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PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

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EUROPEAN UNION

EU-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

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Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by April 2011	NO
If no, please indicate the reason(s) and intended actions Annual catch estimates were provided by 30 April. Aggregated catch and effort data and operational level data were also provided for the purse seine by 30 April. In the case of the longliners, aggregated data were sent to the WCPFC Secretariat and SPC-OFP on 8 July 2011.	

SUMMARY

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

In 2010, four EU-Spain purse seiners, all with a gross register 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 two trips of one of the vessels, logbooks, (100% coverage) indicate a total landed catch of 29468 t (4911 t BET, 20517 t SKJ and 4040 t YFT). Effort, aggregated catches, discards and bycatch data are also presented.

During the year 2010, a total of 5 EU-Spanish flagged longline vessels targeting swordfish were fishing in the WCPFC Convention Area. The gear used is the monofilament surface longline gear (Florida style modified), using an average of around 1100 hooks per set. The average characteristics of the vessels involved in the fishery were the same as years before- 291.8 GTR, 861.8 HP and 40.8 m in length. The 2010 swordfish landings, bycatch and effort distribution, are provided. The estimations of landings available for 2010 indicate a total SWO catch of 994 t from the WCPFC Convention Area (381 t from the WCPFC-CA east of 150° 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 150°W since 1996 (overlap with IATTC convention area). Since 1999, this fleet has operated in the WCPFC-CA west of 150°W. 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, the four EU-flagged purse seiners operating in the Pacific Ocean have carried out their activity in both the IATTC and WCPFC Convention Areas during 2010, and have carried observers of the APICD in all the trips but two (covered by the logbooks). Total catches reported by the observers and logbooks, catches to the east of 150°W and discards of the three main target species during 2010, as well as in previous years, are shown in Table I.

	2010			
	WCPFC	WCPFC east of 150ºW	Discards	No. Sets
BET	4910.73	4	34.73	
SKJ	20517.20	53	255.20	446
YFT	4040.33	21	8.33	

	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 EU-Spain purse seiners in the WCPFC convention area, in the WCPFC-CA east of the 150°W meridian, estimated discards and number of sets.

1.2.- Number of vessels by size

As in previous years, 4 purse seiners fished in the WCPFC-CA in 2010, with gross register 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
2010	9732	4

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

1.3.- Fishing patterns

Figure 1 shows the distribution of the catches (5° x 5°) of Spanish purse seiners in the WCPFC-CA during 2009 and 2010.

