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GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

SCIENTIFIC ADVISORY COMMITTEE

Seventh Session

Rome, Italy, 19-22 October 2004

**REPORT OF THE SEVENTH *AD HOC* JOINT GFCM-ICCAT
MEETING ON STOCKS OF LARGE PELAGIC FISHES
IN THE MEDITERRANEAN*
Malaga, Spain, 13-14 May 2004**

* Available only in English

REPORT OF THE 7th AD HOC JOINT GFCM-ICCAT MEETING ON STOCKS OF LARGE PELAGIC FISHES IN THE MEDITERRANEAN

(Malaga, Spain, 13-14 May 2004)

1 Opening, adoption of agenda and meeting arrangements

Victor Restrepo, Convenor of the Working Group, welcomed participants and thanked the local hosts, in particular Juan Antonio Caminas, for all of the meeting logistical arrangements. Jacek Majkowski also welcomed participants on behalf of FAO and GFCM. He noted that past meetings of the Joint Working Group focused on species of major management interest, such as bluefin tuna, and thus this meeting was the first one focusing on other species such as albacore and small tunas.

The Convenor explained that due to other obligations he would be unable to serve as meeting chairman. The Group appointed Antonio Di Natale as Chairman for the meeting.

The meeting Agenda was adopted with minor changes (**Appendix 1**).

The following served as Rapporteurs:

<u>Item</u>	<u>Rapporteur</u>
1	V. Restrepo
2	Di Natale
3	G. Tserpes, J. Ortiz de Urbina, I. Oray, D. Macias and J.M. de la Serna
4	P. Kebe
5	A. Di Natale and P. Kebe
6	A. Di Natale
7	P. Pallares
8	A. Di Natale

The List of Participants is given in **Appendix 2**. **Appendix 3** lists the documents presented at the meeting.

2 Review of fishery developments in participating countries

For this section, it was agreed to ask the scientists present at the meeting to prepare a short national overview of the situation in each country, covering both historical developments of the fisheries catching albacore and small tunas in the Mediterranean Sea and recent fishery developments related to other large pelagic species in the Mediterranean Sea.

The following were present at the meeting: European Community (EC-Greece, EC-Italy, EC-Spain), Morocco, Tunisia, and Turkey. No scientists attended from Albania, Algeria, Croatia, Cyprus, EC-France, EC-Malta, Egypt, Gibraltar (UK), Israel, Lebanon, Libya, Monaco, Montenegro, Serbia, Syria, or from the countries fishing in the Black Sea. It is also important to note that no countries, entities or fishing entities based outside the Mediterranean area having fleets fishing for tuna and tuna-like species in the Mediterranean Sea were represented at this meeting.

The following reviews the situation for those represented at the meeting:

2.1 EC-Greece

The Greek large pelagic fleets exploit mainly the Aegean and Ionian seas but occasionally extend their activities to the Levantine Basin.

The swordfish fishing season lasts from February to the end of September, as a closed season is in operation from October to January, with the aim of protecting juveniles. About 120 vessels were involved in the swordfish

fishery on a regular basis in 2003, but several additional boats entered the fishery during the summer months. Swordfish fishing is carried out using drifting longlines. Swordfish composes the bulk of large pelagic catches in the Greek seas and its production in 2003 was estimated to be 1,420 t.

The bluefin tuna fishery is carried out mainly during winter and spring months. There are about 200 vessels seasonally involved in the fishery, excluding the swordfish fishing vessels fishing bluefin as by-catch. The gears used for the bluefin tuna are longlines and hand lines. Only occasional catches are reported from purse seiners. The total catch was about 400 t in 2003.

There are traditional albacore fisheries in certain areas, especially in the north and central Aegean Sea during autumn months. Albacore fishing is carried out mainly by troll-lines and longlines. Annual production ranges from 500 to 1,800 t in the last 20 years. There are also small albacore by-catches in the swordfish fishery.

Small tunas are caught by purse seines and set gillnets, on a seasonal basis. The main fishing activity for certain species, such as bonito, is observed during spring months. Detailed catch data by species are not always available as small tuna landings are very often recorded as a whole.

Regarding dolphin fish, as there is no specific fishery targeting this species, only occasional minor catches are reported, mainly during the autumn months, from certain artisanal fisheries.

2.2 EC- Spain

In the Mediterranean Sea, the Spanish fisheries targeting bluefin tuna reached an average catch of about 2,500 t for the last two years. Purse seining represents 69% of the total catch, longline 23%, hand line 4%, and baitboat and surface gears around 2.5%. The catch for the traps in the Mediterranean Sea has been almost insignificant for the last seven years. For 2003, catch and fishing effort remained stable.

As regards swordfish, it is caught by longline. Average mean catch for the last few years amounted to 1,300 t. Swordfish is exploited throughout the whole year with maximum activity during summer and autumn months. In 2003, swordfish catch and fishing effort remained stable.

Albacore is fished by surface longline, bait boat, trolling and surface gears. Average catches in recent years reached 310 t. In 2003, fisheries targeting albacore remained stable as regards catch and fishing effort. All the relevant data of this fishery are reported in SCRS/2002/044.

Small tuna in the Mediterranean Sea are caught by surface gears and traps. Frigate tuna represents the highest fraction of the catch (800 t), followed by Atlantic bonito (400 t).

The IEO network of sampling and information continued its activity in the last year, to cover biological and statistical sampling. The IEO Project "Mediterranean Large Pelagic" has been continued with the purpose of providing information on the biological parameters of these species. The National Program within the framework of the EC Data Collection Program began studies on reproduction and CPUEs, among other topics. The EC Project "SFITUM" addressing the study of the recreational fishery of large pelagic has also been continued, as well as the Project SHARK for the species associated with the large pelagic fisheries. The COPEMED Large Pelagic Project continued to be active in 2003, as well as the Project TUNIBAL.

An EU LIFE Project on surface longline by-catch of marine turtles and mammals is also currently carried out in the Alboran Sea and in the Atlantic area off Gibraltar.

Several documents on various tuna and tuna like species have been presented by the Spanish scientists at this ICCAT/GFCM meeting.

2.3 EC-Italy

The albacore fishery has ancient traditions in Italy. In the past, the traditional fishing grounds were in the southern Tyrrhenian Sea (with bigger fish, caught by driftnet) and the Ionian Sea (with smaller fish, caught by longline). The fishery then expanded in the southern Adriatic Sea, while catches in the Ligurian Sea were limited to a few years only. In the last six years, the albacore fishery found new areas in the central Mediterranean Sea, south of Sicily or off the eastern Libyan coast, where important catches have been reported by a few vessels. Driftnets have been traditionally used to catch small tunas in several areas in southern Italy, getting good

catches. More recently, after the adoption of the driftnet ban, small tunas are fished mostly by longline, hand lines and gillnets; the most common species is *Auxis*, but *Sarda sarda* is also taken in Puglia and in eastern Sicily, while other species are sometimes included in the by-catch. The Mediterranean spearfish is usually a by-catch in the swordfish fishery, but it is also a target species in the harpoon fishery and in the recreational fishery.

The dolphin fish fishery is traditionally carried out in the Strait of Sicily and, in the last 20 years, also in the southern Tyrrhenian Sea, always with the use of FADs (“*cannizzati*”).

The fisheries related to the two most important large pelagic species (bluefin tuna and swordfish), well described in several previous reports (see SCRS/2002/010), do not show any relevant change in the last year.

