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**SUMMARY OF THE REPORT ON THE GFCM STUDY ON SMALL
TUNAS IN THE MEDITERRANEAN INCLUDING THE BLACK SEA**

by

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1.0 Abstract

This report, requested and supported by the GFCM, resume the available information about the small tuna species in the Mediterranean Sea and the Black Sea, providing data on their biology and ecology, and their exploitation, including the fishery statistics by species, and the socio-economic aspects of these fisheries. The report examines also some specific problems, like the discussion about the systematic of *Auxis* present in the area, and the evident discrepancy among some fishery statistics from different sources.

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2.0 Introduction

During its thirty-first session (Rome, 9-12 January 2007), the GFCM reiterated its interest for strengthened cooperation with ICCAT and agreed that in the short-term, priority should be given to the betterment of knowledge on the sustainable exploitation of small tuna fisheries, including their biological and socio-economic aspects.

In this sense, follow-up will be ensured on the Recommendations of the 7th session of the Joint GFCM/ICCAT ad hoc Working Group concerning small tunas, especially the compilation of statistics and the implementation of scientific research programmes.

The general project of the present study was presented during the 2007 ICCAT/SCRS meeting (Srouf & Di Natale, 2007).

The presence of several species of small tunas and the related fisheries are well known in the Mediterranean Sea since historical times. As a matter of fact, small tunas are quite common in several artisanal or small scale fisheries in many areas, but catches are only sometimes recorded in the national statistical systems or believed not relevant because many catches are often sold on small local markets or used for subsistence.

The countries currently reporting catches of small tuna species are only some, while it is strongly suspected that this fishery is carried out in all the Mediterranean and Black Sea countries. Small tunas are quite common in several artisanal or small scale fisheries in many areas. According to the ICCAT database on catch statistics, it is clear that the small tunas are quite important in the Mediterranean Sea (including the Black Sea), reaching a total of about 80,000 tons in the year 2005, even if catches are only sometimes recorded in some national statistical systems or believed not to be particularly relevant, mainly because of the local importance of their markets in several cases. It is reasonable to estimate that catches of all small tuna species combined, in the Mediterranean and in the Black Sea might reach a total of about 150,000 tons in some years, which should result in a quantity much larger than all the other tuna species in the same area. This under-consideration is one of the reasons of non reporting properly the small tuna catches in some countries or fisheries. As a matter of fact, even without any full statistical evidence at the moment, it is quite reasonable that the small tuna fisheries are very important from a social and economical point of view, particularly for the coastal communities, either in the Mediterranean or in the Black Sea.

Furthermore, these species are certainly very important from an ecological point of view, due to their relevance in the local food chain, either as predators or prey.

The report about small tuna species in the Mediterranean Sea and in the Black Sea takes into account six species. Three of them are common to almost all countries in this area: the Atlantic Bonito *Sarda sarda* (BON), the Bullet tuna *Auxis rochei* (BLT)⁷ and the Little tunny *Euthynnus alletteratus* (LTA); the Skipjack *Katsuwonus pelamis* (SKJ) appears, more or less regularly, in seven of them; the Plain bonito *Orcynopsis unicolor* (BOP) appears only in the statistics of Mediterranean Morocco, Algeria, Tunisia, Libya and Portugal (for the few longline vessels fishing in the Mediterranean Sea); the Narrow-barred Spanish mackerel *Scomberomorus commerson* (COM), a lessepsian migrant, has a role in the fishery of the countries of the Levant Sea, namely Egypt, Israel, Lebanon, but catches are reported also by Algeria and Libya, while specimens have been found in other Mediterranean countries. As concerns this first group of species, the report includes a comprehensive review of the available information on their diagnostic features, distribution, migrations, biological characteristics (including detailed data on growth parameters when available) and the main fisheries concerned.

⁷ According to the present report, the catches of *Auxis thazard* (FRI) reported in several statistics have been considered as a mis-identification of the species. The problem is more extensively examined in Section 3.2.0.

Three species such as the Wahoo (*Acanthocybium solandri*), the West African Spanish mackerel (*Scomberomorus tritor*) and the Indian mackerel (*Rastrelliger kanagurta*) have been rarely mentioned in Mediterranean and Black Sea waters.

Other species, like the Black skipjack (*Euthynnus lineatus*), the Dogtooth tuna (*Gymnosarda unicolor*) and the King mackerel (*Scomberomorus cavalla*) have been mentioned in some fishery statistics in the area, possibly due to a misidentification.

The report includes also a section on the several aspects of the fisheries, with a description of the most used gears and the characteristics of the various fisheries in all the countries. In the Mediterranean and Black Sea, various gears, such as purse seines, small surrounding nets, trap nets, driftnets, gillnets and a variety of lines, including troll-lines, pole-lines, surface and mid-water longlines, and hand lines are used to catch small tunas. Pelagic trawls, light fishing (lamparo) and fish aggregating devices (FADs) are also used to catch those fishes. The report includes also a section with the international and national legislations relevant for the fishery of small tunas.

