

## STATISTICS OF THE SPANISH ALBACORE (*THUNNUS ALALUNGA*) FISHERY IN THE NORTH EASTERN ATLANTIC DURING 2001 SUMMER SEASON

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### SUMMARY

*The aim of this document is to present a brief review of the main features of the Spanish albacore (*Thunnus alalunga*) fishery in 2001. Landings and nominal effort by the Spanish troll and baitboat fleets are presented. As well the catch at size composition of landings is included. This fishery develops during summer and autumn months in the Northeast Atlantic and Bay of Biscay waters. The development of landings and nominal effort made by those fleets during 2001 shows a sharp decrease mainly for baitboats that could be related to thermal and climatic anomalies in the fishing area.*

### RÉSUMÉ

*L'objectif du présent document est de fournir un bref examen des principales caractéristiques de la pêche espagnole de germon (*Thunnus alalunga*) en 2001. Il fournit les données de capture et d'effort nominal des flottilles espagnoles de ligneurs et canneurs qui ont développé leur activité en 2001, de même que la composition par taille des débarquements. Cette pêche de germon opère pendant les mois d'été et d'automne au nord-est de l'Atlantique et dans les eaux du Golfe de Gascogne. L'évolution des captures et de l'effort réalisé par ces flottilles indique une diminution en 2001, notamment de l'activité des canneurs, laquelle pourrait être liée à des anomalies thermiques et climatiques dans la zone de pêche.*

### RESUMEN

*Se presentan los datos de las capturas y esfuerzos nominales de las flotas de cacea y cebo vivo españolas que desarrollaron su actividad en 2001 y los datos de composición de tallas de las descargas. Esta pesquería de atún blanco tiene lugar en los meses de verano y otoño en el área del Atlántico nordeste y golfo de Vizcaya. La evolución de las capturas y esfuerzo realizado por estas flotas muestra un descenso en 2001, que afecta a la flota de cebo vivo principalmente y puede estar asociado a anomalías térmicas y climatología en el área de pesca.*

### KEY WORDS

*Albacore, fishery statistics, size composition, northeast Atlantic.*

## 1. INTRODUCTION

The albacore fishery in the north of Spain is one of the most important economical activities carried out by the spanish fleet during summer and autumn seasons (June to October). This marked seasonally is due to the migratory behaviour of immature albacore to the feeding area of Northeast

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Atlantic waters and Bay of Biscay. Two different types of gears target on albacore; baitboat (BB) and troll (TR). The number of boats involve varies among the fishing seasons being the annual average 600 vessels (80% troll and 20% baitboat in 2001). In general the troll vessels are of lesser tonnage and power than those of baitboat. The catch is mainly made up of juveniles of age groups 1 to 4.

Albacore is a large pelagic fish with a highly migratory behaviour. A migration pattern for juvenile population has been described based on tag-returns information (Bard, 1981; 2001; Ortiz de Zárate and Cort, 1998). Those albacore followed two main routes at the beginning of summer: one to the south-west of Ireland and the other to the Bay of Biscay area, whose movements are associated to sea surface temperature ranging from 17° C to 21°C (Havard Duclos, 1973; Leroy, 1990).

The aim of this paper is to present a brief review of the main features of the Spanish albacore surface fishery in 2001 and comparison with previous 2000 results. Following the recommendations on statistics by ICCAT, the catch and nominal fishing effort (days) as well as the catch-at size composition of landings are presented for both fleets: bait boat and troll. No quantitative analyses is been done on the data, however a review of past catch and effort data evolution is included in an attempt to explain the lowest records of albacore catches in 2001.

## 2. MATERIAL AND METHODS

The information comprises the scientific estimations on the nominal catch, effort and the catch at size by gear, based on the data obtained by means of the sampling network of IEO, established in the main fishing ports of Galicia (western north coast) and the Cantabrian coast.

