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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

In 2007, three 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 (100% coverage) indicate a nominal catch of 19747 t (3040 t BET, 12688 t SKJ and 4019 t YFT). Effort, aggregated catches and bycatch data are also presented.

A total of 15 Spanish flagged longline vessels targeting swordfish were fishing in the WCPFC convention area, either all year round or temporarily. The average characteristics of the vessels involved in the fishery in 2007 were 291.8 GTR, 861.8 HP and 40.8 m in length. The gear used was the monofilament surface longline 'American-style' gear (Florida style modified), using an average of 1055 hooks per set. Due to the characteristics of the fishery, only preliminary estimations of landings are available for 2007. These estimations indicate a total SWO catch of around 8500 t for the entire Pacific Ocean, from which around 4200 t are from the Western and Central Pacific Fisheries Commission Convention area. Final estimations will be available around September 2008. The definitive 2006 swordfish landings, as well as estimations of bycatch, aggregated catches and effort distribution, are provided.

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PURSE SEINE

The Spanish purse seine fleet fishing in the Pacific Ocean has been 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 fishing vessels operating in the Pacific Ocean has varied between 2 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 2007, only 3 purse seiners fished in the WCPFC-CA, with gross registered tonnages of 1562, 2502 and 2468 GRT. 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	6532.23	3

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

Fishing vessels operating in the 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 three purse seiners mentioned above have carried out their activity in both regions. Total catches reported by the observers, catches to the east of 150ºW and discards of the three main target species are shown in Table II.

Total catches

	WCPFC	WCPFC east of 150ºW	Discards
BET	3040	175	47
SKJ	12688	699	165.5
YFT	4019	97	5.5

Table II.- Total catches (in metric tonnes) of BET, SKJ and YFT from EC-Spain purse seiners in 2007 in the WCPFC convention area, in the WCPFC-CA east of the 150ºW meridian and the 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 must be carried out by staff from either the WCPFC or IATTC at the ports where the fish are unloaded or transferred.

Aggregated catches

Figure 1 shows the distribution of the catches (5º x 5º) of Spanish purse seiners in the Pacific Ocean during 2007.

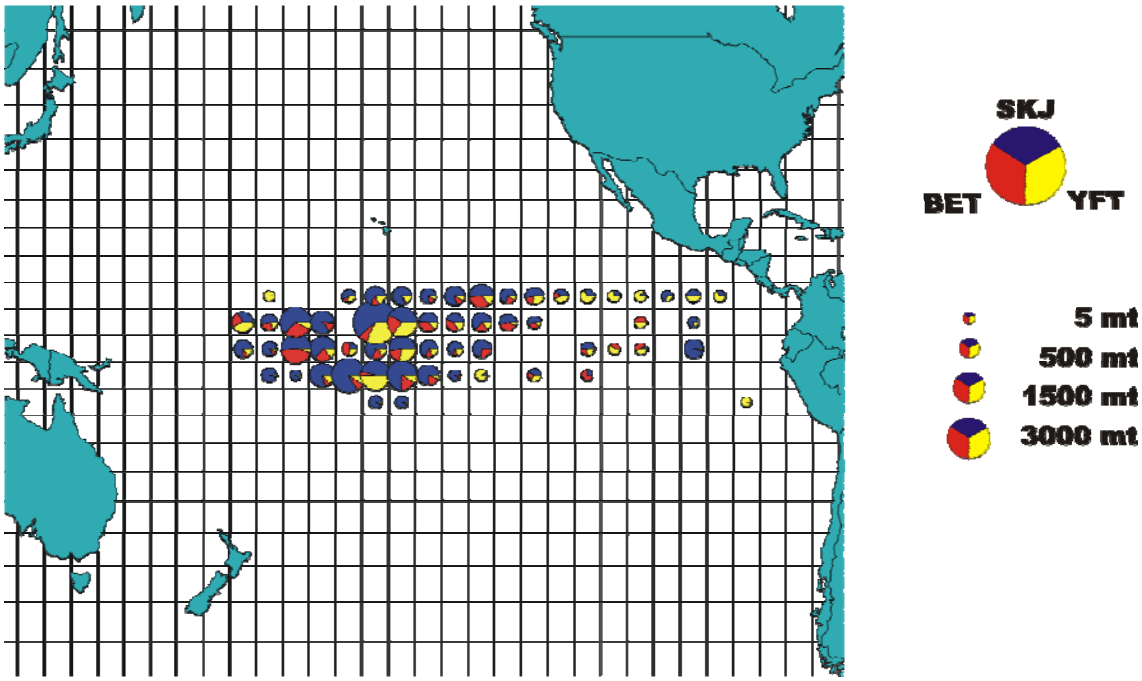

Fig. 1.- Distribution of catches by area (5ºx5º) and species.