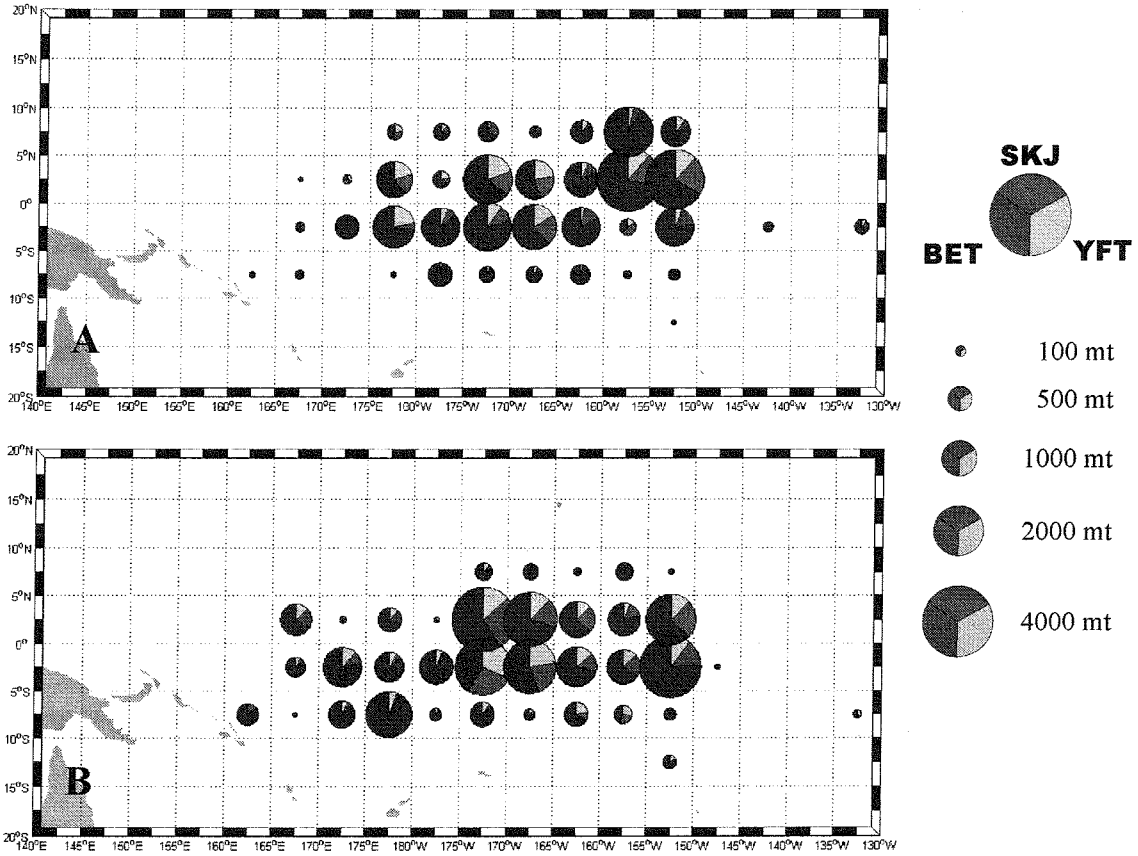
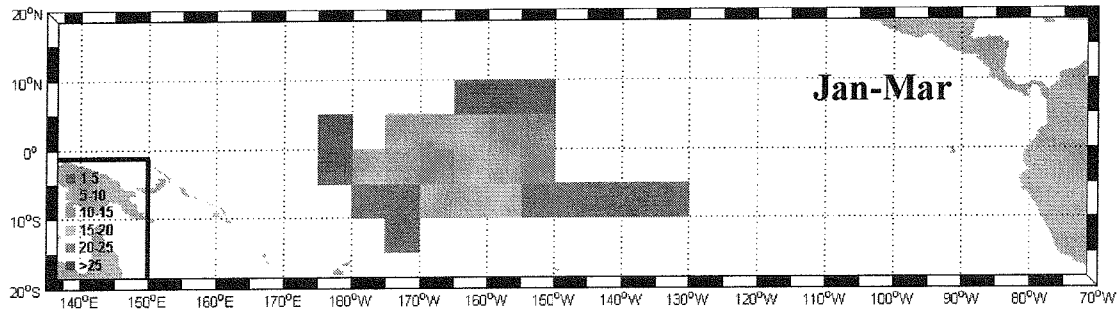
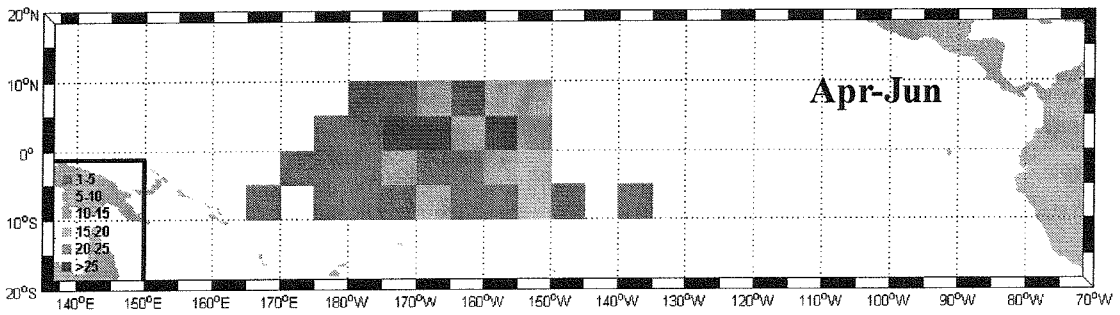
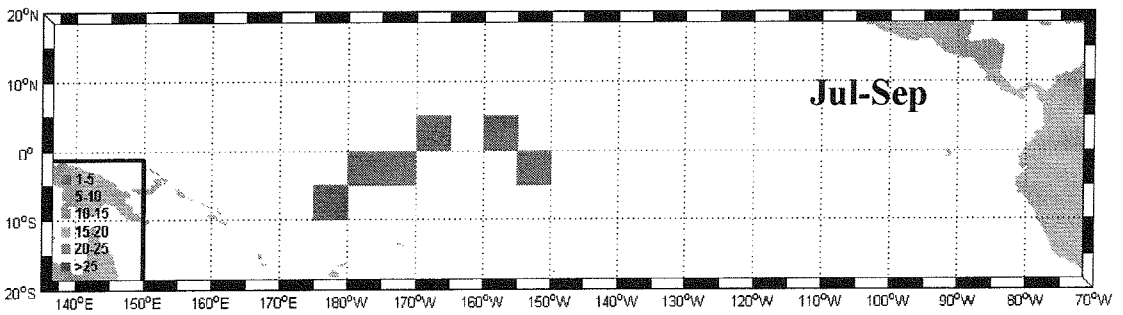