This seasonal fishery is carried out by trollers and baitboats from June to October and from July to October, respectively. A number of individual trips from both fleets: bait boat and troll are interviewed and the catch landed is sampled to the nearest centimetre (FL = 35 to 120 cm range) according to commercial categories in the fishing markets. Thus catch, nominal effort (fishing days) and length distribution are processed by gear on monthly basis following statistical procedures to estimate Task I and Task II (biological information) statistics of ICCAT (Miyake, 1990).

In **Figure 1** are represented the fishing grounds for troll and baitboat fleets. The troll vessels extends in a larger area from the coastal waters in the Bay of Biscay to the most northern waters around southwest coast of Ireland while the baitboats are localised mainly in the bay of Biscay waters. This last fleet has confined its activity to the Bay of Biscay area in the last years (Santiago, 1996; Ortiz de Zárate and Rodriguez-Cabello, 2001; 2002) and still continued this tendency in 2001.

Considering the different geographical distribution of fleets, two main fishing areas have been identified according to longitude: Gulf (0°-10°W) and Atlantic (10°W-30°W) in order to summarize the catch and effort by fleet on each given area for 2000 and 2001 fishing seasons.

A review of averaged catch and fishing effort by gear has been done for the period 1975 to 2000 with the aim of compare the exploitation levels of both fleets during 2001 fishing season with the described time intervals for the period.

## 3. RESULTS AND DISCUSSION

In **Table 1** are included the catches and nominal effort for both fleets obtained in 2001 and those corresponding to 2000 for comparison reasons. The most remarkable change is given by the lower catch of bait boat fleet in 2001, representing a decrease of 67 % along with a reduction of 30% of the fishing effort respecting 2000. For the troll fishery there was as well a reduction on catch (15%) with a minor fishing effort (30%) in 2001 as compared to 2000 statistics. In figure 2 it is presented the

monthly catch distribution for the troll and bait boat fleets in 2001. As shown there is a seasonal component on the catch for both fleets. In 2001 the bait boat catch was concentrated on July and August being very scarce the activity in the autumn months. Meanwhile for troll fleet the catch was more spread along the summer and autumn months with a peak of catches also on July and August.

In **Table 2** is presented the evolution of catches and fishing effort (fishing days) averaged over different periods of time beginning with 1975 up to 2000 year. Those results show the decreasing tendency in the average catch and effort for both fleets along the decades and the lowest catch and effort level reached in 2001 for both fisheries: troll and bait boat.

Considering the two geographical areas described as Gulf and Atlantic, in table 3 it is observed the different catch and effort obtained by the two fleets in respect to the two fishing grounds. In 2001 there was a reduction in the catch taken in the Gulf area (Bay of Biscay) that affected both fleets but it had a larger impact on the bait boat catch hence the total catch in this area was largely reduced in 2001 respecting the catch level in 2000 and as being presented the largest proportion of the bait boat fishing activity was carried out in the Bay of Biscay. This decrease on the fishing activity of bait boats was due to adverse climatic conditions in the Bay of Biscay area at the beginning of the autumn season. On the other hand the catch level for trollers diminished 15 % in 2001 having been done most of the fishing activity in the Atlantic area.

The total catch at size distribution landed by both fleets in 2001 is represented in **Figure 3.a and 3.b** for bait boat and troll, respectively, the length selectivity is about the same for both gears. Three main modes, more clearly identified in baitboat length distribution catches, apparently correspond to age groups 1 to 3 and fewer fish older (> 80 cm).

Immature albacore followed two main routes at the beginning of summer when migrating to the feeding areas in the north hemisphere: one to the south-west of Ireland and the other to the Bay of Biscay area, whose movements are associated to waters of temperature between 17°C and 21°C. Annual changes on the sea surface temperature in the fishing areas along with climatic conditions might influenced the distribution of immature albacore in the Bay of Biscay area during 2001 among other possible factors. The warming caused by the NAO positive anomalies has influenced the sea surface temperature in the northern latitudes of the northeast Atlantic (Hurrel and Dickson, 2001).