The Ministry of Agriculture and Forestry Policy have adopted a detailed plan to enforce the new data collection system established by the EC, taking into account all the measures requested by ICCAT. The new data collection system has been effective and enforced since 2002, and the data are regularly submitted. Projects on tuna tagging and on the recreational fishery targeting large pelagic species have been conducted by several Italian scientific institutes, within the EC Data Collection framework program.

2.4 Tunisia

En 2003, près de 53 thoniers mesurant entre 15 et 38 mètres de longueur hors tout, 2 palangriers et trois madragues calées dans le golfe de Tunis se livrent à la pêche aux thons le long des côtes tunisiennes. De plus, 90 palangriers de taille variable continuent à opérer dans les eaux tunisiennes ciblant l’espardon.

Les captures des thons et des espèces voisines (espardon) de 2002 s’élèvent à 6674 tonnes. En terme de proportion, les thons mineurs constituent 45,07% des prises totales soit 3008 tonnes, alors que les prises des thons rouges estimées à 2528 tonnes, ne représentent que 37,9%. La proportion des prises de l’espardon a bien évolué passant de 6,6% en 2001 à 17,1% avec des débarquements estimés à 1138 tonnes. Les estimations des débarquements nationaux en thon rouge de 2003 sont révélatrices d’une chute spectaculaire de près de 68% par rapport au niveau de débarquement de l’année précédente.

Les débarquements des senneurs en thon rouge continuent à constituer plus de 96,5% des prises nationales.

La contribution des trois madragues tunisiennes calées au nord du pays, dans les prises nationales de thon rouge s’affaiblit de plus en plus. En 2002, leur production cumulée n’a pas dépassé les productions de 2001, soit près de 3 tonnes de thon rouge, ce qui représente moins de 0.2% des prises nationales. En 2003, les prises des madragues n’ont pas excédé les 5 tonnes.

Depuis 2000, la pêche de thon rouge s’effectue par groupe de thoniers senneurs (pêche solidaire), le produit pêché est rassemblé dans un unité spécialement affectée pour être déchargé dans un port de servitude. Mais en 2001, les poissons pêchés sont groupés vifs dans des cages spécifiques conçues pour leur traction à des lieux d’engraissement situés en Espagne. Près de 1400 tonnes de thon rouge sont exportées de cette manière. Au cours de 2002, les services concernés nous ont fait part de l’exportation également vers l’Espagne de 2000 tonnes de thon rouge dont le poids varie entre 40 et 50 Kg .

En 2003, six sociétés d’engraissement de thons rouges furent créées ciblant une capacité totale de 2400 tonnes. Les prises nationales se sont élevées à seulement 575 tonnes, situation qui a obligé certaines sociétés à importer du thon rouge d’ailleurs. Aussi 745 tonnes furent rapatriées dans les cages tunisiennes. D’après le rapport des services concernés de cette activité 1 332 tonnes sont passées dans les cages.

En ce qui concerne l’activité de recherche, la Tunisie continue, à travers l’Institut National des Sciences et Technologie de la Mer (INSTM), de participer aux activités de recherche COPEMED, un tel programme visant à mieux connaître la pêche, la biologie et l’écologie des grands pélagiques de la Méditerranée, est conjointement financé par la FAO/COPEMED et l’INSTM.

2.5 Turkey

The Turkish bonito catch shows remarkable fluctuations of between 5,000 and 27,000 t/year. The catches for 2000, 2001, 2002 were 27,000, 13,460, and 6,286 t, respectively, although there are some uncertainties in the catch for 2000, which was reported as 12,000 t. Bonitos migrate for reproduction and feeding from the end of April to August from the Aegean Sea to the Sea of Marmara. They migrate back in September to December

through the Bosphorus and Marmara seas to the Aegean Sea. During the migration they are caught by purse seiners and in lesser amounts by gillnets, mainly in November and December.

Atlantic black skipjack are caught mainly by purse seiners in the eastern Mediterranean and Aegean Sea. While the total Turkish catch has been estimated as being between 500 and 750 t/year, the real catch may be 2-3 times more per year.

Bullet tunas are caught mainly in the Levantine Basin and in smaller amounts in the Aegean Sea in the summer period; however the catch statistics are not exact.

3 Review of biological knowledge

3.1. *Albacore*

No documents regarding albacore were submitted during the meeting.

3.2. *Small tunas*

Eight documents dealing with the biology and fishery of small tunas were presented to the meeting; five of them were supported by COPEMED.

SCRS/2004/069 provided information on the reproduction of Atlantic bonito in the southwestern Mediterranean utilizing data from trap fisheries. Data suggested the presence of spawning activities in coastal areas close to the position of the traps during the late spring-summer (peak in June) months.

SCRS/2004/073 presented information on the bonito fishery carried out along the Turkish Black Sea coast. This included data on the size distribution of the landings and the CPUE rates of the purse seine and gillnet fisheries. It has been suggested that CPUE units should be calculated according to ICCAT requirements.

SCRS/2004/078 summarized literature on the biology of Atlantic bonito in the western and central Mediterranean. It has been suggested that estimates of growth parameters should be updated taking into account more recent data.

SCRS/2004/087 presented preliminary information on the age and growth of juvenile Atlantic bonito and Atlantic black skipjack utilizing daily growth marks on sagitta otoliths. Data suggested peak spawning in June and July for Atlantic bonito and Atlantic black skipjack, respectively.

SCRS/2004/072 presented information on the size distribution and length-weight relationship for Atlantic black skipjack caught from various artisanal fisheries operating in Turkish waters and those off the northern coast of Cyprus. It was suggested that information on the size frequency should be considered as preliminary due to the small sample size.

SCRS/2004/070 provided information on the reproduction of bullet tuna in the southwestern Mediterranean utilizing data from trap fisheries. Data suggested that bullet tuna is a multiple spawner, spawning along the coast of the sampled area in early summer.

SCRS/2004/074 presented information on certain biological parameters of bullet tuna such as growth, gonadosomatic index, sex-ratio-by-size, length-weight relationships and weight conversion factors. Data were for the period 1996-2000 and it is planned that these be updated.

SCRS/2004/085 provided information on the by-catch composition of the Tunisian traps and purse seiners targeting bluefin tuna in the period 2000-2003.

3.3. *Other species*

Bluefin tuna

Six documents were presented, one regarding biology, one dealing with farming tuna and 4 relating to statistics.

SCRS/2004/076 presented spawning habitat of bluefin tuna in the Balearic Islands in relation to hydrographic characteristics and environmental conditions. Bluefin larvae were associated with warm (24-25°C) water. The larvae also may be associated with Atlantic water masses. Frontal structures and anticyclonic gyres have an influence on the spawning strategy of the species. Frontal structures provide feeding resources and anticyclonic gyres concentrate the larvae in restricted areas.

SCRS/2004/084 presented the results of the farming tuna activity in the Tunisian waters. During 2003, various firms imported bluefin tuna from Libyan waters. Mortality rates, feeding and length distribution of the bluefin fattening in the cages were presented. High mortality rates were noted and discussed.

SCRS/2004/086 presented an historical revision of the catches of the trap of Sidi Daoud, the most important trap in Tunisia. SCRS/2004/083 and SCRS/2004/071 deal with catch rate standardization of Tunisian and Moroccan-Spanish traps, respectively. SCRS/2004/075 presented preliminary standardized bluefin tuna catch rates from Spanish artisanal fisheries in the Strait of Gibraltar.

