

**ALBACORE (*THUNNUS ALALUNGA* BONN.) FISHERY IN THE TYRRHENIAN SEA:
1990-1992 REPORT**

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SUMMARY

The albacore fishery in the Tyrrhenian Sea provides a conspicuous production in spring and autumn, while albacore are only a by-catch component in summer in the driftnet fishing.

The albacore driftnet fishery has been seriously affected by the various troubles and bans caused by the swordfish fishery, with a strong reduction of activity in 1990 and 1991.

Also, in 1990, research on this fishery was not funded by the Italian Government, due to a one-year gap in the availability of specific research funds.

CPUE and CPU values have been collected at the port of Lipari, while length and weight frequencies cover the entire central south Tyrrhenian Sea.

RESUME

La pêche au germon dans la mer Tyrrhénienne est importante au printemps et en automne. En été, le germon n'est capturé qu'accessoirement par les pêcheurs qui utilisent les filets dérivants.

La pêche au germon à l'aide de filets dérivants a été gravement affectée par les diverses difficultés et interdictions entraînées par la pêche à l'espadon, et son activité a été fortement réduite en 1990 et 1991.

En outre, en 1990, les recherches concernant cette pêcherie n'ont pas toutes été financées par le gouvernement italien, en raison de l'absence, pendant un an, de fonds disponibles destinés à la recherche.

Les valeurs CPUE et CPU ont été prises dans le port de Lipari, alors que les fréquences taille et poids concernent l'ensemble de la zone centre-sud de la mer Tyrrhénienne.

RESUMEN

La pesquería de atún blanco en el Mar Tirreno obtiene una importante producción en primavera y otoño, mientras que esta especie es tan sólo captura fortuita en verano, pescándose con redes de enmalle a la deriva.

La pesquería de atún blanco con redes de enmalle se ha visto seriamente afectada por los problemas y prohibiciones relacionados con la pesquería de pez espada, reduciéndose mucho su actividad en 1990 y 1991.

En 1990, la investigación sobre esta pesquería no estuvo financiada en su totalidad por el Gobierno italiano, debido a la falta durante un año de fondos para las actividades de investigación.

Los valores de CPUE y CPU se obtuvieron en el puerto de Lipari, y las frecuencias de talla y peso se refieren a toda la zona central sur del Tirreno.

INTRODUCTION

The Albacore (*Thunnus alalunga* Bonn.) fishery in the Central and Southern Tyrrhenian Sea (this fishing is extremely marginal in the Northern Tyrrhenian Sea) have a good importance for the Italian production since along time (Arenà *et al.*, 1979).

The total albacore catches in that area were 558.7 tons in 1990, 453 tons in 1991 and 789.2 tons in 1992 (Di Natale *et al.*, 1993a).

A large amount of the catches is given by the pelagic driftnet fishery (86.3% in 1990, 93.1% in 1991 and 95.5% in 1992), obtained both with specific traditional albacore driftnets (named "palamitara" or "alalungara") or as swordfish driftnets by-catch.

The albacore driftnet fishing was strongly reduced in 1990 and 1991, due to controversial interpretation of the national and international driftnet regulation (Di Natale *et al.*, 1992, 1993a), which caused a decrease in the fishing activity and in production levels, which doesn't reflect a correlated variation in the availability of the albacore stock.

A specific longline pelagic fishing, with medium-size hooks, is usually carried out in the Southern Tyrrhenian Sea, around the Aeolian Islands, but the intensity and the extension of this fishing activity is often correlated with the weather conditions, the swordfish price (if the price is high, several fishermen prefer to use a swordfish longline instead of the albacore one) and the availability of the resource.

The use of the albacore drifting longline is often controversial, because of the strong impact on juvenile swordfish in autumn fishery.

Another albacore fishing activity was carried out in the previous year around the Isle of Lipari, with hand lines and bait (*Gymnammodytes cicerellus*, the Mediterranean sand eel) foraging, with a technique more or less similar to the "pole and line" one. Such fishing was not more practiced in the years here considered.