More than 40% percent of the catch during 2007 took place in the EEZ of Kiribati, a country with which the EC has a fishery agreement.

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) from the western American coast to the 170º W meridian, with some concentration around 150º to 160º W. In the last quarter of the year, the fishing effort expands westwards, reaching the 170º E meridian.

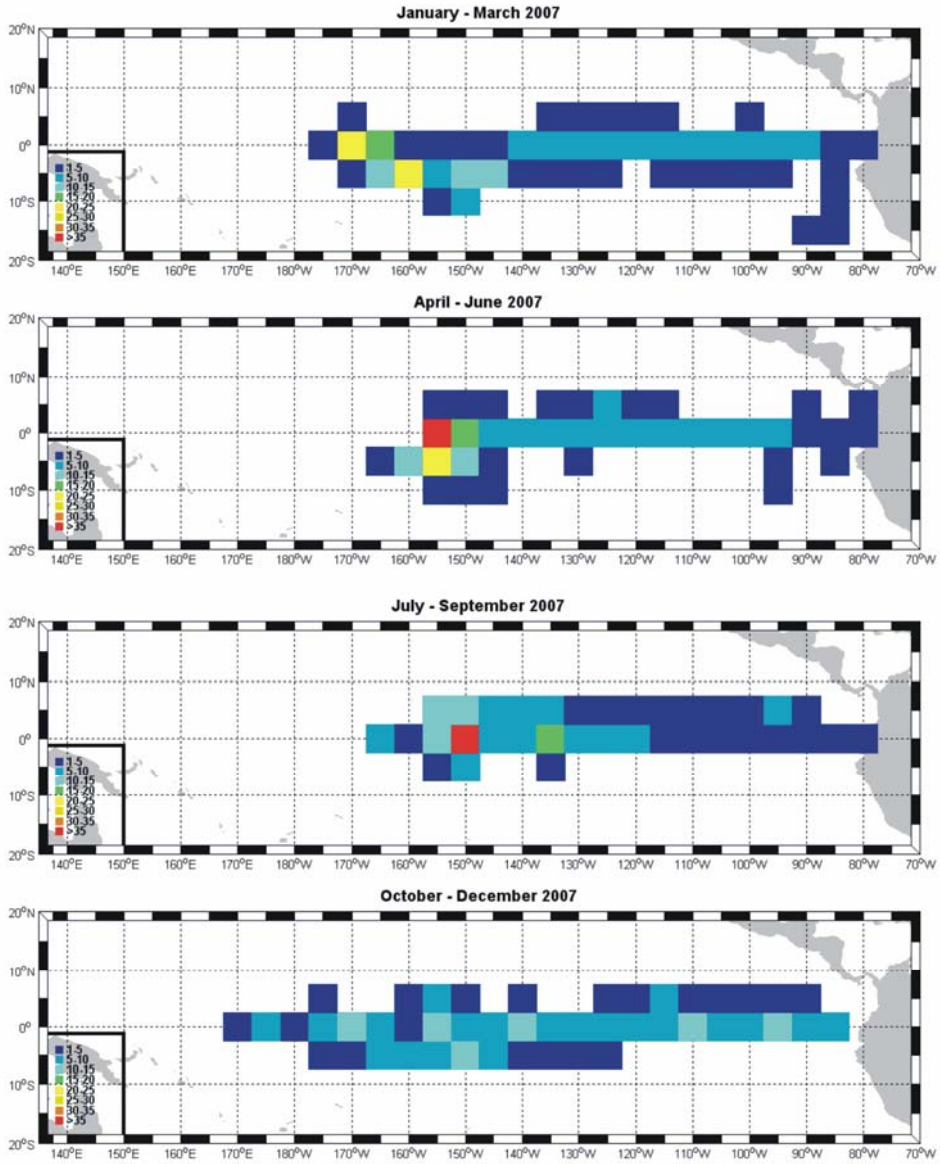

Fig. 2.- Distribution of the effort, in fishing days, by area (5ºx5º) and time of the year.

