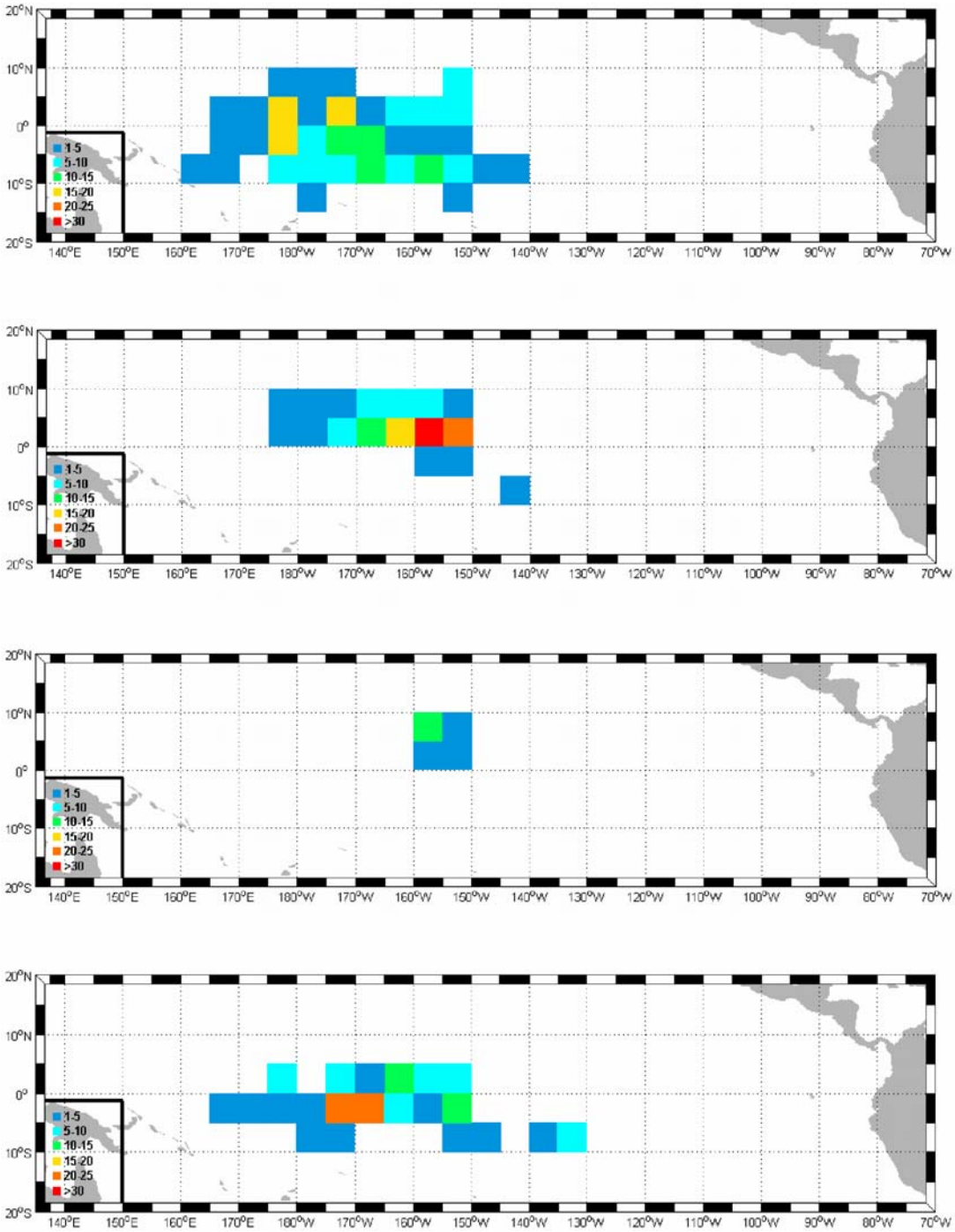

Fig. 3.- Distribution of the purse seine effort, in fishing days, by area (5ºx5º) and quarter in 2009.