METHODS

The most important source of data has been a landing control programme, carried out by our Institute with a grant funded by the Ministry of Merchant Marine (now Ministry of Agriculture, Alimentary and Forestry Resources), from November 1990 to January 1993 in the Tyrrhenian Sea.

Landings were sampled twice a week in 3 ports (2 in the Southern Tyrrhenian Sea and 1 in the Central Tyrrhenian Sea, plus some additional size data collection in one additional harbour), during the whole 1991 and 1992 fishing seasons, on regular basis. In 1990, due to a lack of specific funding for this research, only sporadic samples were collected; as a consequence, CPUE and CPU data were not considered sufficient and reliable and are not included in this paper.

The Northern Tyrrhenian Sea is also not included in the sample, because the albacore fishing is marginal and occasional in that area.

Albacore CPUE and CPU data have been calculated only for the specific fisheries. CPUE parameters are the following: C = albacore catches in kg (RW); U = single vessel; E = 1 km net length used at sea (or 1,000 hooks in longline fishing).

CPU values represent the mean value of albacore catch (in kg, RW) per fishing day per vessel.

The length at fork (FL) and round weight (RW) have been used for size frequency analysis, without any separation per sex.

CPUE AND CPU

Daily albacore CPUE tables have been edited in detail for fishery management uses by the Ministry (Di Natale *et al.*, 1993a), but only monthly mean values are here reported (tab. 1), both for space problems and practical reasons.

In 1990 and 1991 the spring albacore driftnet fishing was very limited in Lipari (while it was carried out in some other places in the Southern Tyrrhenian) and, due to the lack of a specific sampling programme, CPUE data were not enough for any statistic.

In 1992, in Lipari, a certain albacore driftnet activity was carried out in spring, with good results. The mean value (19,529 kg) is considerably lower than the only values available in the past years (67.6 in 1985 and 30.5 in 1986) (Di Natale, 1990; Di Natale *et al.*, 1987), but the previous data were sampled in a more larger fishing season.

Table 1 - Daily mean Albacore CPUE (kg/km) and CPU values in medium mesh size driftnet ("alalungara") fishery in 1992

Sampling port: LIPARI (Southern Tyrrhenian Sea), 1992							
	APR	MAY	SEP	OCT	NOV	DEC	TOT 92
CPUE	10,923	29,512					19,529
CPU	75,957	192,832					131,878

Table 2 - Daily mean Albacore CPUE (kg/1000 hooks) and CPU values in drifting longline fishery in 1991 and 1992

Sampling port: LIPARI (Southern Tyrrhenian Sea), 1991							
	APR	MAY	SEP	OCT	NOV	DEC	TOT 92
CPUE			99,838	109,151	71,319	27,353	95,421
CPU			287,532	309,029	194,785	69,750	267,228

Sampling port: LIPARI (Southern Tyrrhenian Sea), 1992							
	APR	MAY	SEP	OCT	NOV	DEC	TOT 92
CPUE				138,812	92,018	44,217	91,208
CPU				370,167	241,737	117,911	239,898

Also albacore CPUE values for pelagic drifting longlines are quite different from the values available for the past. In 1991 the mean CPUE value was 95,421 kg and in 1992 it was 91,208, against a CPUE of 136,5 kg in 1985 and 52,5 kg in 1986 (tab. 2).

This late fact could find a reasonable explanation both in the natural variability of the albacore stock and in the variation in the catchability of the stock, which could become more available in certain years, depending on the presence of food in the fishing areas.

As usual, the lowest mean CPUE and CPU values (calculated over a monthly base) have been recorded in December, both in 1991 and 1992, when the weather conditions become worst and the fishes probably move to other area.

LENGTH FREQUENCY

Following the method established since 1985, albacore (*Thunnus alalunga* Bonn.) length samplings have been carried out in the Southern Tyrrhenian Sea, in order to allow a yearly length-frequency analysis of the stock, separated per gear used.

