

BRIEF NOTE ON SOME ASPECTS OF THE SPANISH SURFACE LONGLINE FISHERY IN THE  
ATLANTIC OCEAN FROM 1988-92

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SUMMARY

This paper discussed some aspects which shed light on the evolution of the catches, nominal effort, etc., of the Spanish surface longline fisheries, using 1988 as a reference year for purposes of comparison.

Information is given (number of fish sampled, sampling coverage rate, etc.) which will allow the degree of representativity of the data bases created from the landing data to be assessed.

This paper also presents available information on discard levels or in general, catches not reflected in the landings, release of live fish, etc., having a very limited level of representation.

RESUME

Ce document commente certains aspects d'intérêt permettant de connaître l'évolution des prises, l'effort nominal, etc., de la pêcherie espagnole palangrière de surface, en utilisant l'année 1988 comme référence pour comparaison.

L'information (nombre de poissons échantillonnés, taux de couverture de l'échantillonnage, etc.) est donnée et permet de valoir le degré de représentativité des bases de données créées à partir des données de débarquement.

L'information disponible sur les niveaux de rejets ou, en général, les prises non reflétées dans les débarquements, rejets de poissons vivants, etc., avec un niveau de représentation très limité, est également fournie.

RESUMEN

En este documento se comentan algunos aspectos de interés para conocer la evolución de las capturas, esfuerzo nominal, etc. de la pesquería española de palangre de superficie, usando a efectos comparativos el año 1988 como año de referencia.

Se ofrece información (número de peces muestreados, tasa de cobertura de muestreo, etc.) que permite valorar el grado de representatividad de las bases de datos generadas a partir de datos desembarco.

Así mismo se presenta la información disponible sobre niveles de descartes o, en general, capturas no reflejadas en los desembarcos, liberaciones de peces vivos, etc., con un nivel de representación muy limitado.

## INTRODUCTION AND BACKGROUND

Several general parameters have traditionally been used as indicators of fishery trends (HOEY & BERTOLINO 1988, HOEY & CASEY 1988) (REY et al. 1988). More sophisticated analyses have replaced these descriptive forms, an understanding of which is necessary to acquire a good solid knowledge of the fisheries.

On occasion, the way a particular aspect of the fishery is described may be based on simple empirical, "subjective" observations that have not been strictly quantified. However, objective knowledge may also be acquired from observations and subjective experiences LAEVASTU & HAYES (????). Also, prior subjective knowledge may or may not be able to justify taking steps to make specific plans for their quantification.

Aspects such as "discards" (interpreted as all fishing mortalities caused by non-quantified catches in landing data, not including dropping) have not been taken into account in our fishery studies to date.

Although we were aware that this mortality added to the landings was a value other than zero, we also knew empirically that this mortality level was practically negligible for the Spanish fleet as a whole. In terms of the fishery's target species (SWO), the additional mortality was so scarce that it did not warrant specific action.

Ever since the fishery started, damaged fish unacceptable for the market, have been caught (bitten by sharks or damaged during fishing, etc.) Traditionally, these individuals have been consumed on board the ship, or filleted and divided up among the crew, etc. Therefore, they are not usually quantified in the landings. These customs probably exist in fleets all over the world, to a greater or lesser extent.

However, the voluntary discard of swordfish is not common practice among the Spanish fleet. Nonetheless, the release of small sized live fish ("palillos" or "chupas") has been relatively frequent since research began on this fishery in the 1970's.

The release of live fish may be attributed to a combination of the following factors:

- The relatively small number of small fish (under 15-20 kg.) traditionally caught by the Spanish fleet. (This is probably due to the selectivity of the gear, fishing areas, etc.)
- The low market price of fish under 30 Kg. and the especially low price of fish weighing less than 15 Kg.
- The protectionist criteria of some skippers.

The regulation measures that have recently gone into effect for the Atlantic swordfish, applied to the contracting parties, have made it necessary to identify and evaluate their possible effects on the different sectors of the fleet. It has also become necessary to evaluate their effect on the reliability of scientific data bases created from landing data as well as possible changes in exploitation strategies, etc.

## MATERIAL AND METHODS

For the comparison of certain basic parameters of the fishery (catch in weight, number sampled, etc.) we used data bases provided to the ICCAT, pertaining to the period from 1988 (reference year) to 1992 (the most recent year of processing). They are presented simply to facilitate the development of the working groups.

The estimation of "unreported catches" and discard levels were made using observer and some log-book data that provided this information, in spite of the rare instances that this occurred. The classification of the incident (in the general on board chapter) has not been easy and in some cases impossible. Therefore, it would appear that the most appropriate solution would be to consider this section all together.

## CATCH LEVELS IN WEIGHT

Figure 1 shows the catch levels (Kg. R<sub>w</sub>) for the period 1988-1992. For the Atlantic as a whole (N+S) the 1992 catch in weight was 10714 Tm, which means that it has decreased 23% (-23%) since 1988.