This decrease is also remarkable in relation to 2008 (Fig. 4).

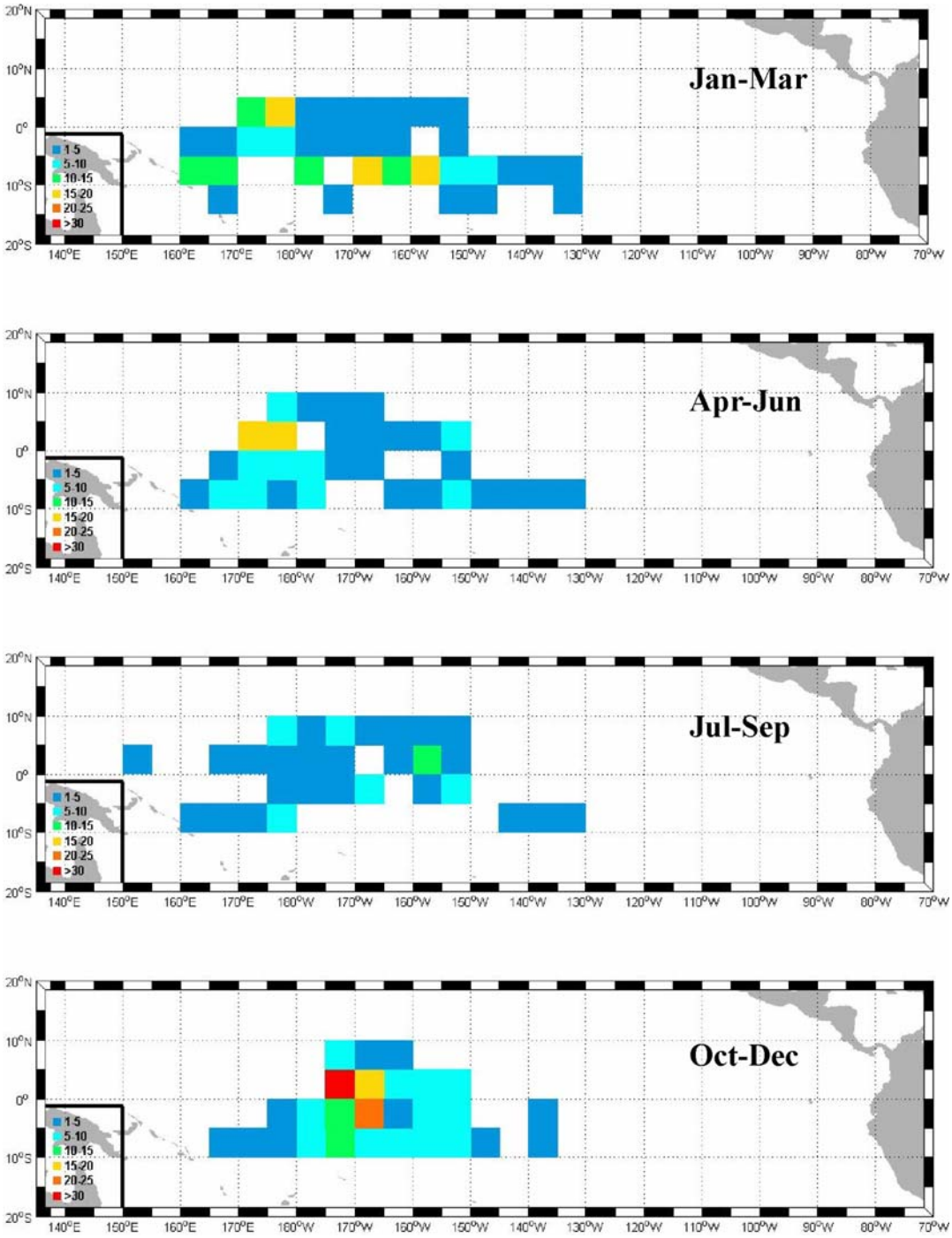

Fig. 4.- Distribution of the purse seine effort, in fishing days, by area (5ºx5º) and quarter in 2008.