A section of the report is devoted to the description of the exploitation patterns of the small tunas (Little tunny, Atlantic bonito, Bullet tuna, etc.), which are essentially exploited by the small scale fisheries but also by bigger vessels or tuna traps. Of course, it is well known that some discrepancies already exist among the various data base (FAO, GFCM, ICCAT, EUROSTAT), but this fact cannot be solved or analysed in a short time, because it was possibly caused by various factors and for some of them the solution is quite difficult to find.

The major problem is related to the relevant confusion existing with the common names in some countries, where some of them are referred to several species together, while others have the same name in different countries, but referred to different species. Other species, possibly not present in the Mediterranean, sometimes appears in some fishery statistics, probably for a misidentification at the market level. Furthermore, different species are sometimes landed or marketed together, making extremely difficult to disentangle the landing or catch data.

This is the reason for having the category “small tunas” or Thunnini (TUN) in some statistics; the problems of the systematic exiting for *Auxis rochei* and *Auxis thazard* is another point and the ICCAT had issued the category FRZ for the two species combined or for catches belonging to the genus *Auxis* but without a clear classification.

The reported total landings of all species combined increased from about 15,000 tons in 1950 to near 55,000 tons, in 1957. Reported landing remained very variable until 1972 followed by a decline until 1978 than back to grow to remained relatively stable at a mean value of approximately 25 000 tons. An exceptional landing is observed in 2005, due to an important declaration of catch by Turkey. This resulted in a total declared catch of 83,386 tons in 2005, which is the highest value reported since 1950. Taking into account the fact than several countries are not reporting their catches and that the under-declaration is a logical consequence of scattered landings and the great difficulties in collecting good statistics, it is logical to suppose that total catches might be at about a level of 150,000 tons in some years.

The relative importance of those small tuna fisheries in the Mediterranean Sea officially accounts for about 25% of total reported catches of tuna and tuna-like species. Nevertheless, as it was permanently noted by ICCAT/SCRS that uncertainties remain regarding the accuracy of reported landings in all Mediterranean and Black Sea countries. Along with the uncertainties in total landings, more confusion exists for the species components of these catches.

According to reported catches to FAO, the Atlantic bonito (*Sarda sarda*) constitutes the most important species landed by the Mediterranean and Black Sea countries with a variable percentage between 55% and 96.5% of all small tunas combined. The Bullet tuna, *Auxis rochei*, (together with catches reported as Frigate tuna, *Auxis thazard*) is the second important “species”, showing a proportion varying from 2% to 32,7% of total catches. It is to be remarked that catches of *Auxis* spp.

are known to occur in all Mediterranean countries, either as target fisheries for artisanal or recreational fishermen or as by catch in several fisheries; as a consequence, it is reasonable that the reported catches of *Auxis* spp. are remarkably underestimated. Following the proportion of reported catches, the Little tunny, *Euthynnus alletteratus*, account for a catches varying from 0.5% to 17.16% of the total. The Plain bonito (*Orcynopsis unicolor*) and the Skipjack tuna (*Katsuwonus pelamis*) represent each from 0 to about 1% of the total catches declared to FAO; for these last to species, it should be important to better analyse the quality of the data, trying to understand how much a possible misidentification of catches in some areas might affect the statistics.

Another section of the report concerns the economy and the socio-economic aspects of the fishery of small tuna species in the Mediterranean and the Black Sea, according to the very few data available, related only to some countries. With a few exception (Turkey is one), the fisheries related to the small tuna species are not usually considered able to take important quantities or to activate productive economic chains. But small quantities grouped together and a better knowledge of these fisheries reveals that this concept might be not linked to the reality. This preliminary analysis was carried out on prices and total revenues (turn-over) for the more abundant small tunas species caught in the Mediterranean Sea.

According to ICCAT, 5 over 29⁸ countries or entities are not reporting any catch of small tunas. Among the others, 6 of them had reported sometimes catches in the past for a single species. As a matter of fact, 17% are not reporting catches and 21% had reported sometimes the catches of one species only; this fact results in 38% of the Countries non reporting their catches of small tuna species, except for some years and for one species only. This fact is an important point to be taken into account to better figure out what the real situation of these fisheries might be.

The last section of the report examines the several discrepancies existing among the most relevant data bases (FAO, GFCM, ICCAT and EUROSTAT). As a matter of fact, it is evident that some discrepancies might be caused by catches declared, for instance, as one species to ICCAT or FAO and another species to EUROSTAT. This is sometimes caused by two different offices manipulating the original data sets at the national level, attributing different international codes to a particular vernacular name. This is likely to occur for small tuna species, because sometimes local vernacular names identify different species in the same way according to different geographical places. This issue needs to be fixed, asking the support of specialised scientific institution.

The other problem is much more related to a scientific issue, already discussed in chapter 3.0. It concerns only the classification of *Auxis* spp. in the Mediterranean (and possibly in the Black Sea if present) which, according to the last scientific findings, should be correctly classified as *Auxis rochei* (Bullet tuna - BLT) (Orsi Relini *et al.*, 2008). This is not a silly issue, because the current situations reports mostly statistics for *Auxis thazard* (Frigate tuna – FRI) in all data bases, while some catches of Bullet tuna were also reported from time to time. This fact is able to create unwanted confusion in the statistics and need to be fixed by a revision of the data bank.