The driftnet fishery provided 1,534 albacore length samples between 1990 and 1992, while the longline fishery provided 2,073 length samples between 1991 and 1992, reaching a total of 3,607 specimens in the three years.

In 1990 samples were collected in the harbours of Milazzo, S. Agata Militello and Lipari (Southern Tyrrhenian Sea) but, due to a lack of any specific research programme, only 73 specimens were measured, mostly caught as by-catch in swordfish driftnet fishing.

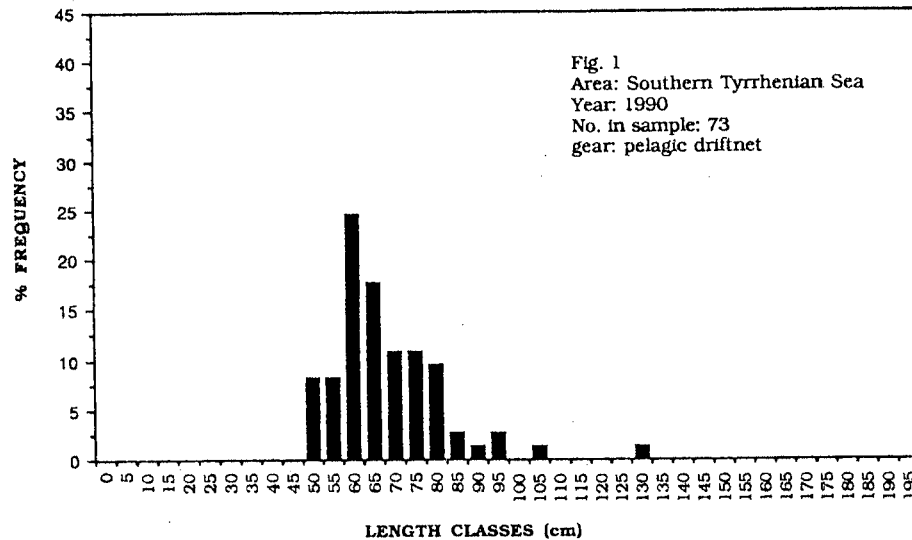
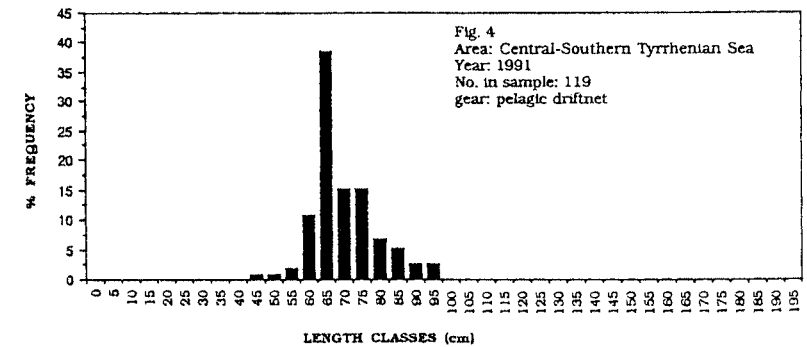
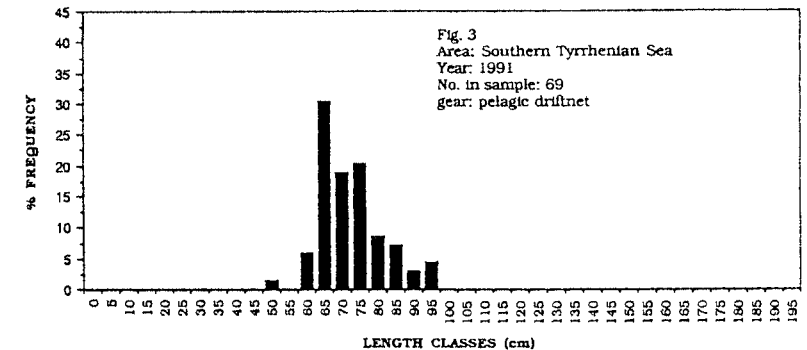
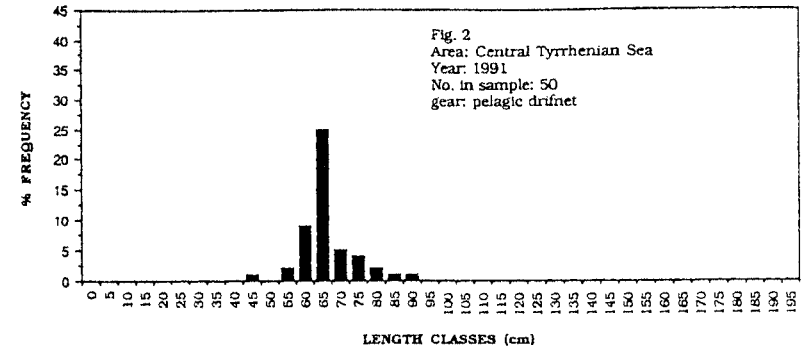
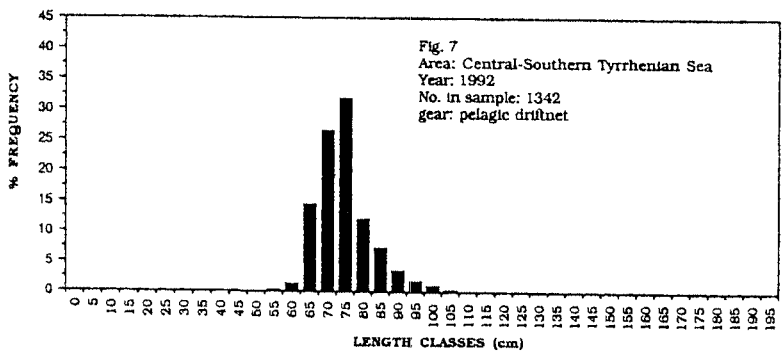
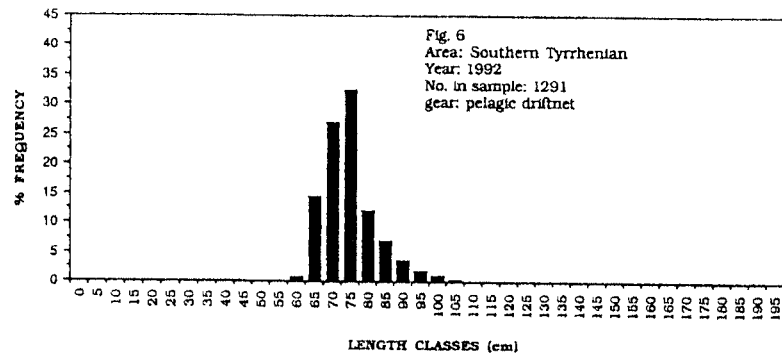
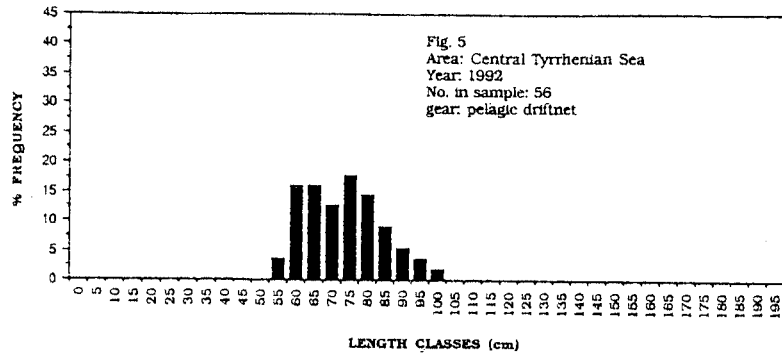