Fig. 1.- Distribution of catches by area (5°x5°) and species in 2009(A) and 2010 (B).

The distribution of fishing effort during 2010, by quarter, is shown in Figure 2. The fishing effort is seen to be mainly distributed around the equator (10° S to 10° 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 due to the closure of the FAD fishery, as well as a slight concentration of the effort in certain areas during the second quarter. This pattern is similar to that observed in 2009 (Fig. 3).







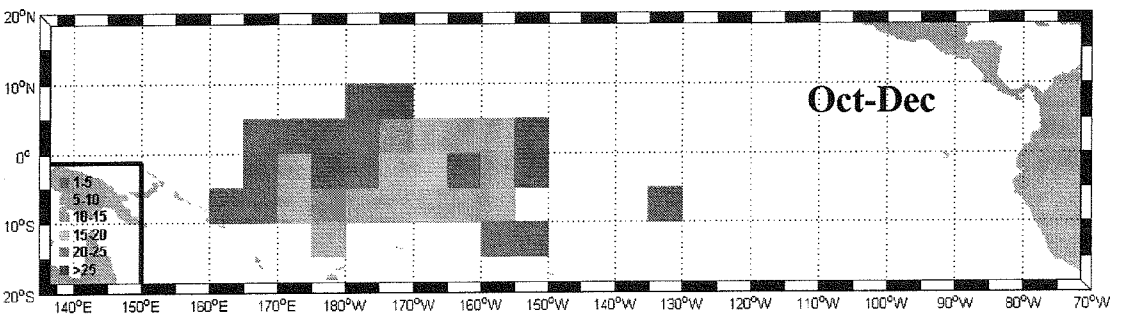


Fig. 2.- Distribution of the purse seine effort, in fishing days, by area (5°x5°) and quarter in 2010.