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: *Makaira indica, makaira nigricans, Carcharhinus falciformis, Acanthocybium solandri, Coryphaena hippurus, Elagatis bipinnulata and Canthidermis maculatus* account for more than 90% of the total bycatch in weight.

	Species	WCPFC	East of 150 ° W
BILLFISH	*Istiophorus platypterus*	0.03	<0.01
	Makaira indica	2.75	0.24
	Makaira nigricans	16.70	1.11
	Tetrapturus angustirostris	0.10	<0.01
	Tetrapturus audax	0.27	<0.01
	Makaira, Tetrapturus	0.23	<0.01
	Istiophoridae, Xiphiidae	0.27	<0.01
SHARK	*Carcharhinus falciformis*	16.32	0.64
	Carcharhinus longimanus	0.26	0.03
	Carcharhinus spp.	1.54	<0.01
LARGE FISH	*Acanthocybium solandri*	9.49	0.44
	Caranx sexfasciatus	0.05	<0.01
	Coryphaena equiselis	0.43	0.11
	Coryphaena hippurus	12.57	0.58
	Coryphaenidae	0.11	<0.01
	Elagatis bipinnulata	4.58	0.16
	Lobotes surinamensis	0.01	<0.01
	Mola mola	0.01	<0.01
	Sphyraena barracuda	0.23	0.02
	Ablennes hians	<0.01	<0.01
	Caranx spp.	<0.01	<0.01
	Seriola lalandi	<0.01	<0.01
	Seriola rivoliana	<0.01	<0.01
	Uraspis helvola	<0.01	<0.01
RAY	*Mobula japanica*	0.05	<0.01
	Mobula spp.	0.99	<0.01
SMALL FISH	*Balistidae*	0.24	0.08
	Canthidermis maculatus	4.76	0.07
	Decapterus macarellus	0.06	<0.01
	Kyphosus elegans	0.04	<0.01
	Sectator ocyurus	0.08	<0.01
	Aluterus monoceros	<0.01	<0.01
	Aluterus scriptus	<0.01	<0.01
	Aluterus spp.	<0.01	<0.01
	Balistes polylepis	<0.01	<0.01
	Kyphosus analogus	<0.01	<0.01
	Naucrates ductor	<0.01	<0.01

Table III.- Bycatch in metric tonnes in the WCPFC-CA and in the WCPFC-CA east of meridian 150ºW.

SURFACE LONGLINE

The Spanish surface longline activity started in the SE Pacific areas in 1990. However, this fleet did not carry out fishing activity in the western and central zones of the Pacific Ocean prior to 2004. 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.

Five Spanish flagged longline vessels were taking part in this pilot fishery starting from the port of Djakarta (Indonesia). The activity was carried out for a period of 240 days at sea per vessel and concluded in December 2004. The average characteristics of the vessels involved in this experimental fishery done in 2004 were 285 GTR, 810 HP and 40 m in length. The experimental fishing areas were located between 15ºN - 40ºS and 155ºE - 140ºW. Additionally, in the last quarter of 2004, another experimental action was also started in areas located in the eastern Pacific, mainly outside of the WCPFC area. However, 3 of the vessels involved in this action carried out 44 sets in 3 of the 5ºx5º squares within the WCPFC convention area, as already reported to the WCPFC. All Spanish flagged longliners process the swordfish on board in dressed weight (eliminating the head, viscera and fins) and keep it frozen. Some commercial sets were done by one regular longliner also during December 2004.

Number of vessels

During the year 2007 a total of 15 Spanish flagged longline vessels targeting swordfish were fishing in the WCPFC convention area, either all year round or temporarily. The average characteristics of the vessels involved in the fishery in 2007 were 291.8 GTR, 861.8 HP and 40.8 m in length. The gear used was the monofilament surface longline 'American-style' gear (Florida style modified), using an average of 1055 hooks per set.

Landings

The 2006 swordfish landings (updated in June 2008) are provided, and scientific estimation of bycatch landings data are also included (Table IV). Preliminary estimations of swordfish landings for 2007 are 8429.8 t for the entire Pacific Ocean from which around 4217.4 t are from the Western and Central Pacific Fisheries Commission Convention area (517.6 t from the WCPFC-CA east of 150º W). Final estimations will be available around September 2008.

Catch-boat coverage was kept at 100% of their fishing activity. In 2006, size sampling reached an individual sampling coverage of 18 % of the number of swordfish caught in all Pacific areas combined.