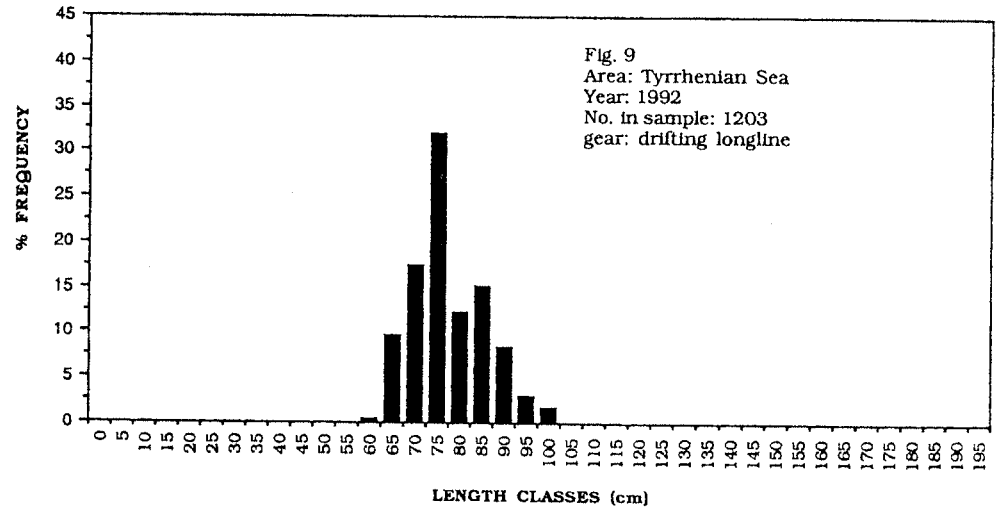
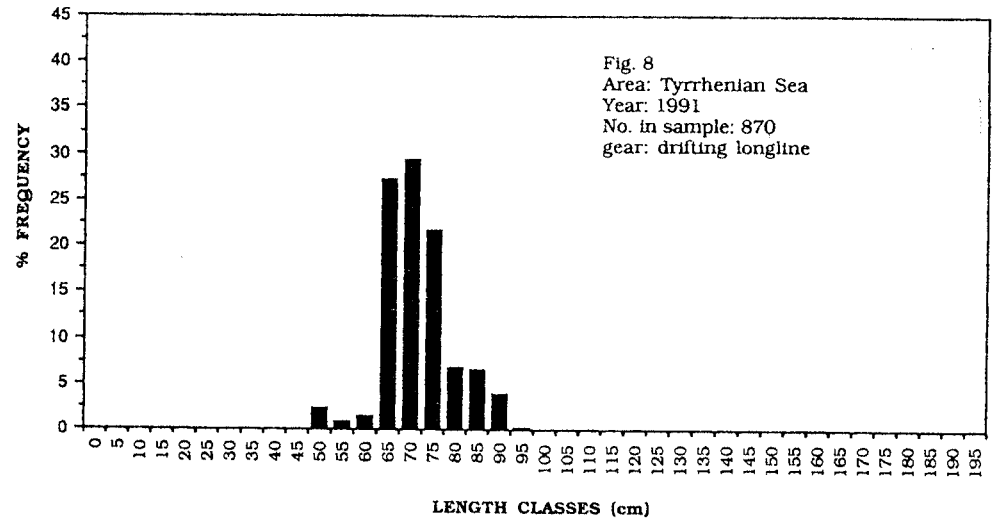
Figure 1- Length (FL) frequencies distribution of Albacore (*Thunnus alalunga*, Bonn.) caught by the Italian driftnet fleet in the Southern Tyrrhenian Sea in 1990.