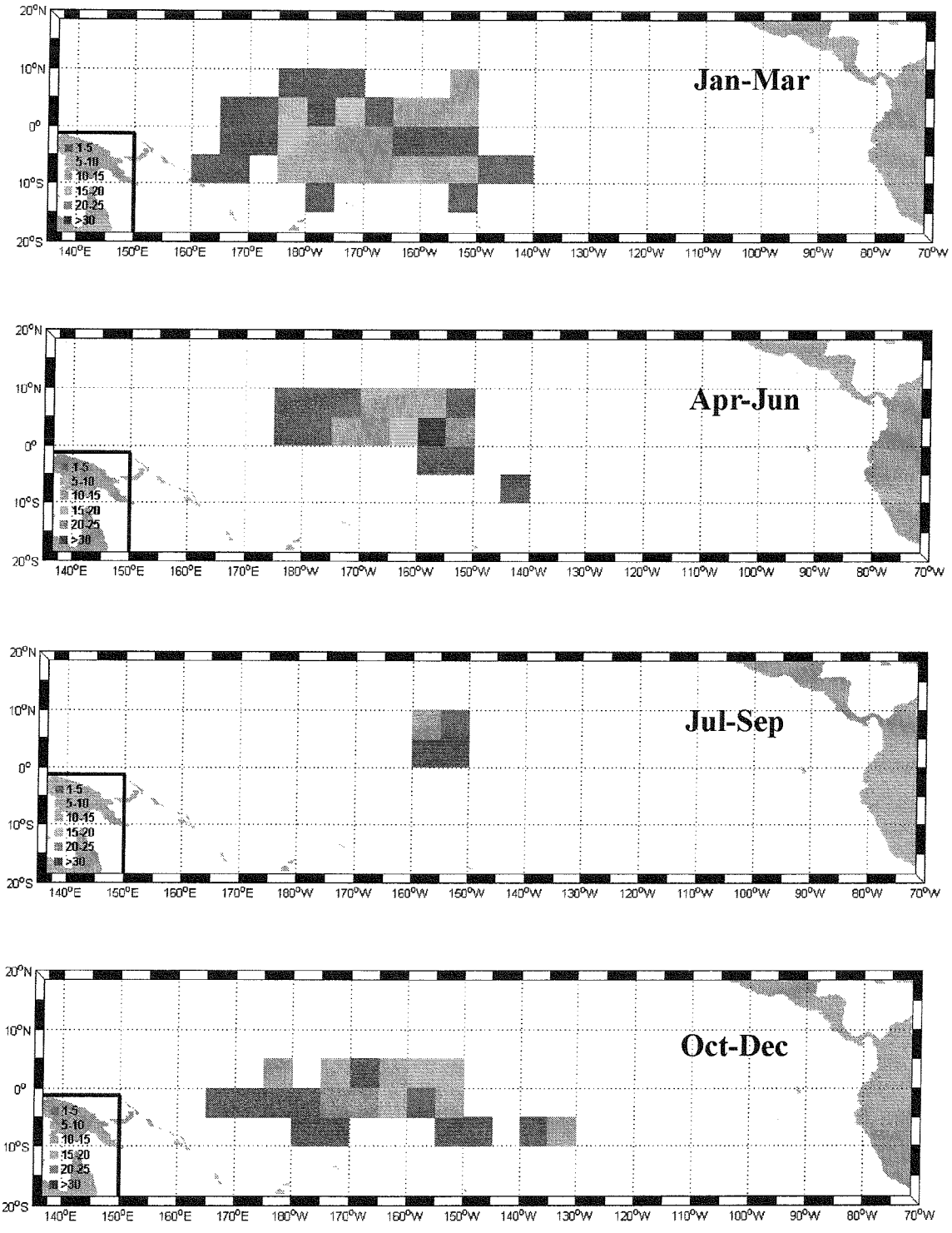


Fig. 3.- Distribution of the purse seine effort, in fishing days, by area (5°x5°) and quarter in 2009.

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

Table III summarizes the purse seine bycatch by species in 2010 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 (N. Vogel, pers. comm.).
Around 30% of the *Carcharinus falciformis* and *C. longimanus,* as well as all the *Rhincodon typus* bycatch included in table III was released alive.

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 2010, four turtles (two olive ridley, *Lepidochelys olivacea*, and two green turtles, *Chelonia mydas*) were involved in purse seine fishing operations within the WCPFC-CA (observer coverage: 89% of the total catch in weight). The four turtles were released unharmed.

Purse seine bycatch in the WCPFC-CA for 2009 is provided in Table IV.