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**Table 1.** Catch, nominal effort (fishing days) and number of albacore sampled by the spanish fleet (TR = Troll and BB = Baitboat) in 2000 and 2001.

Year	Gear	Catch (k)	Effort	Catch (n°)	N° fish sampled	% Coverage
2000	BB	10498949	5406	1726156	15231	0.9
	TR	5012643	12023	705903	28237	4.0
2001	BB	3420338	3822	488788	14157	2.9
	TR	4244596	8512	633918	29711	4.7

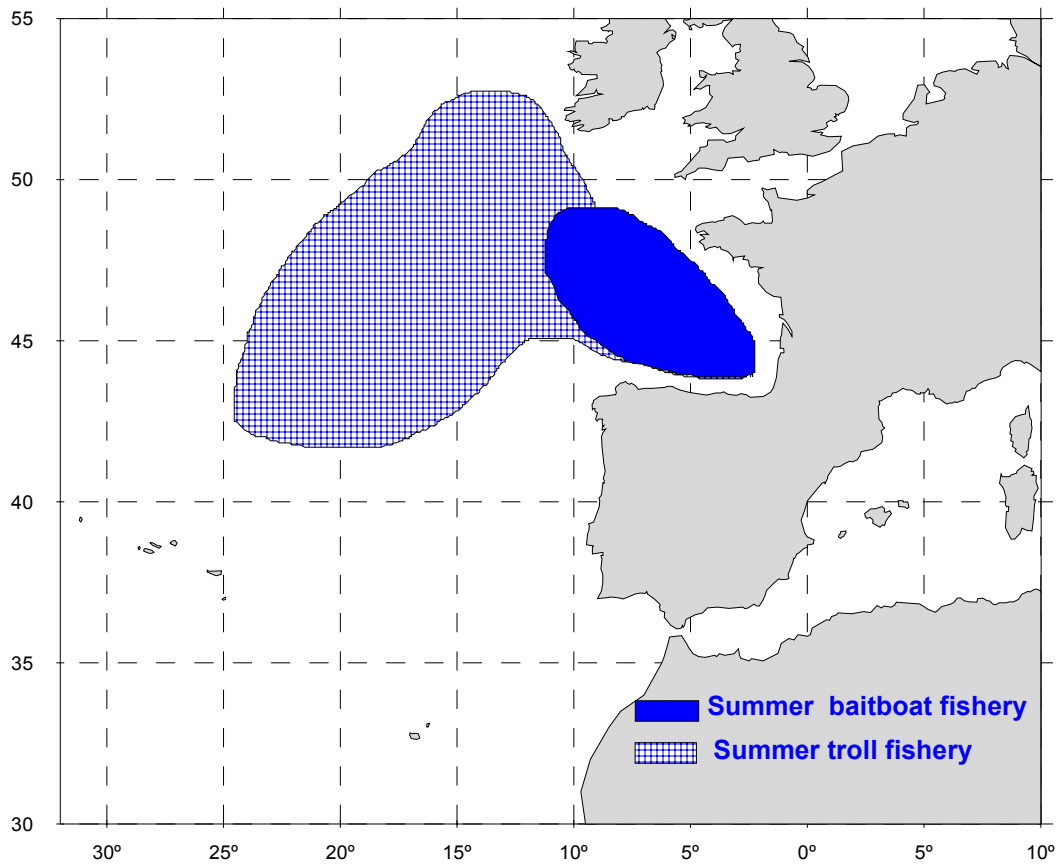
**Table 2.** Evolution of catch and nominal effort (fishing days) of albacore Spanish fleets: 1975 - 2001.