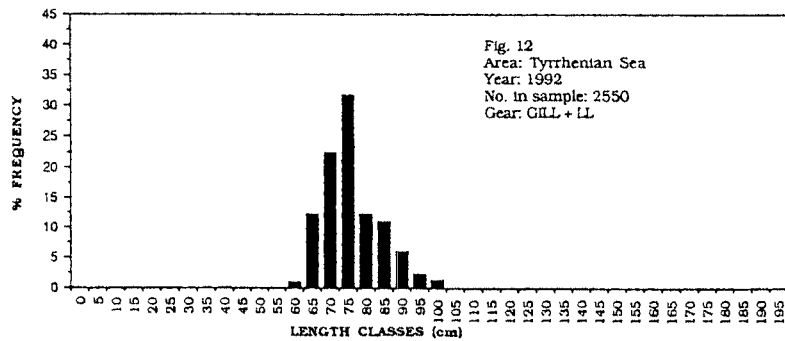
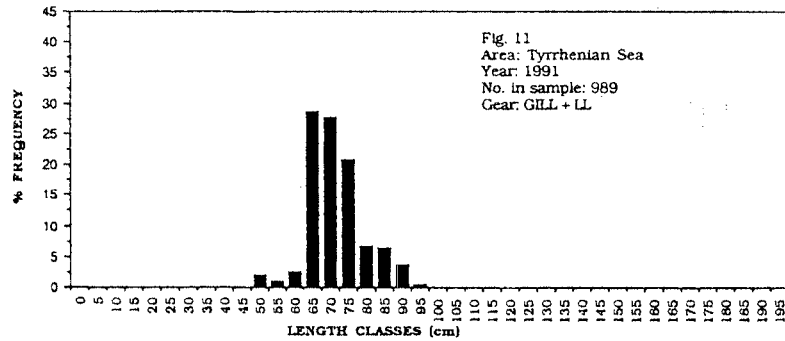
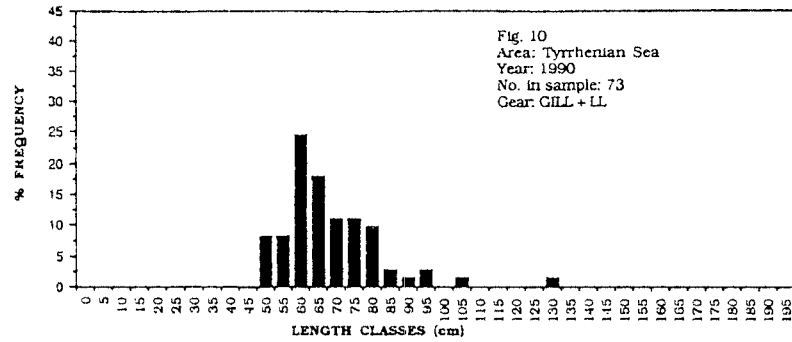
Figures 2 to 4- Length (FL) frequencies distribution of Albacore (*Thunnus alalunga*, Bonn.) caught by the driftnet fleet in the Central-Southern Tyrrhenian Sea in 1991.



Figures 5 to 7 - Length (FL) frequencies distribution of Albacore (*Thunnus alalunga*, Bonn.) caught by the driftnet fleet in the Central-Southern Tyrrhenian Sea in 1992.



Figures 8 and 9- Length (LF) frequencies distribution of Albacore (*Thunnus alalunga*, Bonn.) caught by drifting longlines in the Southern Tyrrhenian Sea in 1991 and 1992.



Figures 10 to 12 - Length (FL) frequencies distribution of Albacore (*Thunnus alalunga*, Bonn.) caught by all the gear in the Tyrrhenian Sea between 1990 and 1992.

In 1990 the mean length value was 69.86 cm, and it appears negatively affected by the season and the low number of specimens in the sample. The mode, showed on fig. 1, was at 60 cm. One albacore of 131 cm FL was reported on May 24, 1990, in S. Agata Militello.

In 1991 the sampling programme was extended to the isle of Ponza (Central Tyrrhenian Sea) and intensified as much as possible. In spite of this effort, the driftnet fishery provided only 119 samples, because several catches were landed in other harbours. The length mode in the Central- Southern Tyrrhenian Sea, showed on fig. 2 to 4, was always at 65 cm, and no one specimen over 98 cm FL was reported during that fishing season.

In 1992 the sampling programme worked certainly better, with 1,342 albacores measured in the two areas. All the graphs (fig. 5 to 7) show peaks at 75 cm, with several specimens over 100 cm FL. One albacore of 121 cm FL was reported on May 16, 1992 in Lipari.

Pelagic drifting longline fishing was not checked at all in 1990, as reported before. Consequently, no size data are available for that year.