	Species	WCPFC	East of 150 ° W
BILLFISH	*Istiophorus platypterus*	0.03	0
	Makaira indica	0.13	0
	Makaira nigricans	18.83	0
	Makaira, Tetrapturus	0.92	0.12
	Tetrapturus angustirostris	0.07	0
	Sharks, nei	0.07	0
SHARKS	*Carcharhinus falciformis*	30.51	0.02
	Carcharhinus longimanus	0.19	0
	Carcharhinus spp.	0.1	0
	Rhincodon typus	8.39	0
	Unidentified	0.02	0
OTHER FISH	*Acanthocybium solandri*	4.03	0.1
	Aluterus monoceros	0.01	0
	Aluterus scriptus	<0.01	0
	Aluterus spp.	<0.010	0
	Balistidae	2	0
	Balistidae, Monocanthidae	0.02	0
	Canthidermis maculatus	4.59	0.02
	Caranx sexfasciatus	0.03	0
	Caranx spp.	0.03	0
	Coryphaena equiselis	0.01	0
	Coryphaena hippurus	4.91	0.19
	Coryphaenidae	1.24	0
	Decapterus macarellus	0.11	0
	Elagatis bipinnulata	2.3	0.01
	Kyphosus analogus	<0.01	0
	Kyphosus elegans	0.06	<0.01
	Kyphosus spp.	0.01	<0.01
	Lobotes surinamensis	0.07	0
	Manta birostris	0.22	0
	Mobula spp.	0.04	0
	Mobula tarapacana	0.03	0
	Mobulidae, Dasyatidae	0.01	0
	Mola mola	0.33	0.16
	Naucrates ductor	<0.01	0
	Remora remora	<0.01	0
	Sectator ocyurus	<0.01	0
	Seriola lalandi	0.5	0
	Seriola rivoliana	0.02	0
	Seriola spp.	0.01	0
	Sphyraena barracuda	0.17	0
	Uraspis helvola	<0.01	0

Table III.- Purse seine bycatch in metric tonnes in the WCPFC-CA and in the WCPFC-CA east of meridian 150°W during 2010. These figures have been estimated from the bycatch records of the trips carrying observers of the AIDCP (89% 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 ° 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
	Sharks, nei	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 IV.- Purse seine bycatch in metric tonnes in the WCPFC-CA and in the WCPFC-CA east of meridian 150°W 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.

2.- SURFACE LONGLINE

A total of 5 EU-Spanish longline vessels have operated in the WCPFC-CA. Since this fleet commenced its activity with an experimental survey during the first quarter of 2004, it has been targeting swordfish with monofilament surface longline gear. Since the beginning of this fishery swordfish catch coverage has been kept at 100%, mainly based in mandatory logbooks. All Spanish flagged longliners process the swordfish on board in dressed weight (eliminating the head, viscera and fins) and keep it frozen.

The information obtained was processed using a standardized methodology recommended for these types of long distant longline fleets, in the same final formats as reported within the ICCAT, IATTC and other fora.

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

The preliminary 2010 swordfish and bycatch landing estimations are given in table V. Swordfish landings for 2010 were 613 t from the WCPFC-CA west of 150°W (62%) and 381 t from the WCPFC-CA east of 150°W (38%). The 49% of the total landings were of the target species, swordfish. The 46%, 1% and 4% of the total landings were of all the sharks species combined, all the tuna species and of the group of other species, respectively.

During the year 2010 a total catch of sharks of 936 t (717 t blue shark, 218 t shortfin mako and 0.5 other sharks), 7.7 t of billfish (mostly striped marlin with a total of 6.1 t) and 17 t of tunas was recorded. The EU-Spanish surface longline fleet has never carried out finning practice in Pacific Ocean. Trunks (dressed weight) of virtually all the sharks caught, along with their respective fins, are stowed on board for human consumption. Therefore the profitable use of the different parts of a shark is probably better than that of the teleosts in most international fisheries. Data by species, body weight (kg) and fin weight (gr), among other variables, are being recorded mostly by observers during some of the commercial trips of the Spanish surface longline fishery across all the oceans, including Pacific Ocean, taking advantage of the commercial routine protocol on board which is common to all oceans. The ratios -conversion factor- and the percentage of fins were calculated by species for different types of body weights when available and they might be useful on a basis for all areas where the Spanish longline flag fleet is fishing.

