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ANALYSIS OF THE MOROCCAN TRAP FISHERY TARGETING BLUEFIN TUNA (*Thunnus thynnus*) DURING THE PERIOD 1986-2006

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SUMMARY:

The analysis of the Moroccan tuna trap fishery targeting bluefin tuna shows that in general the CPUE decreased from 1986 to 1995, increased during the period 1996 to 2001, since then the CPUE have showed a downward trend. There is no strong correlation between the BFT catches and the fishing effort targeting this species, the catch level is rather determined by the abundance of the spawners migrating every year along the Moroccan Atlantic coast. The mean weight of the individuals caught also shows a decreasing trend during the period 1997-2005.

KEYWORDS

Bluefin tuna, catch, effort, nominal CPUE, trap fishery, Eastern Atlantic, individual mean weight

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1- INTRODUCTION

The trap fishery targeting bluefin tuna (*Thunnus thynnus*) is one of the most important tuna fisheries in Morocco. It contributes in average with almost 60% of the total catches of this species at the national level. With an average catch of 1450 TM, this fishery represents barely 5% of the total BFT catches in the Eastern Atlantic and Mediterranean.

This fishing activity, which started in the mid 1950s, targets mainly spawners during their genetic migration from the Atlantic to the Mediterranean. Some documents describing and analyzing this fishery have previously been presented (Srour and Abid, 2003; Abid and Idrissi, 2007; Abid et al, 2007).

As the tuna traps fisheries are mainly directed at the spawning fraction of the Eastern Atlantic BFT stock, they are considered by ICCAT as a scientific observatory in terms of monitoring of the state of this stock. For this reason, the abundance indices from the Moroccan trap fishery are of valuable use by the SCRS at its 2006 Eastern Atlantic BFT stock assessment session.

In this sense this document analyses for the first time the available time series data related to this fishing activity, in terms of trends in the catches, fishing effort and nominal CPUEs. An analysis of the evolution of the individual mean weight of the BFT catches by traps, during the last decade, is also given.

2- MATERIAL AND METHODS

The historic catch data for bluefin tuna caught by the Moroccan trap fishery, for the period 1956-2006, come from the ICCAT Task I database.

Concerning the fishing effort data, which covered the period 1986-2006, they come from the Moroccan fisheries department (DPMA). Since the fishing period of tunas traps historically has remained the same for several years, in this analysis the fishing effort is defined as the number of operational traps during a given year (Ortiz de Urbina et al, 2007).

The annual nominal CPUE presented in this document are representative of the BFT spawning stock biomass. They are expressed in catch (number of fish or weight) per trap.

The individual mean weight of bluefin tuna caught by this fishery was estimated from the total catches (number and weight) data by trap and by year for the period 1997-2006. These data were also obtained from the Moroccan fishery department.

3- RESULTS AND DISCUSSIONS

3-1 Number of traps and fishing period

In 2006, there were 15 traps set along the Moroccan coasts; 14 of them are located in the northern Atlantic coast, close to the Strait of Gibraltar, and one in the Mediterranean.

The fishing period of the traps remained the same for many years. The Atlantic traps are operational from mid-April to the end of June; they target spawners BFT during their genetic migration from the Atlantic to the Mediterranean. The Mediterranean trap is set during a longer period, from mid-July to the end of November. For the Atlantic traps, the maximum of BFT catch is recorded in May.

3-2 Catches and fishing effort

The total BFT catches recorded the highest levels during the period 1956-1968, with an average catch of about 3200 TM, followed by a period of the lowest catches till the mid 1980s (80 TM). During the period 1986-1995,

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the catches showed a rapid increase, reaching an average of about 650 TM. From 1996 to 2006, the BFT mean catch doubled with respect to the period 1986-1995 **(Figure1)**.

It should be noted that over the whole time series, the contribution of the Mediterranean trap in the total BFT catches remained very low and didn't exceed in average 7% of the total catches in weight. In addition, since 2002 there has been no BFT catches made by this trap.