1.4.- Estimated total catches of non-target, associated and dependent species.

Table III summarizes the purse seine bycatch by species in 2009 in the WCPFC-CA. 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.

	Species	WCPFC	East of 150 º W
BILLFISH	*Istiophorus platypterus*	0.08	0
	Makaira indica	0.15	0
	Makaira nigricans	17.29	0.49
	Makaira, Tetrapturus	0.29	0
	Tetrapturus angustirostris	0.04	0
SHARKS	*Carcharhinus falciformis*	27.91	0.15
	Carcharhinus longimanus	0.25	0
	Sphyrna zygaena	0.08	0
	Unidentified	0.63	0
OTHER FISH	*Ablennes hians*	<0.01	0
	Acanthocybium solandri	6.5	0.48
	Aluterus monoceros	0.01	<0.01
	Aluterus scriptus	<0.01	0
	Balistidae	0.04	0
	Balistidae, Monocanthidae	<0.01	0
	Canthidermis maculatus	0.86	0.11
	Caranx sexfasciatus	0.01	0
	Caranx spp.	<0.01	0
	Coryphaena equiselis	8.99	0.11
	Coryphaena hippurus	7.7	0.36
	Coryphaenidae	0.3	0
	Decapterus macarellus	0.02	0
	Elagatis bipinnulata	3.03	<0.01
	Kyphosus analogus	<0.01	0
	Kyphosus elegans	<0.01	0
	Kyphosus spp.	0.01	0
	Lobotes surinamensis	0.01	<0.01
	Mobula japanica	0.01	0
	Mobula spp.	0.01	0
	Mobula thurstoni	0.03	0
	Mobulidae	0.03	0
	Mola mola	2.19	0
	Pteroplatytrygon violacea	0.01	0
	Sectator ocyurus	0.02	0.01
	Seriola lalandi	2.2	0.01
	Seriola rivoliana	<0.01	0
	Sphyraena barracuda	0.09	0
	Uraspis helvola	<0.01	0
	Unidentified	0.01	0

Table III.- Purse seine bycatch in metric tonnes in the WCPFC-CA and in the WCPFC-CA east of meridian 150ºW during 2009. These figures have been estimated from the bycatch records of the trips carrying observers of the AIDCP (81% of the total catch in weight in the WCPFC-CA), assuming a similar composition of the bycatch in trips without observers onboard.

	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 IV.- Purse seine bycatch in metric tonnes in the WCPFC-CA and in the WCPFC-CA east of meridian 150ºW during 2008. 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.

Six species (*Carcharhinus falciformis, Makaira nigricans, Coryphaena equiselis, Coryphaena hippurus, Acanthocybium solandri and Elagatis bipinnulata*) 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. All turtles involved in fishing operations must be released in the best conditions as soon as possible. In 2009, only one turtle was involved in purse seine fishing operations within the WCPFC-CA (observer coverage: 81% of the total catch in weight). It was a leatherback turtle (*Dermochelys coriacea*), released with injuries during a school set.

Purse seine bycatch in the WCPFC-CA for 2008 is provided in Table IV.

2.- SURFACE LONGLINE

The activity of this fleet in the WCPFC-CA commenced with an experimental survey during the first quarter of 2004, targeting swordfish with monofilament surface longline gear in areas located between Melanesia, New Zealand and Australia. However, the Spanish surface longline fleet has operated in the SE Pacific areas since 1990. Since the beginning of the fishery, swordfish catch coverage has been kept at 100%, mainly based in logbooks.

2.1.- Annual catch and effort by primary species and gear in the WCPFC Convention Area.