Drifting longline catches were sampled again in 1991 and 870 albacores were measured in the harbours of Lipari and Milazzo. The graph (fig. 8) shows a peak at 70 cm.

In 1992 the albacore longline fishing seasons was shorter than the previous year, because no fishery was carried out in September, both due to a prolonged driftnet fishing and to sfavourable weather conditions. In spite of these facts, 1,203 specimens were measured, with a mode at 75 cm (fig. 9).

Figures 10 to 12 show the length frequency of the albacores caught by all the gear (driftnets and longlines) in the Tyrrhenian Sea: the mode was at 60 cm in 1990, at 65 cm in 1991 and at 75 cm in 1992, with a clear increasing trend.

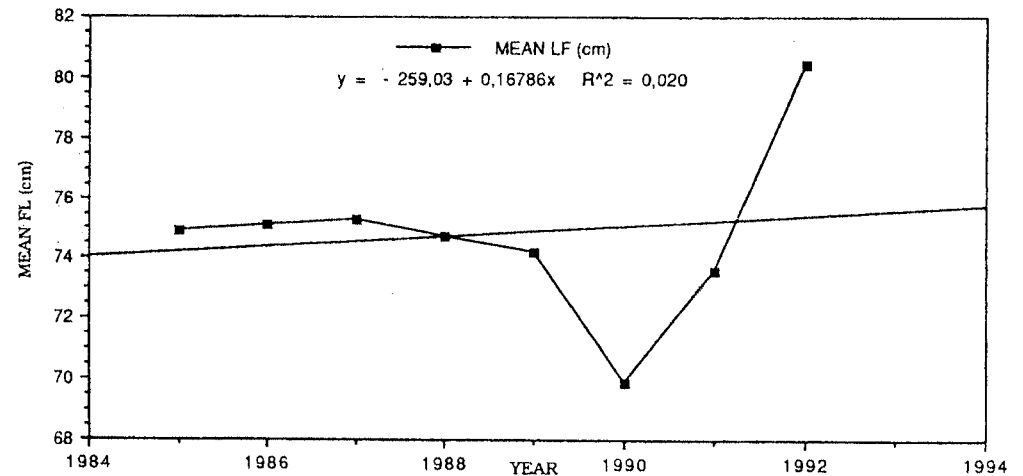


Fig. 13 - Weighted mean length (FL) of the Albacore catches in the Southern Tyrrhenian Sea, in the period between 1985 and 1992.

A more reliable image of the stock trend of Albacore (*Thunnus alalunga* Bonn.) in the Tyrrhenian Sea is given by a plot of the weighted average length (FL) between 1985 and 1992 (fig. 13). The values are always over 72 cm FL, with the exception of that in 1990, when the sample was extremely reduced, as reported before.

The presence of several very large specimens in 1992 strongly affect the trend, given an increasing slope. If the trend showed on figure 13 is true, it is possible that a positive effect of the driftnet ban in 1990 should be one of the causes.

WEIGHT FREQUENCY

As happened in the previous years, albacore weight frequency analysis has been conducted on a partially-different sample from the same harbours reported before, due to the fact that it is always easier to collect length measures instead of the weight, because of a market practice (albacores are weighted together in wooden boxes or in groups of several specimens and then marketed gilled, gutted and sliced).

It is usually impossible to share exactly the total weight from fishes weighted together, because of the high individual variations; consequently, it is necessary to wait for individual weight at the market.

All samples are reported as round weight (RW) because of the commercial tradition of the local fishermen.

From our point of view, the few weight samples obtained in the last three years do not reflect at all the albacore stock in the Tyrrhenian Sea, with peaks at 6 kg in 1990, at 5 kg in 1991 and at 4 kg in 1992 (fig. 14 to 16).

It is important to point out a specimen of 32 kg, caught by a driftnet in S. Agata Militello on May, 1990.

CONCLUSIONS

CPUE and CPU driftnet data from the Tyrrhenian Sea in the last three years show a confuse trend, apparently decreasing in comparison with some previous data.