The North Atlantic catch was 5076 Tm, which is a 47% (-47%) reduction.

The catch in the South Atlantic was 5637 Tm, corresponding to an increase of 28% (+28%) compared to 1988, and a decrease of 27% (-27%) compared to 1989.

## NOMINAL EFFORT

Figure 2 shows the nominal effort levels of the Spanish surface longline fleet in the Atlantic, expressed in number of hooks used.

For the Atlantic as a whole (N+S) the nominal effort in 1992 was 36050 thousand hooks, which is a 16.9% decrease (-16.9%) compared to the 1988 level.

In the North Atlantic, nominal effort was 23064 thousand hooks, which means that the level went down 36.0% (-36.0%).

The nominal effort in the South Atlantic was 12986 thousand hooks, that is to say, a 76.9% increase (+76.9%) compared to 1988 and 0.5% (+0.5%) compared to 1989.

#### NOMINAL CATCH PER UNIT OF EFFORT

Figure 3 presents the evolution of the CPUEw (RW) for the period under consideration (kg. caught per 1000 hooks used).

If we compare 1992 to 1988 for the total Atlantic (N+S), the CPUE decreased 7.8% (-7.8%). In the North Atlantic the decline was 17.3% (-17.3%) and in the South Atlantic it was 27.5% (-27.5%).

#### CATCH W / CATCH N.

Figure 4 shows the catch W / catch N trends in recent years. If we compare 1992 and 1988 in the Atlantic as a whole (N+S), it increased 5.9% (+5.9%). In the North Atlantic this increase was 8.3% (+8.3%) and in the South Atlantic it underwent a 10.2% drop (-10.2%).

#### FISHES SAMPLED

Figure 5 provides the number of fishes sampled for each year. For the total Atlantic, the number sampled in 1992 was 146731 fishes, representing a 77.1% increase (+77.1%) as compared to 1988.

In the North Atlantic, the number of specimens sampled was 89993, which represents to an 11.8% increase (+11.8%).

The number of fishes sampled in the South Atlantic was 56738, which is an increase of 412% (+412%) compared to 1989 and an increase of 2316% (+2316% compared to 1988).

#### COVERAGE RATE OF SIZE SAMPLINGS

Figure 6 shows the sampling rate trends, i.e., the number of fishes sampled as opposed to the number of fishes landed.

For the total Atlantic (N+S) the coverage rate in 1992 was 66.1%, which means that it increased 144.8% (+144.8%) as compared to 1988.

In the North Atlantic the coverage rate was 79.9% in 1992, which is a 128.9% increase (+128.9) as compared to 1988.

The coverage rate in the South Atlantic was 51.9%, which is an increase of 1574% (+1574%) compared to 1989.

#### CATCH OF INDIVIDUALS LESS THAN 125 CM LJ-FL IN SIZE.

The percentage of fish caught measuring less than 125 cm in 1992 was 17.1% (Total Atlantic N+S), whereas it was 31.4% in 1988 (Figure 7).

#### DISCARDS AND RELEASES

Table 1 presents a list of the limited information available pertaining to "discards" and non-tabulated catches, including all catches carried out and not tabulated in the landings, for different reasons (dropping is not included). Also given is an idea of the release of live fish.

It was only possible to separate each type of observation in some of the trips. In keeping with the knowledge we had acquired empirically through the continued contact with the fishery, the data appear to confirm that the level of voluntary discards is practically negligible (0.05% during only one of the trips observed), while most of the unreported individuals correspond to damaged fishes (bitten by sharks, meals on board, etc.).

The release rate appears to be high, but in this activity, the presence of observers could be a positive determining factor, in addition to the fact that the ships used have crews that are especially sensitive to the protection of this resource.

In short, for the traditional fleet, the catch level not reflected in the landing data appears to be less than 1%, which confirms the empirical information available submitted to the work groups last year.

As regards the fleet of freezer ships that carry out their activity mainly in the tropical zones, the level is between 1.8 and 3.68. However we must remember that these rates should not be extrapolated to the total fleet.

Judging from the tracking of this fishery which has been going on since the mid 1970's, there does not appear to be any evidence that would suggest changes in these rates after the recommendations of the ICCAT went into effect.

Figure 8a shows a sample of individuals considered as (Shark+Eat). As we can see, all the size ranges are affected, while the live individual releases are only small sizes, which was to be expected (figure 8b).

The market prices of the Atlantic swordfish fluctuate considerably depending on the size of the fishes for sale. The small sized fishes have a much lower price (much less than half) than the fish of average size (30-60 kg.) or large size (+60 kg.). Therefore, vessels remaining in areas where juveniles concentrate are less profitable (as far as maximizing the cost-effectiveness of the catch).

In our opinion, this is the main factor conditioning the avoidance of certain areas where there are concentrations of age 1-2 individuals (and especially age 1). This criterion has been adhered to in recent years and we have not detected any changes, empirically, in the criteria of the fleet.