BAITBOAT FISHERY						
years	CATCH ( t )			EFFORT (fishing days)		
	mean	st. Error	CV (%)	mean	st. Error	CV (%)
1975-1980	12415	2743	22	11271	3108	28
1981-1990	13779	3767	27	10898	2459	23
1991-2000	8362	1191	14	6321	1074	17
→ 2001	3420			3822		

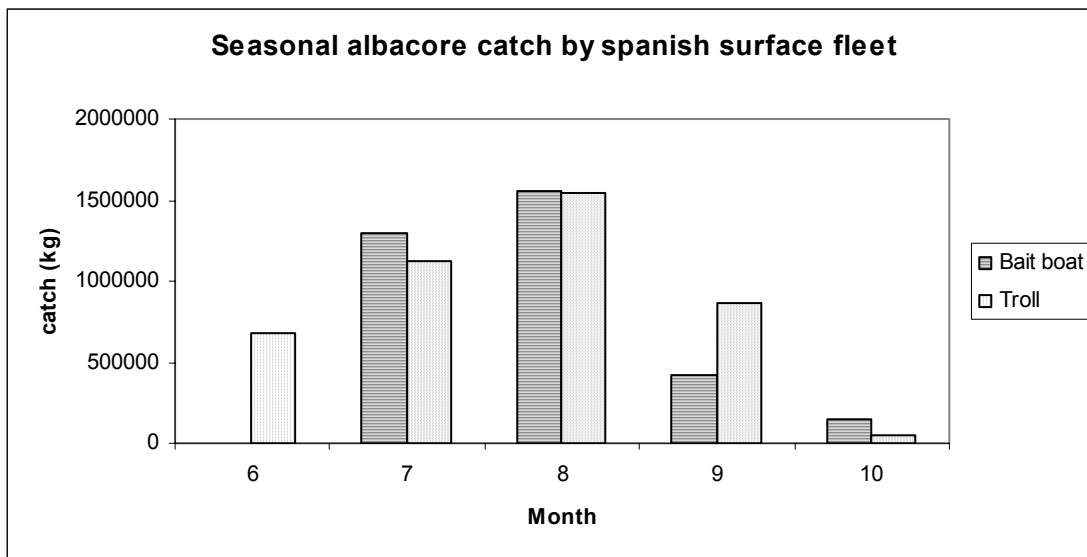
TROLL FISHERY						
years	CATCH ( t )			EFFORT (fishing days)		
	mean	st. Error	CV (%)	mean	st. Error	CV (%)
1975-1980	10148	3692	36	20274	5394	27
1981-1990	9767	976	10	19216	3666	19
1991-2000	7094	1644	23	12387	1612	13
→ 2001	4245			8512		

**Table 3.** Catch and nominal effort by fishing areas for troll and baitboat Spanish albacore fishery in 2000 and 2001 years.