The analysis of the BFT catches and the fishing effort data from the Atlantic traps fishery, for the period 1986-2006, shows that there is no strong correlation between the catch and the fishing effort levels**.** This means that an increase in the number of traps doesn't result necessarily in an increase in the BFT catches **(Figure 2)**.

The level of catches seems to be rather determined by the abundance of this species migrating every year along the Moroccan Atlantic coast, which is strongly affected by the environmental factors, mainly the sea surface temperature.

3-3 Nominal CPUE

Both nominal CPUEs in number and weight show the same pattern during the period 1986-2006. Generally, the CPUEs decreased between 1986 and 1995, increased from 1996 to 2001; since then they have showed a downward trend (**Figure 3)**. The CPUEs from the Moroccan Atlantic traps show similar pattern to those from the Spanish Atlantic traps (Ortiz de Urbina et al, 2007).

3-4 Mean weight

As regard to the mean weight of the BFT caught by the Moroccan traps, it showed a general decreasing trend over the period 1997-2005 **(Figure 4)**. The mean weight went down from 237 kg in 1997 to 187 in 2005, which represent a decrease of about 21%.

4- Conclusion

To sum up, the results from this analysis are consistent with those found by other authors, confirming that the Eastern Atlantic BFT spawning stock is still in bad condition, as it was highlighted in the 2006 ICCAT stock assessment session. This situation is mainly reflected by the general decreasing trend in the catches, CPUEs and the individual mean weight, during the last years.

Given the importance of the Moroccan traps fishery, another document related to the standardized abundance indices from this fishery will be presented to the 2008 ICCAT Eastern Atlantic BFT stock assessment session.

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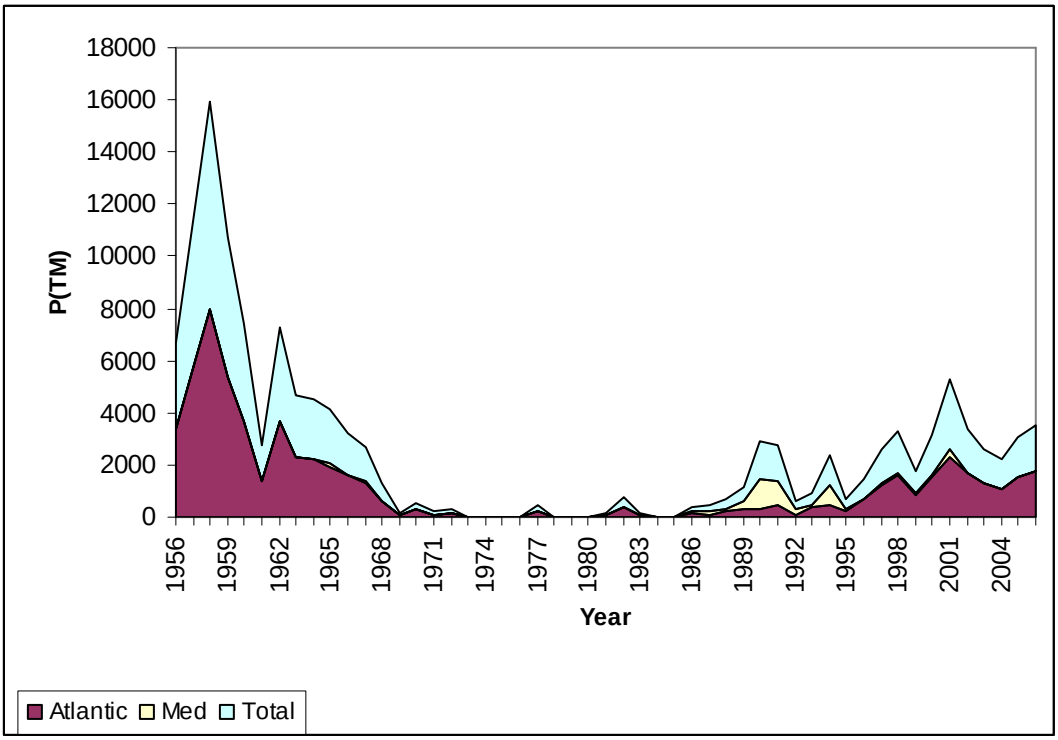

Figure 1. Annual evolution of BFT catches by the Moroccan trap fishery by area for the period 1956-2006.