Swordfish

Only one document on swordfish biology was presented to the meeting. SCRS/2004/068 presented information on the reproductive characteristics of swordfish in the southwestern Mediterranean. Results suggested the presence of a spawning season in summer with a peak in July and supported the hypothesis of lower L50 maturity values for the Mediterranean swordfish in comparison to the Atlantic and Pacific ones. The Group discussed the findings in relation to technical measures (e.g., minimum landing size regulations) that would be applied for the conservation of the stock.

Spearfish

One document, SCRS/2004/079 presented data on the size frequency composition of the Mediterranean spearfish caught by the harpoon and gillnet fisheries operating in the Tyrrhenian Sea and the Straits of Messina. Total catch estimates are not available but it has been suggested that these might be relatively high taking into account that spearfish is also the target fish of certain recreational fisheries in the central and western Mediterranean.

4 Review and updates to fishery database

Papa Kebe from the ICCAT Secretariat presented SCRS/2004/077 and introduced the catch tables. He also drew attention to the *Resolution by ICCAT on Improvements in Data Collection and Quality Assurance* [Ref. 03-21], the general recommendations made by the SCRS in the year 2003, and the GFCM/ICCAT concerns during the meeting held in Malta in 2002 (SCRS/2002/010), in relation to the ICCAT Survey on Statistic Collection.

4.1 Albacore: The nominal catches presented in **Table 1** and **Figure 1** were reviewed by the Group. The delegate of Turkey pointed out that between 5 and 10 % of catch reported as bluefin tuna may include catches of albacore. Further investigations are needed to verify this misreporting of catches. The purse seine catches reported for 2001 and 2002 for Greece were reclassified as unclassified gear. The Greek scientists noted that during recent years albacore catches may also includes other tunas. EC-France, Japan and EC-Malta were not present during this discussion. The Group recommended that the eastern countries of the Mediterranean should try to estimate the albacore catches taken by their fleets and report these to the ICCAT Secretariat.

4.2 Small tunas: The Group noted that the data of small tunas in the ICCAT database is very poor (**Table 2** and **Figure 2**) and a general strategy should be developed by a working group to see how to proceed in the future. The Group reviewed the excellent work carried out by Luca Garibaldi, comparing the ICCAT database and the FAO database. The suggestion to make a joint (ICCAT & FAO) document for the next SCRS to explain the differences for all the Mediterranean species between both databases was approved. It was reiterated that the collection of statistics is a national obligation.

4.3 Other species: The catches of sharks (**Table 3**) were reviewed and it was noted that no new data were submitted to ICCAT. For bluefin tuna (**Table 4** and **Figure 3**), there was no comment. The Secretariat noted that the Algerian authorities recently submitted a scientific document to justify changes proposed to modify their historical catches of bluefin (**Table 5**). This document should be made available to the Bluefin Species Group for evaluation. For swordfish (**Table 6** and **Figure 4**), the Greek catch reported for 2002 was changed from 975 t to 1,680 t. For billfish (**Table 7**), there was no comment. The Group noted that while the presence of skipjack is

unusual, the presence of bigeye, blue marlin, white marlin and other tropical spearfish is occasional in the Mediterranean Sea.

The Group remarked that a considerable quantity of catch of unidentified species was reported to ICCAT (**Table 8**) and further investigation was recommended to try to attribute those catches to species.

The Group reviewed the situation of submission of the ICCAT Survey on Statistic Collection (SCRS/2004/077) and strongly recommended the need to answer the questionnaire and return it to ICCAT. In accordance with the *Resolution by ICCAT on Improvements in Data Collection and Quality Assurance* [Ref. 03-21], the Secretariat re-circulated the questionnaire to all those who had not yet completed it (see Table 1, SCRS/2004/077), requesting them to respond. The Chair of the Sub-committee on Statistics also indicated that she would write to the scientists concerned, urging them to complete the questionnaire.

5 Evaluation of data availability and feasibility of albacore assessment in the near future

Due to the lack of new information about albacore, the recommendation made during the previous joint meeting in Malta was reiterated¹. At the same time, the importance of getting all the available data from the national governments was further stressed, particularly taking advantage of the new EC Data Collection Program for the countries concerned.

6 Other matters

José Miguel de la Serna and Abdallah Hattour presented a proposal “Research project on biology and fishing of small tuna in the Mediterranean” (see **Appendix 4**), to improve the data collection and the biological studies on several small tuna species. The proposal was supported by the participants, particularly with the purpose to improve the research activity on these species in the southern and eastern Mediterranean. It was suggested that the participation of GFCM and ICCAT members and other FAO regional projects currently existing be sought. Doubts have been raised about the possibility to get a proper level of funding to support the ambitious objectives of the proposal. At the same time, the opportunity to present the proposal to several potential sponsors would provide a negotiation process that better matches resources to priorities.

7 Recommendations

1. The Group analyzed the available information on small tuna species and recommended that:
 - ICCAT Contracting Parties should review the historical ICCAT database of catches in order to complete data and validate existing statistics. These recommendations should be transmitted to the Small Tuna Species Group of ICCAT.
 - All countries should make an effort to improve the small tuna statistics as well as the current knowledge on biology, stock structure and other relevant aspects of these species. In order to discuss these improvements, it is recommended that another GFCM-ICCAT joint meeting be held during the next Small Tuna Species Group meeting of ICCAT.
 - During the current meeting, the proposal of a research project on small tuna was presented (**Appendix 4**). After discussions, the Group considered the proposal as a good starting point to improve the current knowledge on these species and recommended that ICCAT and GFCM support the goal of this project.
 - Statistics of small tuna should be considered important in all Mediterranean FAO regional projects. In particular, these species should be taken into account in the newly established MedFisis project, specifically dealing with the improvement of fishery statistics.
2. The Group reviewed the available information on albacore and realized that no new information has been provided since the 2002 Malta meeting. The Group reiterated the need to obtain more information, especially regarding Task I and Task II (catch, effort and size data).
3. The Group appreciated the efforts made by FAO and ICCAT to coordinate and validate statistics and recommended that the results of this work be presented at the next (2004) SCRS meeting.

¹ The Group in 2002 was of the opinion that the available data were too poor to allow any reliable assessment of Mediterranean albacore in the near future (SCRS/2002/010). The need to obtain more information was stressed, especially regarding Task II and size data.

4. After revising the shark statistics existing in the ICCAT database, the Group recommended the review of the historical series and to complete it as far as possible. In particular, the EC countries should make an effort to improve their shark statistics, according to the new amendment to the EC Reg. 1639/01.
5. Due to the high amount of catches reported and entered as unclassified tuna species or mixed tuna species in the ICCAT database, the Group recommended that ICCAT Contracting Parties, as well as the GFCM, review their catches and try to classify them by species.
6. Given the low rate of response to the Survey on Statistic Collection Systems sent by the ICCAT Secretariat, the Group underlined the importance of this survey and strongly recommended that scientists provide the information required.
7. The Group appreciated the support provided by COPEMED for the preparation of the documents and the assistance for participation and recommended that COPEMED continue their research activities on tuna and tuna-like species.
8. Recognizing that scientists from only six countries participated in the meeting, it was recommended that all countries catching large pelagic species should be involved in future GFCM-ICCAT meetings.

8 Adoption of the report and closure

The Report of the 7th *Ad Hoc* Joint GFCM-ICCAT Meeting on Stocks of Large Pelagic Fishes in the Mediterranean was adopted by the Group. The Chairman thanked the participants and the hosts. The meeting was closed on 14 May 2004.

Table 1. Nominal catches (t) of albacore in the Mediterranean Sea, by fleet and gear, 1965-2002.