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

Group	Code	Species	RW tons
BIL	BLZ	*Makaira mazara*	1.1
BIL	MLS	*Tetrapturus audax*	6.1
BIL	SFA	*Istiophorus platypterus*	0.1
BIL	SHP	*Tetrapturus angustirostris*	0.4
	Tot. BIL		**7.7**
OTH	CHO	*Coriphaena spp.*	3.0
OTH	LFO	*Lepidocibium flavobrunneum*	68.1
	Tot. OTH		**71.1**
SHK	CLO	*Carcharhinus longimanus*	0.5
SHK	CPO	*Carcharhinus plumbeus*	0.1
SHK	SMA	*Isurus oxyrinchus*	217.9
SHK	BSH	*Prionace glauca*	717.3
	Tot. SHK		**935.6**
TUN	ALB	*Thunnus alalunga*	6.6
TUN	BET	*Thunnus obesus*	8.0
TUN	SBF	*Thunnus maccoyii*	0.3
TUN	SKJ	*Katsuwonus pelamis*	0.3
TUN	YFT	*Thunnus albacares*	1.8
	Tot. TUN		**17.0**
SWO	**SWO**	***Xiphias gladius***	**994.4**

Table V.- Preliminary scientific estimations of landings (metric tons of round weight) of target species (swordfish) and the overall bycatch of the most prevalent species taken by the Spanish surface longline fleet in 2010 in the WCPFC areas.

Species/ Year	2004	2005	2006	2007	2008	2009	2010
SWO	729988	1357730	3107358	4217400	3409726	1721354	994395
SMA	184934	430646	920734	1395723	1120240	590745	217876
BSH	582912	1433353	1637481	3211497	2107417	1271778	717265
SHK	88361	306436	47473	86320	57543	55692	497
OTH	39505	51615	151640	360903	181029	125555	71067
BIL	37665	74500	212641	347822	167693	1768	7723
TUN	71911	5084	169270	263990	186558	16684	16981

Table VI.- Historical overview of the Spanish longline landings (kg round weight) of target and bycatch species during the 2004-2010 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 5 EU-Spanish flagged longline vessels targeting swordfish were fishing during the year 2010 in the WCPFC-CA, either all year round or temporarily. This number is considerably lower than in previous years (table VII).

		GRT			
Year	**No. Vessels**	**0-50**	**51-200**	**201-500**	**>500**
2006	15	0	4	11	0
2007	17	0	5	11	1
2008	15	0	4	10	1
2009	9	0	3	6	0
2010	5	0	1	4	0

Table VII.- Number of EU-Spain lonliners per size in the WCPFC-CA by year.

2.3. Fishing patterns

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. Around 1000–1400 hooked branch lines are attached to the monofilament 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, a 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 keep them frozen. Fins are also retained on board in the case of shark species.

Figure **4** shows the nominal CPUE in number of fish and in weight for swordfish obtained by EU-Spanish longline fishery during 2010 in the Convention Areas of WCPFC. Figure **5** shows the nominal effort aggregated by area (5°x5°) in the Convention Areas of WCPFC, during 2010. Data on the fishing pattern for 2009 are provided in figures 6 and 7.

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

The catch of the all species classified as bycatch as a whole of this fishery has been scientifically estimated and reviewed since the beginning of this fishery in 2004. Data on landed bycatch during 2010 are provided in table V. Historical estimations of the EU-Spanish longline bycatch species and group of species landings for 2004-2010 period are provided in table VI. Observations to assess the potential incidental bycatch of sea birds and marine turtles were also kept during the year 2010 with a total of 81020 hooks observed between 25°-35° S and 110°-150° W. The preliminary results indicate a null interaction with marine turtles and an overall interaction rate of $2.4685E^{-05}$ sea birds per hook.