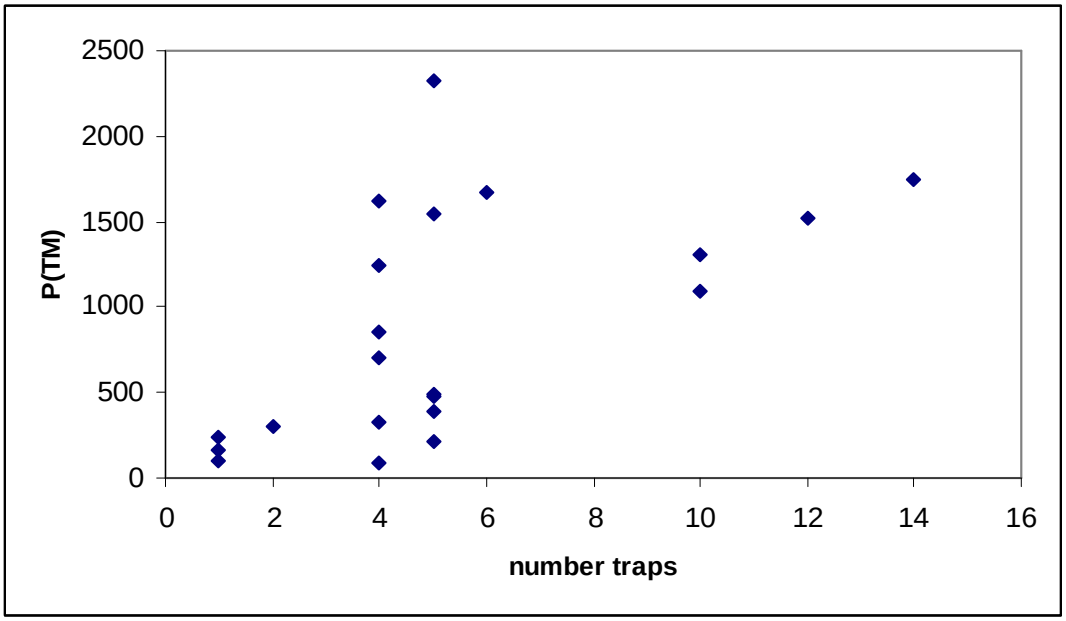

Figure 2. Total annual BFT catches against the number of operational traps for the Moroccan Atlantic Traps during the period1986-2006.