Flag	Gear	Year																			
		1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	
EC-CYPRUS	SPOR																				
EC-ESPAÑA	BB																	900	539	535	
	LL																				
	LLHB																				
	LLMB																				
	PS																				
	SURF																				
	TRAP																				
TROL																			33		
UNCL									200												
EC-FRANCE	PS																				
	PSM																				
	SPOR																				
EC-GREECE	HAND																				
	LL																				
	PS																				
	UNCL																				
EC-ITALY	GILL																				
	LL																				
	LLHB												40	130	150						
	SPOR																				
	TRAP																				
	UNCL	500	500	500	500	500	500	500	500	500	500	500	500	520	483	440	833	500	600	700	700
JAPAN	LLHB								1												
EC- MALTA	LL																				
	UNCL																				
NEI-2	PS																				
(EX) YUGOSLAVIA	PS					200															
TOTAL		500	500	500	500	700	500	500	701	500	500	500	561	613	590	833	500	1500	1272	1235	

Table 1. Continued.

<i>Flag</i>	<i>Gear</i>	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
EC-CYPRUS	SPOR																	6		12	
EC-ESPAÑA	BB	1331	243					83	499	171	231	81	163	205		33	96	88	77	29	
	LL																	0		0	
	LLHB					3				6		3	6		35	2	1	2	4	2	
	LLMB														141	20	73	49	108	35	
	PS		24									5									
	SURF													80	2	24	41	5	12	26	
	TRAP								1								2	0	8		
	TROL		264							48	50	59	129	306	119	202	45	73			117
UNCL															0						
EC-FRANCE	PS																			0	1
	PSM	141	250	10	50	16	16	91	110	6	59	18	0								
	SPOR			10	10	15	15	30	30	5	5	5	3		5	5					
EC-GREECE	HAND																	20	18	14	12
	LL																	35	33	40	36
	PS																			0	0
	UNCL			484	500	500	500	500	500	500	1	1		952	741	1152	1950	1735	1786	1304	
EC-ITALY	GILL	191	385	100	107	110	110	565	668	1025	873	759	1027	1383	1222	1222	2254	916	379	397	
	LL										402	347		366	172	172	307	2712	2445	3631	
	LLHB	226	375	150	161	165	165	624	523	436			81								
	SPOR													20	20	20					
	TRAP							2		3											
	UNCL	1525	2588	2958	3165	3254	3254					1	1					2	2	4	
JAPAN	LLHB																				
EC- MALTA	LL																1	4		2	
	UNCL														1	1					
NEI-2	PS									500											
(EX) YUGOSLAVIA	PS																				
TOTAL		3414	4129	3712	3993	4063	4060	1896	2378	2202	2130	1349	1587	3125	2541	2698	4851	5577	4866	5608	

Table 2. Nominal catches (t) of small tuna species in the Mediterranean Sea, by fleet and gear, 1950-2002.

Species	Flag	Gear	Year																											
			1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	
FRI	ALGERIE	GILL																												
		PS TRAP UNCL																												
	CROATIA	PS																												
	EC-ESPAÑA	GILL																												
		PS SURF TRAP UNCL	722	372	176	772	612	877	1324		1614		880		2481	2872	2138	1161	1175	1080	2571	827	1051	1845	1869	1074	1463	1873	1269	1417
	EC-FRANCE	PSM																												
	EC-GREECE	PS UNCL																												
	EC-ITALY	HAND UNCL											600	1000	700	800	500	700	900	1200	1200	1100	1100	1600	1700	1200	1300	939	912	
	EC-MALTA	TROL UNCL													100	100												7	18	15
	MAROC	GILL																												
PS SURF TRAP													87	261	741	653	11	11	30	11	5	8	16	65	299	62		130		
TUNISIE	PS UNCL																													
																							163	220	185	185	283	282	353	
YUGOSLAVIA	PS	29	52	36	22	77	195	68	32	86	72	43	35	41	75	68	52	47	58	50	56	24	29	21	12	22	16	18		
YUGOSLAVIA REP. FED.	PS																													
FRI Total			751	424	212	794	689	1072	1392	32	1700	72	1523	3603	3990	4390	2794	2591	2732	4561	3078	2786	3366	4095	3445	3549	4355	2644	3290	
BLT	TURKEY	PS																												
BLT Total																														
BON	ALBANIA	UNCL																												
	ALGERIE	GILL																												
		PS TL TRAP UNCL															100	200	300	200	100	100		31	222	343	183	140	143	
	BULGARIA	UNCL															1683	1475	2281	1784	2079		100					40		
	CROATIA	PS																												
	EC-CYPRUS	GILL																												
	EC-ESPAÑA	GILL																												
		PS SURF TRAP	236	165	91	274	296	296	98		109		139	28	6	77	52	374	504	628	287	248	508	817	198	250	219	289	364	
EC-FRANCE	PSM UNCL																													
EC-GREECE	PS UNCL	200	200	200	500	3400	6600	2400	4800	1300	900	1400	1900	2000	2200	900	3200	2300	1800	1700	2000	900	600	600	500	487	658	511		
EC-ITALY	UNCL											600	2000	1100	1000	1000	852	969	1413	836	969	914	1064	965	715	760	959	955		

Species	Flag	Gear	Year																											
			1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	
	EGYPT	PS																												
		UNCL																									10	3		
	LIBYA	PS																												
		TRAP																												
	EC-MALTA	UNCL																									2	5	1	
	MAROC	GILL																												
		PS																												
		SURF																	26	9	115	16	17	22	37	42	295	90	135	628
		TRAP																	4	6	10	7	3	3	17	12	13	40	2	
	NEI-2	UNCL																												
	RUMANIA	UNCL																											2	
	TUNISIE	SPOR																												
UNCL																							117	251	200	203	499	429	619	
TURKEY	PS																													
	UNCL																													
U.S.S.R	UNCL																													
YUGOSLAVIA	PS																													
YUGOSLAVIA REP. FED.	PS																													
BON Total			483	413	327	6795	18436	56207	58178	44127	28622	11530	34359	45810	7526	22835	13488	27001	22112	41206	26268	55612	20681	28230	16225	6254	7695	6038	6499	
BOP	ALGERIE	GILL																												
		UNCL																												
	LIBYA	PS																												
MAROC	GILL																													
	SURF																													
BOP Total																														
LTA	ALGERIE	GILL																												
		PS																												
		TRAP																												
		UNCL																												
	CROATIA	PS																												
	EC-CYPRUS	UNCL																												
	EC-ESPAÑA	GILL																												
		LLHB																												
		PS																												
		SURF																												
		TRAP	138	228	3	38	4	9	81					1	6	4	15	5	3	8										
	EC-GREECE	PS																												
	EC-ITALY	UNCL																												
	GAZA-STRIP	UNCL																												
	ISRAEL	UNCL																												
	LIBYA	PS																												
		TRAP																												
	EC-MALTA	UNCL																												
MAROC	GILL																													
	PS																													
	SURF																													
	TRAP																													
LTA Total																														
BOP Total																														
LTA Total																														
BOP Total																														

Species	Flag	Gear	Year																										
			1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
	NEI-2	UNCL																											
	SYRIA	UNCL																											102
	TUNISIE	PS TRAP UNCL																					86	116	32	29	77	82	126
	TURKEY	PS UNCL																					163	220	185	185	283	282	353
	YUGOSLAVIA	PS	18	23	11	6	126	47	13	22	47	11	12	24	2	8	2	2	3	7	5	8	5	4	12	9	4	20	2
	YUGOSLAVIA REP. FED.	PS																											
LTA Total			156	251	14	44	130	56	94	22	47	11	13	24	31	18	48	42	27	38	168	951	960	866	904	1061	1304	1386	2028

Table 2. Continued.