In this sense, the market "punishes" the capture of small fishes. This is an element that makes an indirect contribution to the regulation measures proposed by the ICCAT.

When regulation measures are introduced for the protection of juveniles, as is the case in this fishery, we must not rule out the possibility that "parallel channels" which market under-sized fishes, might be established, or that transshipments to other fleets and under-sized fish markets, etc., might occur. These possibilities should not be disregarded a priori and warrant investigation and assessment in order to detect possible biases, which, if they do indeed exist, would affect the scientific data bases.

Therefore, the information provided by all possible sources: observers, sampling and information networks, personal contact with skippers, shipowners, exporters, and in general all the sectors involved in the capture, marketing and research of this species, indicate that no additional bias are affecting the data bases.

In view of the above, we may state that the scientific data bases submitted to the ICCAT and obtained from landing data on the Atlantic surface longline fishery continue to be highly representative of the actual catch and catch-at-size levels. The regulation measures that have been introduced do not appear to contribute additional bias in our scientific data bases.

#### LITERATURE CITED.

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FLEET YEAR	SETS	EFFORT	ON BOARD				RELEASE
			LANDING	SHARK	EAT	DISCARD	
FRIG 90	241	611.60	6073 (97.6)	45 (0.72)	72 (1.16)	3 (0.05)	26 (0.42)
FRIG 91	147	416.19	4705 (98.0)	<----- 88 -----> (1.83)			8 (0.16)
FRIG 92	133	357.09	3656 (96.3)	<-----140 -----> (3.68)			NA
FRIG 93	128	288.84	4091 (97.8)	<----- 92 -----> (2.19)			NA
TRAD 93	121	308.78	1856 (95.7)	19 (0.97)	0 (0.00)	0 (0.00)	64 (3.30)

Table 1.- Data from scientific observers from the freezer vessels (FRIG) and the traditional fleet (TRAD) related to catches (on board), discards, and releases.

FLEET	= Type of vessel
YEAR	= year
SETS	= Number of sets observed
HOOKS	= Thousands of hooks used
ON BOARD	= Number of SWO fishes on board
SHARK	= Number of fishes on board bitten by sharks, not acceptable for the market, eaten on board, or filleted for consumption by the crew.
EAT	= Number of fishes eaten on board the ship, feeding the crew, or family members.
DISCARD	= Number of dead fishes discarded on a voluntary basis.
RELEASE	= Release of live fishes on a voluntary basis.
( )	= percentage
NA	= Data not available

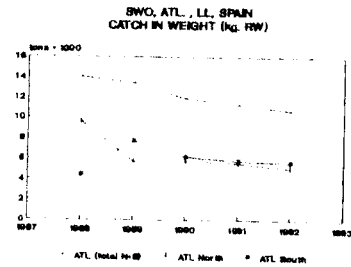


Figure 1. Catch levels in kg., live weight, for the 1988-1992 period.

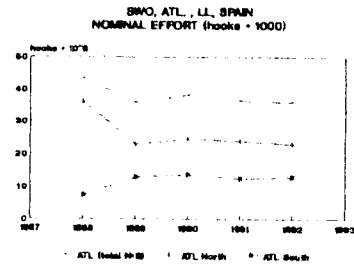


Figure 2. Nominal effort levels in number of hooks for the 1988-1992 period.

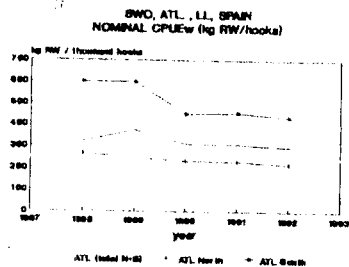


Figure 3. Catch per unit of effort (Kg Rw) for every thousand of hooks used.

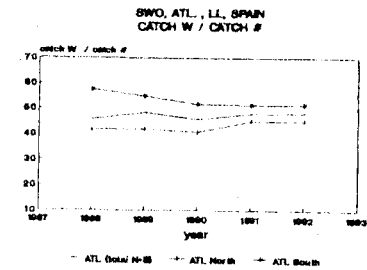


Figure 4. Catch in W (RW) / Catch N for the 1988-1992 period.

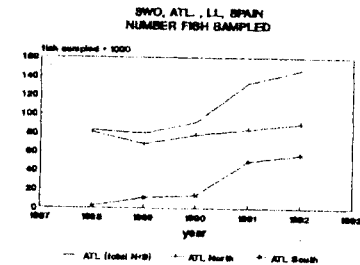


Figure 5. Number of fishes sampled by the data and sampling network using IEO log-books for the 1988-1992 period.

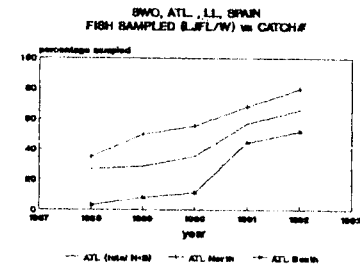


Figure 6. Fish sampling coverage rate compared to the total catch in number for the 1988-1992 period.