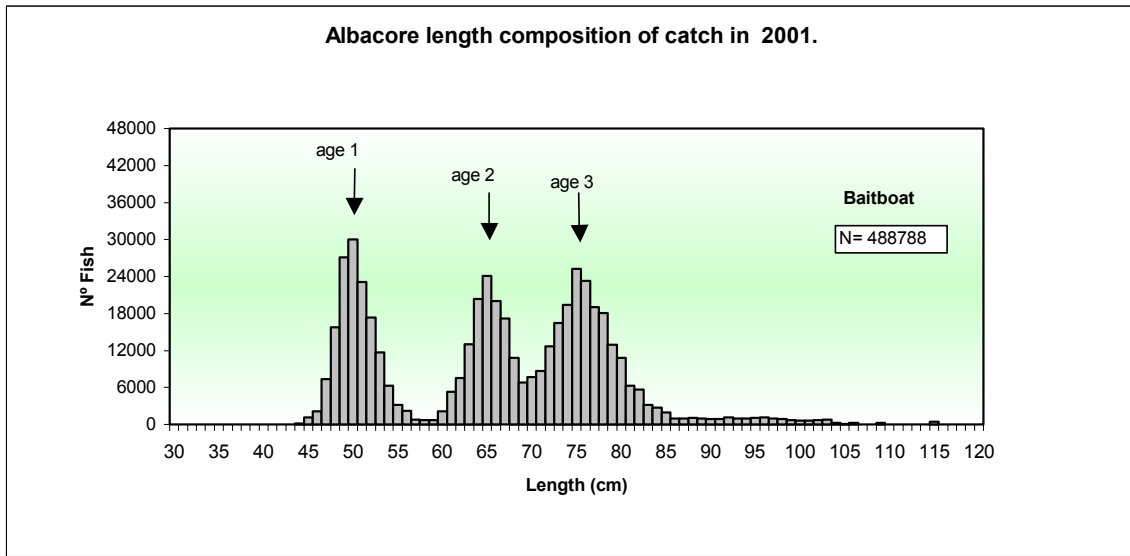
	2000 TROLL			2000 BAIT BOAT		
AREA	Gulf	Atlantic	% Gulf	Gulf	Atlantic	% Gulf
N° trips	873	503	63.4	630	19	97.1
EFFORT (fd)	5655	6368	47.0	5163	243	95.5
CATCH (n)	302403	403500	42.8	1685663	40493	97.7
CATCH (w)	1957259	3055384	39.0	10172111	326838	96.9
Mean weighth	6.5	7.6		6.0	8.1	
	2001 TROLL			2001 BAIT BOAT		
AREA	Gulf	Atlantic	% Gulf	Gulf	Atlantic	% Gulf
N° trips	432	525	45.1	388	57	87.2
EFFORT (fd)	2520	5992	29.6	3169	653	82.9
CATCH (n)	147599	486319	23.3	436322	52466	89.3
CATCH (w)	720413	3524183	17.0	2945154	475184	86.1
Mean weighth	4.9	7.2		6.7	9.1	



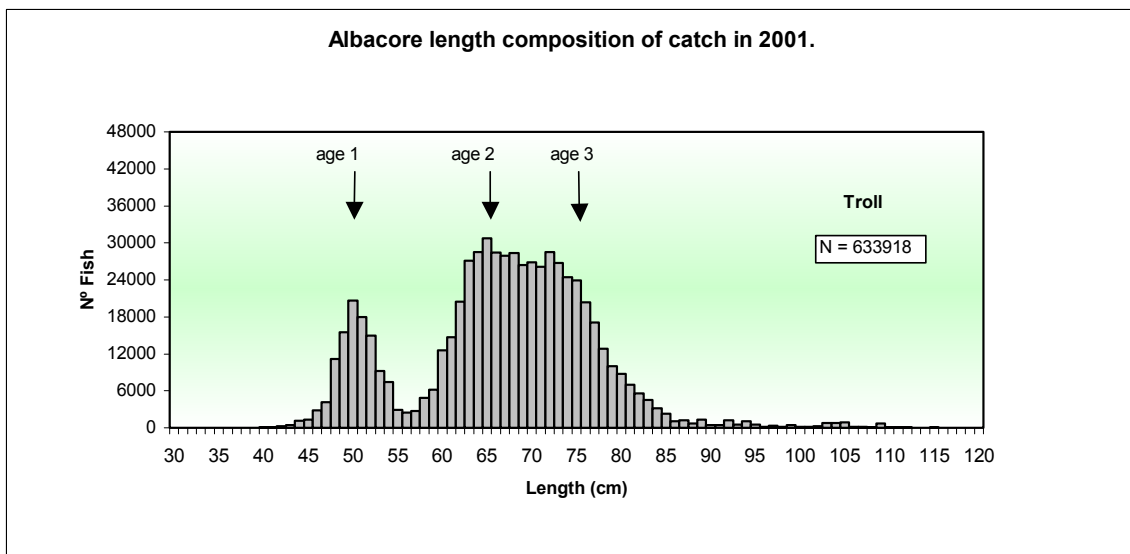
**Figure 1.** Albacore troll and baitboat spanish fisheries.



**Figure 2.** Monthly albacore catch composition landed by fleet in 2001 year.



**Figure 3.a.** Catch length composition of albacore spanish baitboat fishery in 2001.



**Figure 3.b.** Catch length composition of albacore Spanish troll fishery in 2001.