Species	Flag	Gear	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002			
FRI	ALGERIE	GILL PS TRAP UNCL															17	36	62	45	31	26	18	39	15	30	42	121			
																	148	220	267	247	188	202	156	245	149	178	166	306			
																	9	14	19	14	11	10	5	15	9	17	22	27			
	CROATIA	PS															24	21	52	22	28	26	26	26	26						
	EC-ESPAÑA	GILL PS SURF TRAP UNCL									39	2																			
			765	1333	1627	2100	1600	1732	1629	1605	1392	1297					1327	432	855	855	569	493	702	1233	1962	408	221	527	411	750	317
			419	343	144	20	100	203	506	655	613	256	631	1342	2149	2130	1371	640	155	422	239	334	196	266	142	612	111	176			
																			1												
	EC-FRANCE	PSM															8	4				1									
	EC-GREECE	PS UNCL																					26	26			196	125	120		
	EC-ITALY	HAND UNCL					516	2192	1887	2060	1419	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400					124		
	EC-MALTA	TROL UNCL	1147	1177	1342	1376	1193	1299	1494	1610	1344	1344	906	609	509	494	432	305	379	531	531	229	229	229	462	462	462	2328			
			9	33	11	18	4	9	11	4	1	13	5	8	18	21	20	11	10	1	2	3	6	6	3	1					
	MAROC	GILL PS SURF TRAP							77	57	52	48	150	151	811	1107	2058	868	1157	47	1532	566	1673	555	629	463	536	232	621		
			109	69	73	10	14																	33	9						
	TUNISIE	PS UNCL			96	25	8	191	16	36	114	46	276	258	96	102	102	4						7	478	210	227	24			
			811	589	397	384	229	326	202	258	253	492	330	330	564	883	883	31	20	13	14	13	26	87	38	7	2292	932			
	YUGOSLAVIA	PS	24	23	17	19	14	14	18	16	14	32	14	41	42	23															
	YUGOSLAVIA REP. FED.	PS															13	1				2	6	6	6	7	8	8			
FRI Total			3409	3567	3707	3952	3678	6043	5820	6337	5240	5057	3740	6126	6387	8360	6571	4901	3027	5123	4301	5909	3064	2280	2060	2686	4234	5099			
BLT	TURKEY	PS															35		324	77					316	316	316	316			
BLT Total																	35		324	77					316	316	316	316			
BON	ALBANIA	UNCL																				1	2								
	ALGERIE	GILL PS TL TRAP																35	52	75	66	98	45	51	91	74	46	39	157		
																	209	244	342	332	377	219	284	389	376	346	292	361			
			206	196	515	640	740	860	867	874	880	459	203	625	1528	1307													56		

Species	Flag	Gear	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
		UNCL															17	19	29	20	31	13	22	31	25	13	19	23	
BULGARIA		UNCL	44	11	1	13	191	4	24	1	1		13			17	17	20	8		25	33	16	51	20	35	35	35	
CROATIA		PS															49	128	6	70				25	120				
EC-CYPRUS		GILL																								14		10	
EC-ESPAÑA		GILL															223	245											
		PS							969	634	617	430																	
		SURF	565	598	540	380	560	803	44	100	50	6		893	524	672	672	218	200	341	624	681	619	313	419	321	327	448	
		TRAP	45	113	173	100	150	187	212	250	155	48	51	69	85	40	14	10		3	8	9	9	20	14	20	22	13	
EC-FRANCE		PSM												10		1	10	5	6										
		UNCL							33	16																		27	
EC-GREECE		PS						1405	1367	1732	1321	1027	1848	1254	2534	2534	2690	2690	2690	1581	2116	1752	1559	945	2135	1914	1550	1420	
		UNCL	550	610	712	809	1251																						
EC-ITALY		UNCL	1533	1378	1403	1180	1096	1102	1806	2777	1437	1437	2148	2242	1369	1244	1087	1288	1238	1828	1512	2233	2233	2233	4159	4159	4159	4579	
EGYPT		PS																			697	985	725	724	1442	1442			
		UNCL	1	17	10	3	2	23	14	48	62	68	35	17	358	598	574	518	640	648							1128	1128	
LIBYA		PS																40	31										
		TRAP																40	30										
EC-MALTA		UNCL			2	2	1	1			1												2	7	2	2	1		
MAROC		GILL															67	67	31	23	82	37	67	41	37	55			
		PS																											
		SURF			450	128	155	62	309	71	92	75	57	47	122	107	28											61	
		TRAP			6									4	5	1		2	2		2	11		4	2	65	115	5	
NEI-2		UNCL					295	274	276	452	694	359	359	537	561	342	311	311	311	300	300	300	300	75					
RUMANIA		UNCL																											
TUNISIE		SPOR																										1183	
		UNCL		768	791	865	700	381	748	600	600	482	504	500	600	422	488	305	643	792	305	413	560	611	855	1350	1528		1112
TURKEY		PS					14292	23174	23397	29034	7220	12281	10756	16793	17613	4667	14387	19151	8654	19000	8944	10284	10284	7810	24000	17900	12000	13460	13460
		UNCL		4503	5536	9082																							
U.S.S.R		UNCL																											
YUGOSLAVIA		PS		26	39	29	72	39	61	31	37	34	38	62	36	98	79												
YUGOSLAVIA REP. FED.		PS															45		3	2	6	10	12	12	14	17	17		
BON Total				8699	9419	13486	18547	28167	28937	35546	15058	17959	15428	22317	24028	11955	21747	25255	14902	25449	14533	16529	17195	14078	29730	28170	21972	22236	22890
BOP	ALGERIE	GILL																57	95	128	108	78	91	197	109	179	122	130	113
		UNCL																30	40	70	45	14	28	27	19	37	13	15	15
	LIBYA	PS																40	40										
	MAROC	GILL															37	14	1	14	23	23	13	3	2	1	10	9	9
		SURF			135	153	28					9	1	26	8	7													
BOP Total				135	153	28						9	1	26	8	7	37	101	176	252	176	115	132	227	130	217	145	154	137
LTA	ALGERIE	GILL																20	27	21	18	37	22	19	16	61	43	27	23
		PS																332	374	295	290	343	341	301	252	335	321	269	79
		TRAP																130	139	144	123	121	154	106	98	139	116	102	29
		UNCL																40	45	35	28	51	37	22	18	27	14	9	17
	CROATIA	PS																2	3	2	15	15							
	EC-CYPRUS	UNCL		18	11	17	17	22	33	17	31	32	13	25	41	20	23	25	21	11	23	10	19	19	19	16	19	19	19
	EC-ESPAÑA	GILL										10																	
		LLHB																										0	1
		PS																8											
		SURF		1059	1153	993	800		705			3									14	7	6	11		8	14	28	