The preliminary 2009 swordfish and bycatch landing estimations are given in table V. Swordfish landings for 2009 were 9 058 t for the entire Pacific Ocean from which 1721 t are from the Western and Central Pacific Fisheries Commission Convention area (674 t from the WCPFC-CA east of 150º W-).

Group of species	Species	IATTC + Overlap	WCPFC+Overlap	Overlap
BIL	**BLZ**	3	0	0
BIL	**MLS**	4	0	0
BIL	**SFA**	19	2	1
BIL	**SHP**	8	0	0
OTH	**WAH**	4	0	0
OTH	**CHO**	195	8	5
OTH	**LFO**	198	100	18
OTH	**LGO**	4	2	0
OTH	**N/I**	82	4	1
OTH	**RPO**	17	3	1
OTH	**SBO**	14	2	1
OTH	**SER**	0	6	0
SHK	**ASO**	6	0	0
SHK	**AVO**	4	0	0
SHK	**CGO**	0	1	0
SHK	**CLO**	11	2	0
SHK	**COO**	2	2	2
SHK	**CPO**	1	0	0
SHK	**CTO**	0	1	0
SHK	**GCO**	4	4	4
SHK	**IOO**	1485	591	271
SHK	**IPO**	2	1	1
SHK	**LNO**	41	43	8
SHK	**PGO**	3443	1272	384
SHK	**SPO**	2	1	0
TUN	**ALB**	36	14	3
TUN	**BET**	22	1	0
TUN	**BKO**	2	0	0
TUN	**SBF**	0	1	0
SWO	**SWO**	8011	1721	674

Table V.- Preliminary estimations of landings (metric tonnes of 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 2009 for the convention areas of the Pacific Commissions (Overlap: area pertaining to the two Commissions).

The codes used are shown in table VI.

Code	*Sci. Name.*
WAH	*ACANTOCIBIUM SOLANDRI*
ALB	*THUNNUS ALALUNGA*
ASO	*ALOPIAS SUPERCILIOSUS*
AVO	*ALOPIAS VULPINUS*
BET	*THUNNUS OBESUS*
BKO	*GASTEROCHISMA MELAMPUS*
BLZ	*MAKAIRA MAZARA*
CFO	*CARCHARHINUS FALCIFORMIS*
CGO	*CARCHARHINUS GALAPAGENSIS*
CHO	*CORIPHAENA SPP.*
CLO	*CARCHARHINUS LONGIMANUS*
CPO	*CARCHARHINUS PLUMBEUS*
CTO	*CARCHARHINUS ALTIMUS*
GCO	*GALEOCERDO CUVIER*
IOO	*ISURUS OXYRINCHUS*
IPO	*ISURUS PAUCUS*
LFO	*LEPIDOCIBIUM FLAVOBRUNNEUM*
LNO	*LAMNA NASUS*
MLS	*TETRAPTURUS AUDAX*
N/I	*Other species no identified*
PGO	*PRIONACE GLAUCA*
RPO	*RUBETUS PRETIOSUS*
SBF	*THUNNUS MACCOYII*
SBO	*SPHYRAENA SP.*
SFA	*ISTIOPHORUS PLATYPTERUS*
SHP	*TETRAPTURUS ANGUSTIROSTRIS*
SPO	*SPHYRNA SPP.*
SWO	*XIPHIAS GLADIUS*

Table VI.- Codes and scientific names.

Table VII shows the historical estimations of target and bycatch species landings of the Spanish surface longline fleet in the WCPFC-CA.