	Year 2006			
Group/Species	IATTC	OVERLAP	WCPFC	TOT. PACIFIC
Xiphias gladius	5152001	0	3107358	8259359
Isurus oxyrinchus	1496558	0	920734	2417292
Prionace glauca	3006515	0	1637481	4643995
Other SHK	40181	0	47473	87654
OTH	281852	0	151640	433492
Billfish	174503	0	212641	387144
Tuna spp.	379906	0	169270	549176

Table IV. Estimations of landings (kg round weight) of target species and the bycatch of the most prevalent species or groups of species taken by the Spanish surface longline fleet in 2006 for the convention areas of the Pacific Commissions (Overlap: area pertaining to the two Commissions)

Aggregated catches

Figure 3 shows the nominal CPUEs in the Convention Areas of WCPFC and IATTC, respectively.

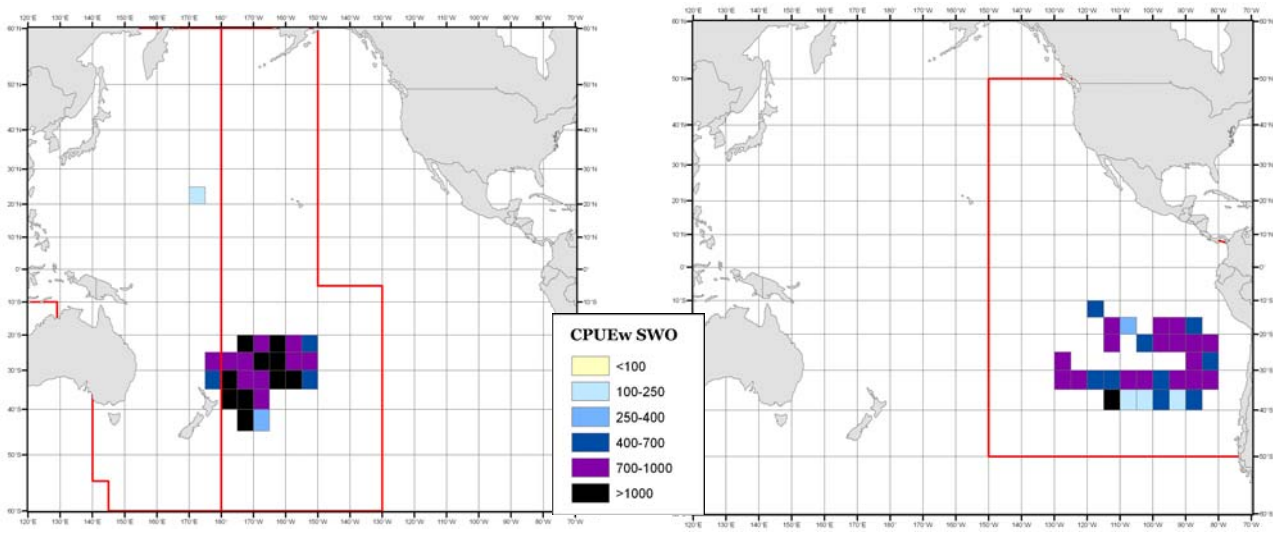

Figure 3. Nominal CPUE of swordfish (kg round weight per thousand hooks) of the EU-Spanish fleet in 5x5 degree squares during 2006 in WCPFC areas (left) and EPO areas of the IATTC (right)