Species	Flag	Gear	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
		TRAP				39			6			21	2	5	5							1	11	3	4		67	3	
	EC-GREECE	PS																										132	
	EC-ITALY	UNCL																										16	
	GAZA-STRIP	UNCL																				90	59	61	60	60	60	129	
	ISRAEL	UNCL		300	200	170	105	35	110	35	60	259	284	273	135	124	129	108	126	119	119	215	119	119	119	119	119	119	
	LIBYA	PS																					24	32					
		TRAP																					21	20		5	4	4	
	EC-MALTA	UNCL																8	1	8	8	8	3	3					
	MAROC	GILL																						14	8				
		PS																										3	
		SURF		1		6		61	12		1				12							1	1						
		TRAP		3																									
	NEI-2	UNCL						200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	
	SYRIA	UNCL		105	109	89	80	73	90	80	96	95	73	121	99	121	127	110	156	161	156	155	270	350	417	390	370	370	330
	TUNISIE	PS		98	194	1019	1327	875	976	997	927	1144	1048	1333	1381	847													
		TRAP		100	200	179	61	145	28	29	39	44	50	140	197	155	202	94	47										
		UNCL		811	589	397	384	229	326	202	258	253	492	330	330	564	1911	1249	617	242	204	696	824	333	1113	752	1453	1036	960
	TURKEY	PS																						500	750	750	750		
		UNCL																										750	
	YUGOSLAVIA	PS		4						1	6	1	1	2	5	4	9												
	YUGOSLAVIA REP. FED.	PS																5	28	21	35	22	18	20	18	16	16		
LTA Total			2499	2495	2870	2774	1446	2480	1561	1650	2040	2166	2424	2405	2035	2617	2323	1756	1266	1205	1902	2119	1604	2914	2875	3294	2863	2642	

- BLF– Blackfin tuna (*Thunnus atlanticus*)
- BLT– Bullet tuna (*Auxis rochei*)
- BON– Bonito (*Sarda sarda*)
- BOP– Plain bonito (*Orcynopsis unicolor*)
- BRS– Serra Spanish mackerel (*Scomberomorus brasiliensis*)
- CER– Cero (*Scomberomorus regalis*)
- FRI– Frigate tuna (*Auxis thazard*)
- KGM– King mackerel (*Scomberomorus cavalla*)
- KGX– Scomberomorus unclassified (*Scomberomorus spp.*)
- LTA– Atlantic black skipjack (*Euthynnus alletteratus*)
- MAW– West African Spanish mackerel (*Scomberomorus tritor*)
- SSM– Atlantic Spanish mackerel (*Scomberomorus maculatus*)
- WAH– Wahoo (*Acanthocybium solandri*)

Table 3. Nominal catches (t) of sharks in the Mediterranean Sea, by fleet and gear, 1994-2002.

			<i>Year</i>									
<i>Species</i>	<i>Flag</i>	<i>Gear</i>	1994	1995	1996	1997	1998	1999	2000	2001	2002	
ALV	EC-ESPANA	LL				3	7					
	EC-PORTUGAL	LLHB									1	
ALV Total						3	7				1	
BSH	EC-CYPRUS	LL							9			
	EC-ESPANA	LL				146	59	20	26			
		LLHB									6	3
	EC-PORTUGAL	LLHB									14	
JAPAN	LL	5	7	1	1							
BSH Total			5	7	1	147	59	20	35	6	17	
BTH	EC-ESPANA	LL					0		5			
BTH Total							0		5			
DGH	EC-CYPRUS	GILL							13			
DGH Total									13			
DGZ	EC-CYPRUS	GILL									14	
DGZ Total											14	
GAG	EC-ESPANA	LL				0	1					
GAG Total						0	1					
PXX	EC-ESPANA	LL							0			
	JAPAN	LL		1								
PXX Total				1					0			
SDV	GAZA-STRIP	UNCL									2	
SDV Total											2	
SHX	EC-CYPRUS	LL									8	
	EC-ESPANA	LLHB									39	
	LIBYA	LL									8	
SHX Total											47	8
SKH	EC-CYPRUS	LL						12				
SKH Total								12				
SMA	EC-ESPANA	LL				6	7	5	3			
		LLHB								2	2	
	JAPAN	LL		2								
SMA Total				2	6	7	5	3	2	2		
SPN	EC-ESPANA	LL				1						
SPN Total						1						
THR	EC-ESPANA	LL						7				
		LLHB								5	23	
THR Total								7		5	23	

ALV	<i>Alopias vulpinus</i>	Thresher
BSH	<i>Prionace glauca</i>	Blue shark
BTH	<i>Alopias superciliosus</i>	Bigeye thresher
DGH	Squalidae, Scyliorhinidae	Dogfishes and hounds nei
DGZ	<i>Squalus</i> spp	Dogfish nei
GAG	<i>Galeorhinus galeus</i>	Tope shark
PXX		Pelagic sharks unclassified
SDV	<i>Mustelus</i> spp	Smooth-hounds nei
SHX	Squaliformes	Dogfish sharks, etc. nei
SMA	<i>Isurus oxyrinchus</i>	Shortfin mako
SPN	<i>Sphyrna</i> spp	Hammerhead sharks nei
THR	<i>Alopias</i> spp	Thresher sharks nei

Table 4. Nominal catches (t) of bluefin tuna in the Mediterranean Sea, by fleet and gear, 1950-2002.

Flag	Gear	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	
ALGERIE	BLL																														
	GILL																														
	HAND																														
	LL																														
	PS																														
ALGERIE	TL																														
	TRAP	100	100	100	98	62	98	56	52	78																					
	UNCL																														
CHINA.PR	LL																														
CHINESE TAIPEI	LL																														
	LLFB																														
CROATIA	HAND																														
	LL																														
	PS																														
	SPOR																														
EC-CYPRUS	HAND																														
	LL																														
EC-ESPAÑA	BB																														
	GILL																														
	HAND																														
	LL																														
	LLALB																														
	LLHB														800	300	400	500	300	600	400	69	129	124	274	192	103	250	68	92	
	LLJAP																														
	LLMB																														
	PS																														
	SPOR																														
	SURF																														
TRAP	168	273	553	54	597	60	136	345	282	374	561	620	377	472	653	1235	151	104	4	217	280	53	88	146	11	3	3	2	1		
TROL																															
UNCL																															
EC-FRANCE	GILL											400	599	214	668	953	390														
	PS																														
	PSM																														
	SPOR																														
	UNCL	507	816	966	899	798	783	329	615	294	384																				
EC-GREECE	HAND																														
	LL																														
	PS																														
	UNCL	400	400	400	800	600	1200	900	500	700	700	900	1100	1000	1200	600	700	500	600	500	500										
EC-ITALY	BB																														
	GILL																														
	HAND																														
	HARP																														
	LL																														
	LLHB																														
	PS																														
	PSFB				722	423	263	296	153	129	158	60	69	244	171	989	896	155	410	792	366	729	1203	840	1020	1225	3120	4170	4120	4179	2100
PSFS				53	329	259	213	110	59	104	47	105	161	267	94	146	220	296	325	1099		496	1763	1475	2880	2100	5487	1252	2563		
RR																															

Flag	Gear	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978		
	SPOR TRAP UNCL	2200	1978	1044	2007	1752	1589	1560	2571	2736	1823	1229	1423	1280	1227	1652	1264	945	1949	1739	1324	961	1044	835	367	739	713	650	698	210		
EC-PORTUGAL	LL LLHB																															
ISRAEL	UNCL																															
JAPAN	LL LLHB																							112	246	2195	1260	968	520	61		
KOREA	LLFB																															
LIBYA	LL PS TRAP UNCL	1000	1100	900	1700	1200	1200	1200	1200	1200	1100	1100	1000	800	100	400	600	700	800	1000	2000		500	392	208	449	475	1469	780	799	336	677
EC-MALTA	LL UNCL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							21	37	25	47	26	
MAROC	GILL HAND PS SURF TRAP																															
																	172	11	27	5			37	36	1	7						
NEI-1	LL																															
NEI-10	HAND																															
NEI-105	LL																															
NEI-118	LL																															
NEI-134	LL																															
NEI-2	PS																															
NEI-81	LL																															
NEI-COMB	UNCL																															
PANAMA	LLFB																														4	
TUNISIE	HAND PS TRAP	465	410	290	320	355	301		34		85			404	260	376	601	293	307	184	77	153	206	57	52	136	83	66	120	120		
TURKEY	PS TRAP UNCL									800	400	500	300	300	200	100		100	100	1488	310	393	138	22	68	66	34	17	181	177	127	
YUGOSLAVIA	PS	657	531	279	588	654	346	253	382	388	224	109	123	87	277	271	134	246	331	150	301	90	326	200	224	317	155	562	932	1049		
YUGOSLAVIA REP. FED.	PS UNCL																															
TOTAL		5597	5708	5354	7042	6710	6232	4900	6838	6395	5454	4815	5614	4794	6460	6295	5997	5326	8744	7933	8690	4694	6195	5954	6051	13056	11241	17073	11797	8846		

Table 4. Continued.