Year	2004				2005			
Species/ RFO	IATTC+Overlap	WCPFC+Overlap	Overlap	TOT. PAC.	IATTC+Overlap	WCPFC+Overlap	Overlap	TOT. PAC.
SWO	5612291	729988	56650	6285629	4962051	1357730	107910	6211871
IOO	1198170	184934	16182	1366922	1300231	430646	74871	1656006
PGO	2342281	582912	48597	2876596	2744924	1433353	93005	4085272
SHK	65681	88361	4274	149768	53449	306436	6213	353672
OTH	183028	39505	1304	221229	183324	51615	6986	227953
BIL	217022	37665	2524	252163	244933	74500	11220	308213
TUN	315804	71911	8101	379614	353086	5084	41439	316731

Year	2006				2007			
Species/ RFO	IATTC+Overlap	WCPFC+Overlap	Overlap	TOT. PAC.	IATTC+Overlap	WCPFC+Overlap	Overlap	TOT. PAC.
SWO	5152001	3107358	0	8259359	4730008	4217400	517644	8429764
IOO	1496558	920734	0	2417292	1221152	1395723	242289	2374586
PGO	3006515	1637481	0	4643996	2411280	3211497	273003	5349774
SHK	40181	47473	0	87654	46085	86320	14759	117646
OTH	281852	151640	0	433492	299200	360903	40499	619604
BIL	174503	212641	0	387144	266895	347822	39930	574787
TUN	379906	169270	0	549176	271718	263990	22953	512755

Year	2008				2009			
Species/ RFO	IATTC+Overlap	WCPFC+Overlap	Overlap	TOT. PAC.	IATTC+Overlap	WCPFC+Overlap	Overlap	TOT. PAC.
SWO	6717560	3409726	2280579	7846707	8010724	1721354	673838	9732078
IOO	1626690	1120240	696136	2050794	1484762	590745	270677	2075507
PGO	3633169	2107417	1086259	4654327	3442690	1271778	383548	4714469
SHK	45883	57543	20242	83184	73541	55692	15670	129233
OTH	384833	181029	49155	516707	513642	125555	26282	639197
BIL	268391	167693	94654	341430	34780	1768	755	36548
TUN	436535	186558	46145	576948	59250	16684	3438	75934

Table VII.- Historical overview of the Spanish longline landings (kg) of target and bycatch species during the 2004-2009 period. Code BIL includes all billsfish species, SHK includes all pelagic sharks, TUN all tuna species and OTH other different species.

2.2. Number of vessels by size

A total of 32 Spanish flagged longline vessels targeting swordfish were fishing during the year 2009 in the Pacific Ocean, 9 of them in the WCPFC convention area (6 with a GRT over 500+, and 3 of the 201-500 GRT class), either all year round or temporarily. The surface longline 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 and with additional radio buoys to locate the mainline. 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 lightstick and a baited hook (baited by hand). All Spanish flagged longliners process the swordfish and other species on board in dressed weight (eliminating the head, viscera and fins) and keeping it frozen.

2.3.- Fishing patterns

Figure **5** shows the nominal CPUEs obtained for Spanish longline fishery during 2009 in the Convention Areas of WCPFC and IATTC. Figure 6 shows the nominal effort aggregated by area (5ºx5º) in the Convention Areas of WCPFC and IATTC, during 2009.

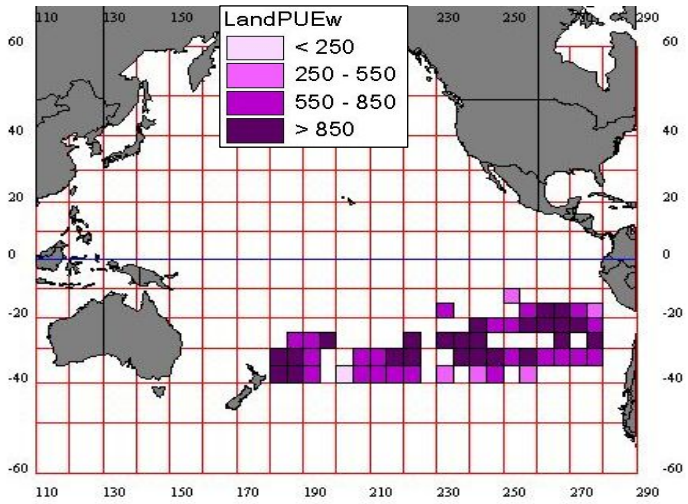

Fig.- 5. Nominal CPUE of swordfish (kg round weight per thousand hooks) of the EU-Spanish fleet in 5x5 degree squares during the year 2009 in the WCPFC and of the IATTC-CA as reported to both RFOs.