Fishing effort

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

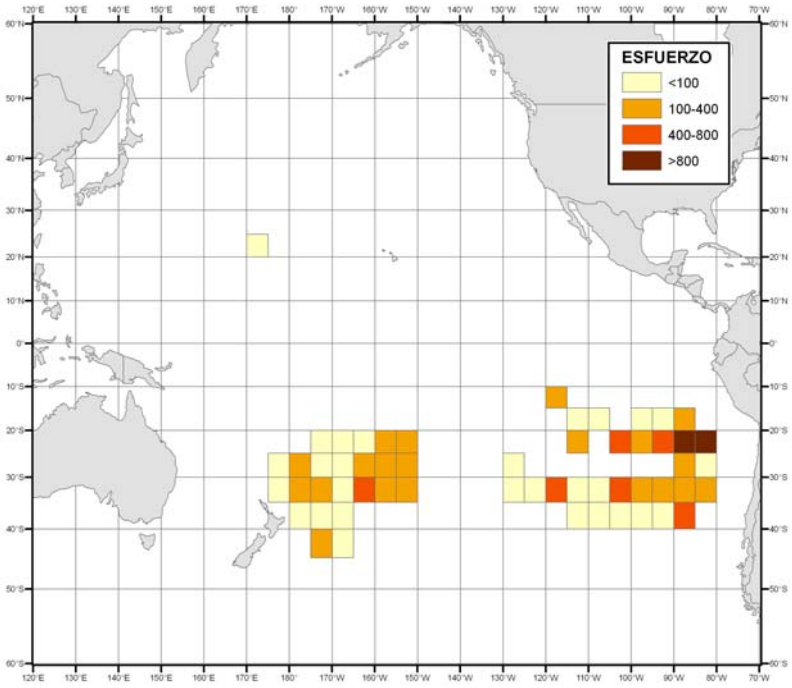

Figure 4. Nominal fishing effort in thousands of hooks set by the Spanish surface longline fleet fishing during 2006. All Pacific fishing areas are included

Bycatch

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

Further information can be found at http://www.iattc.org/PDFFiles2/BYC-6-INF-A-ESP-SWO-fishery-bycatch.pdf

Research activities

Although there is no EC-Spain research project aimed at this longline fishery, Spanish longline vessel activity in the WCPFC areas, the sampling scheme and some research activities were kept, when possible, following the same protocols used for other Pacific, Atlantic and Indian regions, upon staff and budget availability. Opportunistic tagging and release activities were also kept during the experimental fishing activities and regular fishing activity of this fleet within the voluntary joint program already established in all oceans with skippers, including several species.

A total of 5 draft-documents were presented to the informal swordfish stock assessment preparatory meeting held in April 2008, including information on pop-up tagging activities (Abascal et al., in preparation), genetic profiles of the Pacific swordfish (Kasapidis et al., 2008), patterns of reproduction and sex-ratio (Mejuto et al., 2008a), growth parameters in relation to other stocks (Valeiras et al., 2008a) and standardized

CPUE indicators (Mejuto et al., 2008b). Biological observations and samples of swordfish collected for studies on reproduction, sex ratio patterns, genetic analyses, etc., have been presented in several of these papers (Kasapidis et al., in press; Mejuto et al., 2007b) (Figures 5 and 6). Specific analyses on standardized catch rates of the Spanish surface longline fishery in western Pacific areas have been also developed. A total of 2472 set records were used for the short period 2004-2006 for the 3 areas and 4 quarters considered. The model tested explained 75% of the CPUE variability. Most of the CPUE variability may be attributed to the ratio (or 'target intensity' or fishing criteria of the skipper during the fishing activity) and, on a second level, the gear factor (Figure 7).

Another document (Fointeneau and Ariz, 2008), on the stock structure of bigeye tuna in the Pacific Ocean will be presented during the SC4.

FUTURE RESEARCH ACTIVITIES

During 2008, the IEO and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) have collaborated on the pop-up tagging of swordfish in the Western and Central Pacific. These tags will hopefully provide useful information about swordfish migrations between IATTC and WCPFC areas.

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, will begin by the end of 2008 and will be undertaken in 2009 on two tuna purse seiners that usually fish on FADs in the Eastern Pacific Ocean (EPO). Data will be collected at sea for a period of three months using echosounders (with several working frequencies) and through identification of fisheries.