Flag	Gear	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		
ALGERIE	BLL																								186		
	GILL																					200	158	214	312	287	
	HAND																					180	208	159	163	129	
	LL																							700	109		
	PS																					900	1056	778	917	922	
CHINA.PR	TL																					93	174	88			
	TRAP																					399	367	290	366	41	
	UNCL	150	190	220	250	252	254	260	566	420	677	820	782	800	1104	1097	1560	156	156	157	175	179	101	145	145		
	LL																97	137	93	49							
	CHINESE TAIPEI	LL														328	709	494	411	278	106	27					
CROATIA	LLFB																						169	329	499		
	HAND																				6	1	39				
	LL																				11	16	10	9	1		
EC-CYPRUS	PS												1418	1076	1058	1410	1220	1360	1088	889	921	930	890	975			
	SPOR																						4		1		
	LL															4											
EC-ESPAÑA	BB			100	53		1699	278					25	148	158	48		206	5	4	11	4			1		
	GILL						3	2																			
	HAND						151	145	267	29	177	553	137	296	10	4	200	93	726	206	69	76	21	67	98	48	
	LL																143	349	332	576	206	376	463				
	LLALB																									171	
	LLHB	100	100	200	538	233	69	129	117	116	135	98	59	51	28	40	35	19	37	101	25	29	22	37	21		
	LLJAP																							470	244		
	LLMB																										
	PS				50	277		79	45	110	170	160	300	635	807	1366	1431	1725	2896	1657	1172	1573	1504	1676	1453	1686	
	SPOR	15	33	1	55																18	8	11	11	10		
	SURF						391	26	415	220	404	225	717	247	126	250	146	336		76	30	55	35	38	28	11	
	TRAP				3	66	37	621	302	168	219	228	231	470	24	16	6			1	1	1	5	1	0	1	0
	TROL																	13	15				9	8			12
UNCL						101	22	57	92	127	162	90	226	343	147	396	395	274	58			4	488		11		
EC-FRANCE	GILL																										
	PS																										
	PSM	1527	1701	2300	4818	3600	3570	5400	3460	4300	5750	4404	4663	4570	7346	6965	11803	9494	8547	7701	6800	5907	6780	6119	5810		
	UNCL	51		30	30	30	30	30	30	30	30	30	50	50	30	30	40	50	60	580	500	300	246				
EC-GREECE	HAND							11	131	79	82	105	124	98	348	339	766	915	784	1127	279	233	597	341	394		
	LL																										
	PS																										
	UNCL																										
EC-ITALY	BB																						0	0			
	GILL						100	100	45	45	45	45	55	203	188	209	72	109	57	150		10	13	26			
	HAND	120					20	20	10	10	10	10	547	128	106	161	324	351	122	186	5	0	3	1	21		
	HARP			56	24								7	6	5	2	2	4	10	20		5	5	2			
	LL												28	40	48	107	295	317	519	307	292	515	287	260	395		
	LLHB						29	41	62	1	65	63	63	51	62	30	28	723	1786	1581	1313						

Flag	Gear	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
	PS																									
	PSFB	2855	3361	1712	2182	2560	2476	1453	1082	557	334	450	840	2295	2837	3362	3835	3184	7059	7068	3334	1859	2801	603	3246	
	PSFS	850	2759	3992	4260	2992	2906	3069	3707	2022	1895	1895	1811	357	1009	800	819	429	1					2653		
	RR						10	50	50	50	50	50	50	50	50	50	100	150			4	10	0	2		
	SPOR						10	50	50	53	51	51	442	352	368	410	480	491	360	350	5	415	383	401	600	
	TRAP	195	152	209	155	284	327	295	293	310	301	301	279	263	364	199	182	241	297	154	419	308	353	427	364	
UNCL			48	37		1250	2100	2338	1495	1452			27			50					156	0	4	2		
EC-PORTUGAL	LL																								64	
	LLHB												278	320	183	428	446	274	37	54	76	61				
ISRAEL	UNCL																		14							
JAPAN	LL																							152	390	
	LLHB	99	119	100	961	677	1036	1006	341	280	258	127	172	85	123	793	536	813	765	185	361	381	136			
KOREA	LLFB																684	458	591	410	66					
LIBYA	LL												173	164	60	67	802	865	80	448	409	450	1002	1866		
	PS												129	177	300	568	470	495	598	32	230	195	16			
	TRAP	424	339	255	130	270	274						26	29	65		150	180	134	72	181	100	44	74		
	UNCL		59	16	180			300	300	300	300	84														
EC-MALTA	LL	23	24	32	40	31	21	21	41	36	24	29	81	105	80	251	572	587	399	393	407	447	376	219	240	
	UNCL																									
MAROC	GILL												31	13	4	6	16	92	30	17	18	6	6	9	14	
	HAND																373	816	541	455	544	600	650	195	407	
	PS	2		2																						
	SURF					1	4	12	18	6	44	9														
TRAP								38	110	96	286	1118	912	201	73	703	127	15	63	2	30	39	307			
NEI-1	LL				1		19		168	183	633	757	341	1750	1349											
NEI-10	HAND																				64	42				
NEI-105	LL																282	240	171	399	428					
NEI-118	LL																			8		20				
NEI-134	LL																145	399								
NEI-2	PS											19	49	49												
NEI-81	LL																				659	333	78	17		
NEI-COMB	UNCL																773	211		101	1030	1995	109	571	508	
PANAMA	LLFB									72	67		74	287	484	467	1499	1498	2850	236						
TUNISIE	HAND	18	27	1	2	13	60	79	22	34	62	74	43	50	45	43	81	57	92	113	48	43	37	58	15	
	PS	113	147	97	108	110	102	127	109	148	153	94	114	1073	975	1997	2253	1617	2147	1992	1662	2263	2134	2432	2510	
	TRAP	131	54	120	188	170	145	163	184	274	409	493	249	243	175	92	169	223	154	95	35	46	13	3	3	
TURKEY	PS							41	69	972	1343	1707	2059	2459	2817	3084	3466	4219	4616	5093	5899	1200	1070	2100	2300	
	TRAP				825	557	869																			
	UNCL	27	391	565																1						
YUGOSLAVIA	PS	756	573	376	486	1222	755	1084	796	648	1523	560	940													
YUGOSLAVIA REP. FED.	PS																		2	4						
	UNCL																							4		
TOTAL		7456	10039	10515	15706	13650	17032	17203	14560	13764	17167	15628	17207	19872	24230	24901	39540	37640	38100	33578	28196	22825	23224	24470	22755	

Table 5. Proposed changes to Algerian bluefin tuna data: OLD = catch currently in ICCAT data base; NEW = proposed changes pending justification.