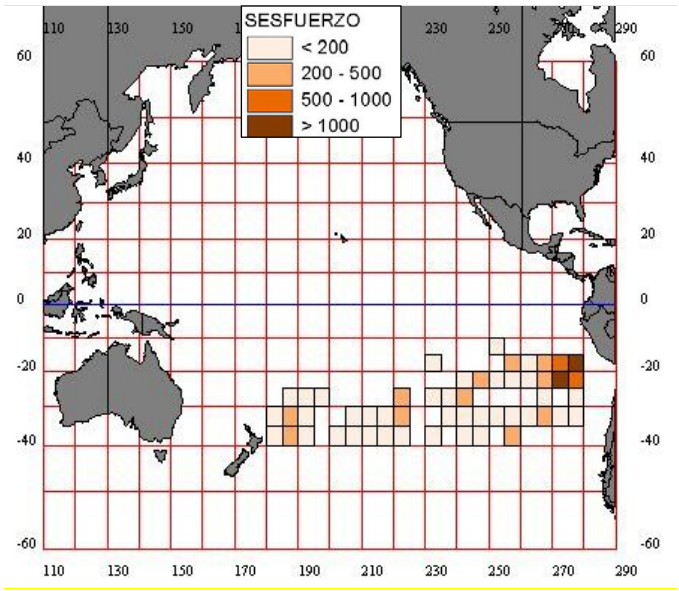

Fig. 6.- Nominal fishing effort, in thousands of hooks set, by the Spanish surface longline fleet during 2009. All Pacific fishing areas are included, as reported to both RFOs.

2.4.- Estimated total catches of non-target, associated and dependent species.

Data on landed bycatch during 2009 and codes used are provided in tables V and VI. Historical estimations of the Spanish longline bycatch species and group of species landings for 2004-2009 period are provided in table VII. The Spanish longline fishery regularly keep on board all the bycatch species, except in the case of some species coded us N/I ("other species no identified"), which represent around 0.17% of the total bycatch and 0.09% of the total catches, including the target species. Observations to assess the potential incidental bycatch of sea birds and marine turtles were kept during the year 2009. The area selected was very restricted (30º-40ºS / 170º-175ºW), because of a relatively high incidental catch rate expected in this area. The preliminary results indicate a null interaction with marine turtles (541 thousand hooks observed) and an interaction rate of 1.1E-04 sea birds per hook of.

3.- RESEARCH AND STATISTICS

In 2009, swordfish size sampling reached a coverage of 22% of the total number of swordfish caught in all Pacific areas combined. The size sampling coverage for the WCPFC areas was of 11.7%.

Information on pop-up satellite tags deployed in swordfish aboard Spanish surface longline vessels during 2007 in the Sourtheastern Pacific Ocean has been recently published (Abascal *et al*., 2010). Another manuscript on shortfin mako tagging is currently being evaluated (Abascal *et al.*, submitted).

Bycatch estimations from all species and covering all historical period fishing in the Pacific areas have been previously presented to the IATTC bycatch working group (Mejuto *et al.*, 2007), and have been recently updated (Ramos-Cartelle *et al.*, in press). Data on fins-body weights ratios of shark species and other biological parameters were also obtained by updating analyses previously done (Mejuto *et al*., 2009; Espino *et al*., in press; Lorenzo *et al*., in press).

In the case of the purse seine fishery, aside a 100% observer coverage of WCPFC authorised programs, 81% of the catch in the WCPFC-CA, including bycatch, was monitored by IATTC and national program observers of the Agreement on the International Dolphin Conservation Program (AIDCP).

A document on purse seine BET catches and net depth has been presented as information paper for the Fishing Technology SWG at SC6 (Delgado et al., 2010).

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