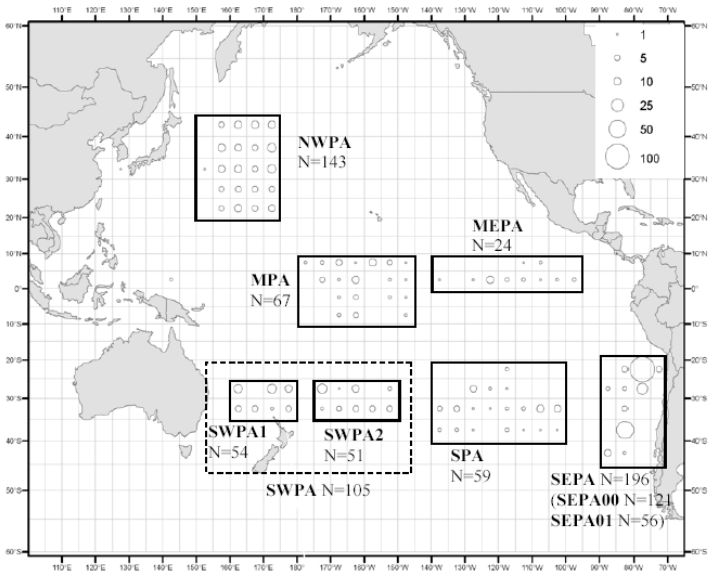

Figure 5. Location and sampling size (proportional to circle diameter) in 5ºx5º square of the swordfish samples genotyped for 13 microsatellite loci. Individuals were grouped into samples according to their geographical origin as shown by the squares. Sample name and size is also mentioned (from Kasapidis *et al.*, 2008)

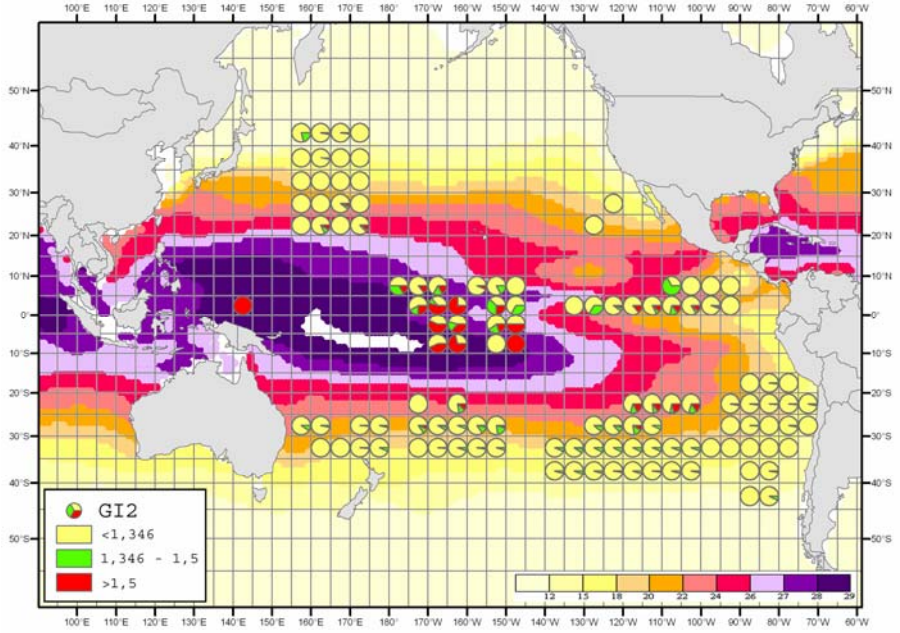

Figure 6. Occurrence of each of the three gonad index (GI2) ranges defined, in each 5ºx5º square observed in the Pacific ocean, for females with sizes LJFL>=145 cm and for all combined observations. (From Mejuto *et al., 2008b*)

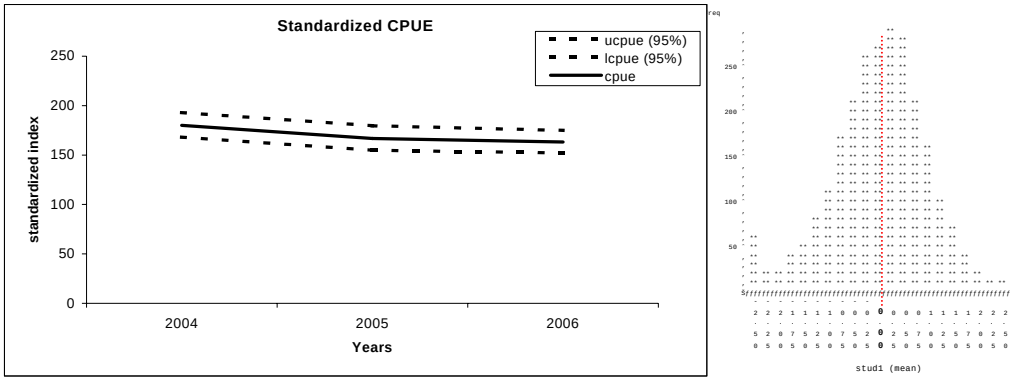

Figure 7. Annual change in the standardized catch rates in weight and 95% confidence intervals obtained for the period 2004-2006 (left panel) and standardized residuals (right panel)(from Mejuto *et al*., 2008a).

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