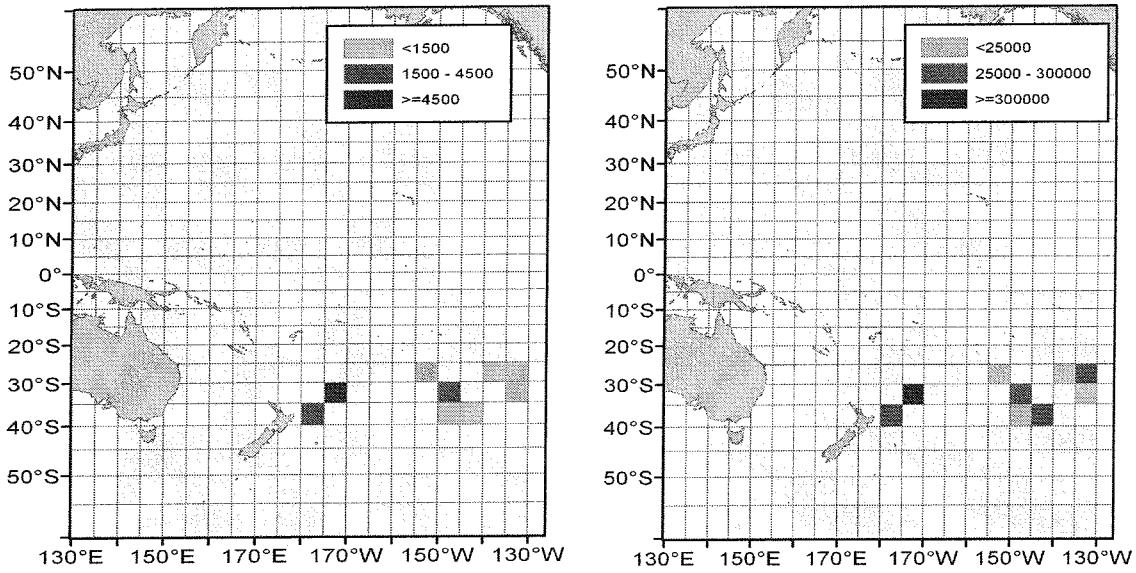


Fig.- 4. Nominal CPUE of swordfish in number of individuals (left) and in kg round weight (right), per thousand hooks, of the EU-Spanish fleet in 5x5 degree squares during the year 2010 in the WCPFC areas.

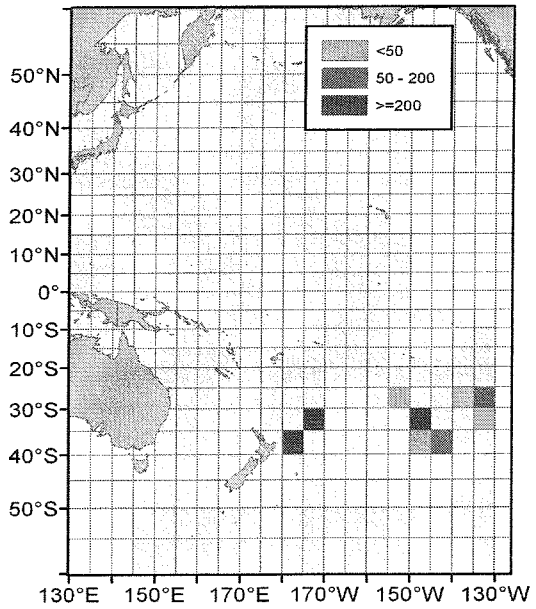


Fig. 5.- Nominal fishing effort, in thousands of hooks set, by the Spanish surface longline fleet during 2010 in the WCPFC areas.