3.0 Conclusions

The history of small tuna fisheries in the Mediterranean and Black Sea after the 2nd World War appears partially unclear and complicate to define.

The common existing perception that these fishing activities are almost irrelevant either in terms of catches or revenues, is well established almost everywhere, with a very few exception. This fact is still affecting also the importance provided to the reporting of the catches. It is commonly believed that these fisheries are mostly subsistence activities, while, on the opposite, they are able to provide

⁸ The European Community is not taken into account in this calculation, because catches are individually reported by EU Countries.

an important production level. The fleet catching small tunas is almost undefined or not identified in most of the countries, but it is generally known that thousand of small and medium size vessel, engaged in the small scale, artisanal or recreational fisheries, are carrying out activities targeting also small tuna species. Additional catches are obtained occasionally or as a by-catch in other fisheries.

Besides of the fact that some Mediterranean and Black Sea countries are not reporting any catch (or some are only occasionally reporting a few catch), the fishery production related to all the small tuna species shows a total official reported landing of **83,386 tons in 2005**. The under-reporting is believed to be relevant, because of the landings which are scattered all along the coastline and the isles and among many thousands of small and medium vessels; furthermore, the catches are sometimes passing directly from the fishermen to consumers, without passing through the general markets. The great number of small vessels engaged in the recreational fishery in many countries is not reporting the catches at all. As a matter of fact, as stated in chapter 4.0, the declared catches must be considered as a very minimum level of the real production, also taking into account that about 37% of the countries are not reporting catches (or sometimes reported a few catches of one species), while most of the small tuna species are distribute in all areas, with different presence or concentrations. This implies that the total production might possibly reach about **150,000 tons** or more as a prudential estimate in the most productive years.

Considering that the total official production of only the four most relevant species was able to give annual revenue of **168 Million Euro in 2005**, it is likely that the estimation of the real production might reach a level of about **300 Million Euro** in the best years. But, even considering only the official production and annual revenues, the value of these fisheries is quite relevant in the regional contest.

A particular problem is related to the fishery for small tuna species in the Marmara Sea and in the Black Sea. Besides of Turkey, no recent data are present in any of the data bases used for this study. The Black Sea had very important and dramatic ecological crisis in the '70s and certainly this fact affected the fishery of the small tuna species, but now the environmental situation is improving and the level of catches reported by Turkey in that area is extremely relevant. A particular effort should be devoted to obtain data from the countries having fleets in the Marmara Sea and in the Black Sea, even if some of them are not members or ICCAT of GFCM.

As a side problem of the non-identification of the fleets targeting these species is the fact that it is not possible to get any data on the fleet segmentation, the CPUE, the socio-economic parameters, etc. This fact prevents a reliable analysis of the fleet characteristics and the socio-economic aspects of this particular sector.

Therefore, the following points need to be fixed by the competent RFMO (ICCAT and GFCM) or further investigated:

1. Revision of the exiting fishery statistics, with the purpose to eliminate or clarify the existing discrepancies among the FAO, ICCAT and EUROSTAT data bases;
2. Critical revision of the existing statistics with the purpose to clarify the declaration by species when a discrepancy exists between one data base and the other or when a reported species, believed to be uncommon, is reported with high quantities;
3. Improvement of the statistical reporting for small tuna species, including them in all countries reporting systems and checking if the national statistical services are collecting data on these species;
4. A specific effort is required to improve the existing statistics with the catches from all the countries fishing in the Marmara Sea and in the Black Sea, possibly including also historical data;

5. A particular attention should be devoted to the data collection on the most abundant species, *Sarda sarda*, with the purpose to better follow this fishery and possibly define management approaches, including stock assessments;
6. Identification of the fleet segment concerned with the fishery of small tunas in all countries, following the “métier” approach for the data collection;
7. Pilot studies for the monitoring of catches of small tuna species obtained by the recreational fishery or/and to estimate the by-catch of these species in other fishing activity concerned or/and to identify the various component in the mixed fisheries;
8. Pilot studies to define the economic and socio-economic aspects of fisheries targeting small tuna species, following a “metier” approach;
9. Detailed scientific investigations are needed to better define several aspects of biology of small tuna species in the various part of the Mediterranean and the Black Sea; these studies should help in setting minimum size regulations when necessary;
10. A scientific study is needed at the regional level to finally define the systematic situation of *Auxis*, getting proper samples from the various areas of the Mediterranean and the Black Sea and carrying out all the necessary studies to set a commonly accepted framework and a clear identification procedure if necessary;
11. A general monitoring of the various species, including lessepsian migrants, is quite useful to better define the proportion in catches in all the various Mediterranean and Black Sea Countries.
12. Periodical and regular joint meeting between ICCAT and GFCM are necessary to better follow and monitor the small tuna fisheries over the years.

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4.0 References

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