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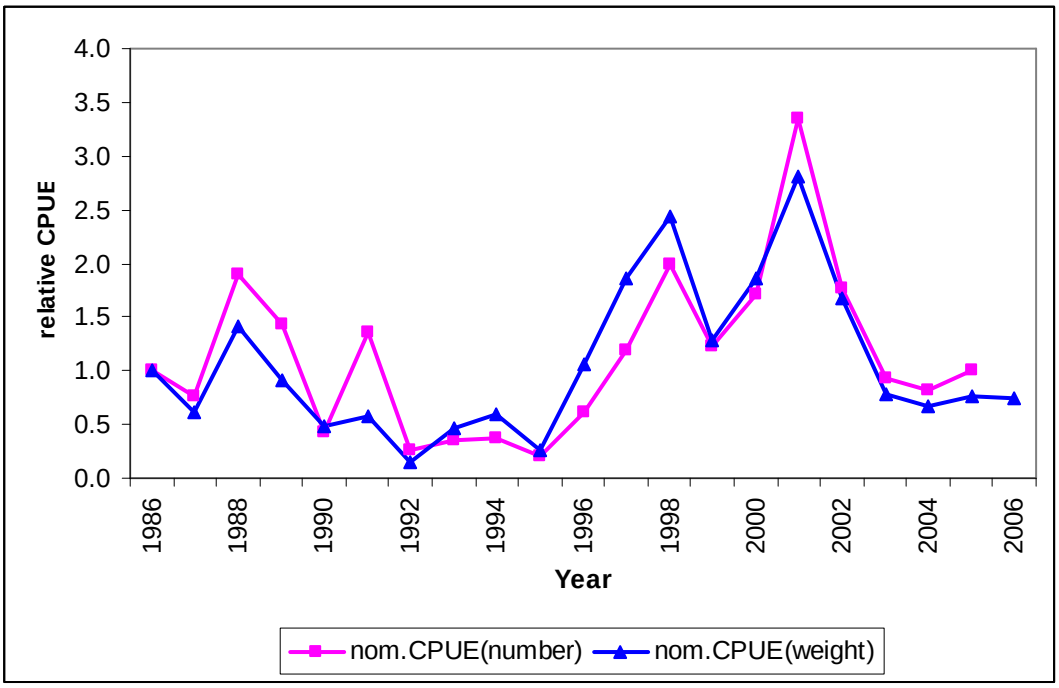

Figure 3. Annual relative nominal CPUEs in number and weight for the bluefin tuna caught by the Moroccan Atlantic traps during the period 1986-2006(CPUEs scaled to 1986).

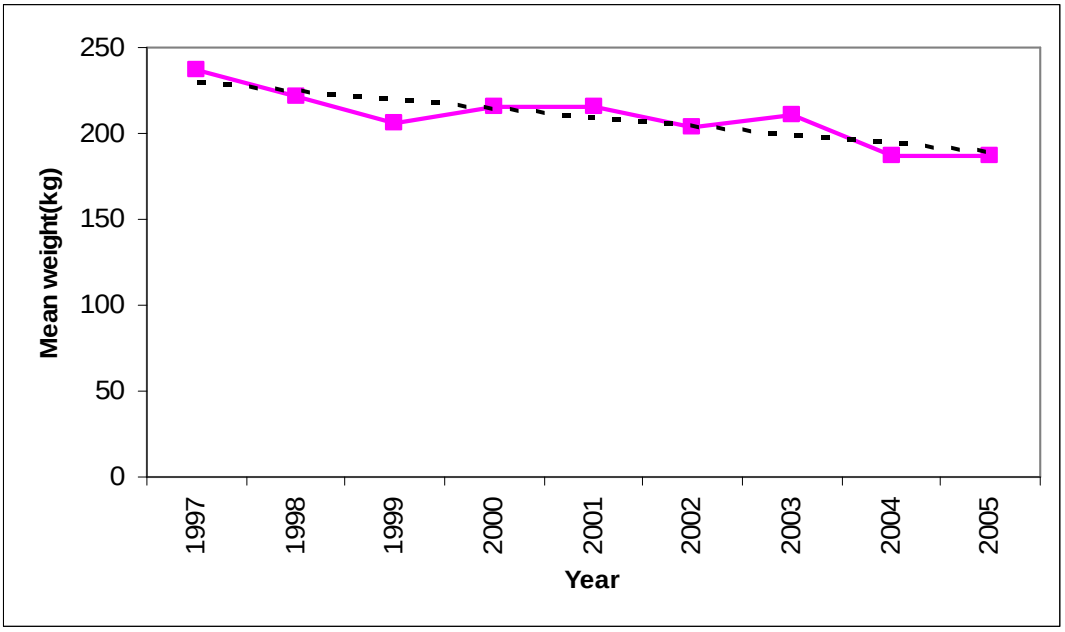

Figure 4. The evolution of the mean weight of BFT caught by the Moroccan Atlantic traps during the period 1997-2005

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