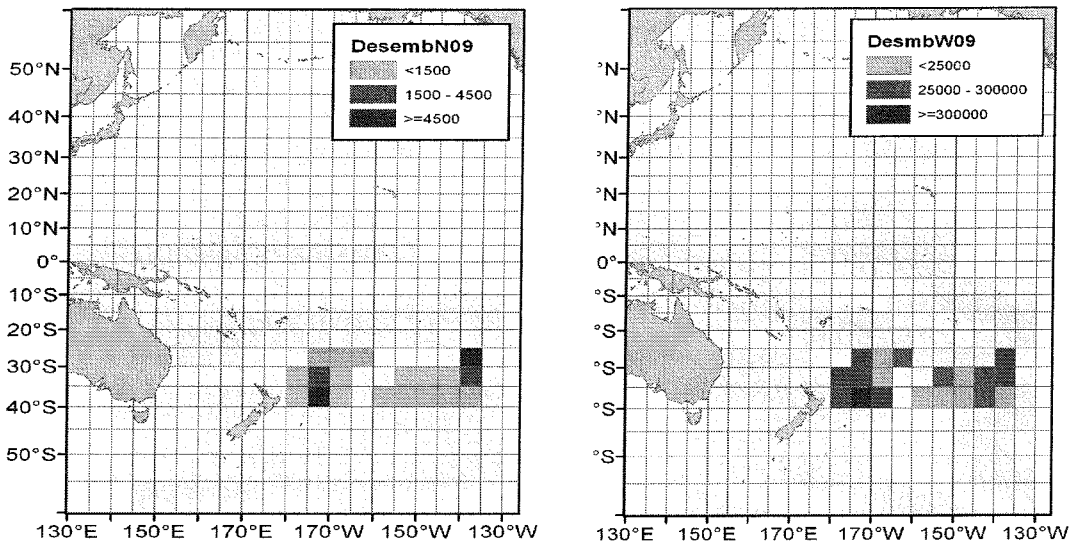


Fig.- 6. Nominal CPUE of swordfish in number of individuals (left) and in kg round weight (right), per thousand hooks, of the EU-Spanish fleet in 5x5 degree squares during the year 2009 in the WCPFC areas.

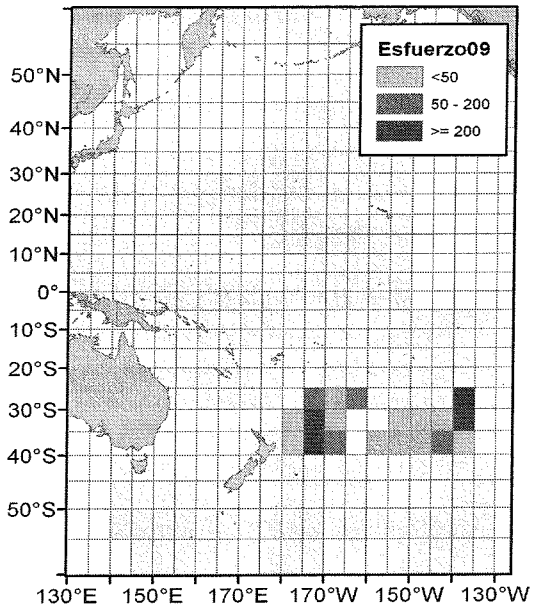


Fig. 7.- Nominal fishing effort, in thousands of hooks set, by the Spanish surface longline fleet during 2009 in the WCPFC areas.

3. RESEARCH AND STATISTICS

The information and sampling network has continued during 2010 by means of surveys, samplings at the ports, as well as other sources of voluntary information. These combined sources of information are making it possible to carry out swordfish task II (catch, effort and size) in a 5°x 5°-month-type format of the fleet, which was already submitted to the WCPFC-CA. Information and updates on different annual bycatch for high amount of taxonomic levels has been also obtained and reported. Nevertheless due to the low coverage of these bycatch species it was not possible yet to apply raising and substitution procedures to obtain a scientifically robust task II in 5°x5° squares.

The overall bycatch species composition was studied and estimated for the year 2010 based on a research project partially funded until December 2009 by the Spanish Fishery Administration. Additionally, different scientific works were also developed during 2010 and in previous years in order to study the fin/body ratios according to the different presentations of the fish products in the different oceans where the longline fleet is fishing (Mejuto et al. 2009, Espino et al. 2010, Lorenzo et al. 2010).

In 2010 a total number of 211 swordfish caught by surface longline were size sampled, all of them from the WCPFC-CA east of 150°W. The biological sampling of the swordfish has continued to provide some size-sex variables by spatial-temporal stratum as well as other biological parameters. Biological information on sharks continues being collected as well as gear interaction with turtles and seabirds.

Traditional opportunistic tagging is still being carried out tentatively on both swordfish and other associated species by the voluntary tagging program done by the commercial fleet and by the scientific observers on board.

Scientific statistical information on the activity of the commercial EU-Spanish 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.

In the case of the purse seine fishery, aside the observer coverage of WCPFC authorised programs, 89% 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).

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