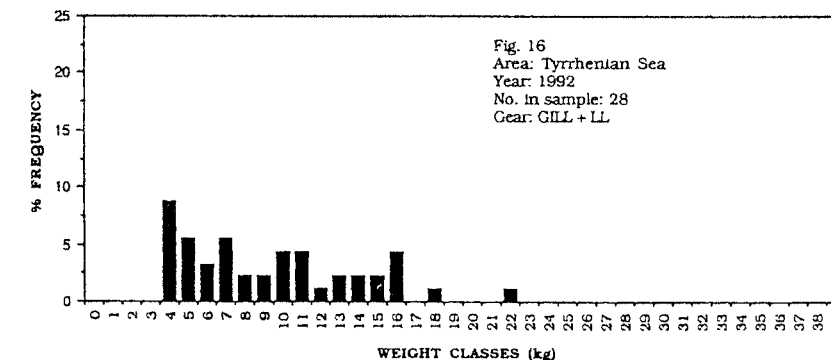
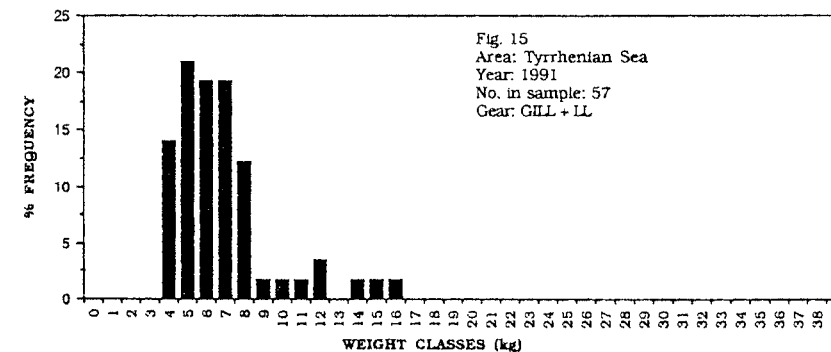
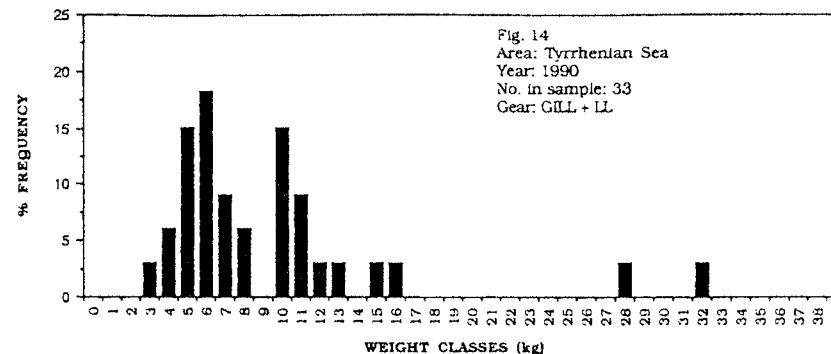
But, due to a similar situation noted in other fisheries in the same area (Di Natale *et al.*, 1992, 1993a, 1993b, and in press), in 1990 and 1991 the data were biased by "external" factors (strikes, bans, etc.), and the trend is certainly affected by these factors.

The contemporary mean length values confirm this hypothesis, because mean length (FL) data, calculated on yearly basis, show a clear raising trend, with some critical data in the same two years (1990 and 1991).

The presence of a certain number of large (> 100 cm FL) specimens in the Southern Tyrrhenian Sea in 1992 confirms some previous data (Di Natale, 1990) about these occasional catches.

It is important to note that it appears still impossible to follow yearly albacore cohorts, even examining the total catches.

From a management point of view, the present data do not show any particular problem for the Albacore stock in the Tyrrhenian Sea.



Figures 14 to 16- Weight (RW) frequencies distribution of Albacore (*Thunnus alalunga*, Bonn.) caught by all the gear in the Tyrrhenian Sea between 1990 and 1992.

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