Species	Area	Gear	1991		1992		1993		1994		1995		1996		1997	
			OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
BFT	MEDI	TRAP	0	548	0	490	0	557	0	607	0	498	0	299	0	359
BFT	MEDI	HAND		267		231		293		270		249		121		145
BFT	MEDI	PS		848		642		737		766		751		660		754
BFT	MEDI	GILL		277		349		387		302		279		151		231
BFT	MEDI	LL		175		159		223		255		195		133		106
BFT	MEDI	UNCL	800	196	1104	191	1097	242	1560	185	156	151	156	121	157	118
BFT	MEDI	TOTAL	800	2311	1104	2062	1097	2439	1560	2385	156	2123	156	1485	157	1713

Table 6. Nominal catches (t) of swordfish in the Mediterranean Sea, by fleet and gear, 1950-2002.

Flag	Gear	Year																										
		1950	1951	1952	1954	1955	1956	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
ALBANIA	UNCL																											
ALGERIE	BLL																											
	GILL																											
	LL																						100	196	500	368	370	320
	TL																											
	UNCL																											
CHINESE TAIPEI	LL																											
CROATIA	LL																											
EC-CYPRUS	LL																											
EC-ESPANA	GILL																											
	HAND																											
	LL																											
	LLALB																											
	LLHB	586	580	337	452	340	393	414							1200	1000	700	1000	1100	900	1100	1300	1105	700	89	89	667	720
	LLJAP																											
	LLMB																											
	LLPB																											
	SURF																											
	TRAP																											
	TRAW																											
	UNCL																											
EC-FRANCE	PSM																											
	UNCL																											

Flag	Gear	Year																											
		1950	1951	1952	1954	1955	1956	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	
EC-GREECE	LL																												
EC-ITALY	GILL																												
	HARP																										312	417	756
	LL																												
	LLHB																											3435	3330
EC-PORTUGAL	TRAP																												
	UNCL																												
EC-PORTUGAL	LLHB																												
JAPAN	LLHB																											1	2
LIBYA	LL																												
	UNCL																												
EC-MALTA	LL																												
	UNCL																												
MAROC	GILL																												
	LL																												
	PS																												
	TRAP																												
NEI-2	GILL																												
	UNCL																												
TUNISIE	LL																												
TURKEY	GILL																												
	UNCL																												
TOTAL		586	580	337	452	340	393	914	200	112	206	300	318	394	1760	1752	1317	3440	3723	3341	4975	5958	4807	5034	4301	4637	5280	5958	

Table 6. Continued.

Flag	Gear	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002			
ALBANIA	UNCL																			13	13	13	13					
ALGERIE	BLL																											99
	GILL																											467
	LL	521	650	760	870	877	884	890	847	1820	2621	590	173	173	6	173	185	247	247	247		590	531	599	642	133		
	UNCL																											
CHINESE TAIPEI	LL																											
	UNCL																											
CROATIA	LL																											
EC-CYPRUS	LL	98	72	78	103	28	63	71	154	84	121	139	173	162	56	116	159	89	40	51	61	92	82	135	104			
EC-ESPANA	GILL																											
	HAND																											
	LL																											
	LLALB																											
LLHB	800	750	1120	900	1321	1243	1219	1337	1134	1760	1250	1438	1132	790	1293	1402	1350	1035	1179	1383	790	1361	1315	1347				

Flag	Gear	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
	LLJAP																						20	6		
	LLMB																				17			27		
	LLPB																					56	10	40	25	
	SURF							2											10		24	10	16	5	19	
	TRAP					1	2	3			2								2	2	1	2	3	1	4	2
	TRAW							1																		
	UNCL							1							32	65	101	26	134	79	8	26	23	73	56	
EC-FRANCE	PSM																	0								
	UNCL																							12	27	
EC-GREECE	LL			91	773	772	1081	1036	1714	1303	1008	1120	1344	1904	1456	1568	2520	974	1237	750	1650	1520	1960	1730	1680	
EC-ITALY	GILL						1459	1540	1620	1749	1846	2542	3070	2319	4077	3070	3921	3914	2657	3632	3632	3632	4863			
	HARP	475	501	461	356	366													10	12	12		8			
	LL												2454	2470	3518	3260	3844	2800	2617	2458	2458	2680	2639	2236	1841	
	LLHB	3455	3642	3362	2583	2660	2759	2493	2622	2831	2989	2989														
	TRAP						3												2	2	2		2			
	UNCL						5139	6830	7171	7745	8175	7478						11					3	4152	1698	
EC-PORTUGAL	LLHB																						13	115	8	
JAPAN	LLHB	3	1		5	6	19	14	7	3	4	1	2	1	2	4	2	4	5	5	7	4				
LIBYA	LL																									
	UNCL																				11		8	6		
EC-MALTA	LL					59	94	172	144	163	233	122	135	129	85	91	47	72	72	100	153	187	175	102	257	
	UNCL	151	222	192	177																					
MAROC	GILL												866	1186	1883	2068	2109	1518	2461	4653	2905	2979	2503	2136	2230	
	LL				43	39	38	92	40	62	97		371	508	807	517	527	169	273	245	323	259	205	754	1149	
	PS																							134		
	TRAP												12	12	2	4	18	9		2				2		
NEI-2	GILL					219	231	243	262	277	381	442	559	559												
	LL				517	532	552	499	524	566	598	598	918	733	733											
	UNCL		728	672																						
TUNISIE	LL			7	19	15	15	61	64	63	80	159	176	181	178	354	298	378	352	346	414	468	483	567	1138	
TURKEY	GILL							190	226	557	589	209	243	100	136	292	533	306	320	350	450	230	373			
	UNCL	44	13	70	40	216	95																	360		
TOTAL		5547	6579	6813	6343	6896	13666	15292	16765	18320	20365	17762	12441	11997	14709	13265	16082	12430	12053	14693	14369	13699	15570	15005	11738	

Table 7. Nominal catches (t) of billfish and tropical species in the Mediterranean Sea, by fleet and gear, 1968-2002.

Species	Flag	Gear	Year																							
			1968	1971	1975	1976	1977	1979	1983	1984	1985	1986	1987	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
BET	EC-ESPANA	LLHB																			0	0				
	JAPAN	LLHB				1						1	2							1						
BET Total						1					1	2								1	0	0				
BUM	EC-ESPANA	LLHB																			1					
BUM Total																					1					
SAI	EC-ESPANA	LLHB																		0		0		0		
	EC-PORTUGAL	LLHB																					0	1		
SAI Total																				0		0	0	1		
SKJ	ALGERIE	UNCL																			171	43	89	77		
	EC-ESPANA	BB								10																
		LLALB																						3		
		PS																						1		
		SURF																						6		
	TRAP								1														0			
EC-FRANCE	UNCL																						22			
EC-ITALY	UNCL																						4			
MAROC	BB			2	6		1																			
	GILL																				1					
	PS							11															1			
	SURF									1		13	2	13						43	9	4				
TRAP															2						4	10	1			
SKJ Total			1	2	6		1	11	2	10	13	2	13		2	43	9	4	176	53	90	77	37			
SPF	EC-ESPANA	LLHB																					1	2		
SPF Total																							1	2		
WHM	EC-ESPANA	LLHB													0	0	1	0	1	1	0	1	0	0		
WHM Total															0	0	1	0	1	1	0	1	0	0		

BET *Thunnus obesus* Bigeye tuna SKJ *Katsuwonus pelamis* Skipjack tuna
 BUM *Makaira nigricans* Atlantic blue marlin SPF *Tetrapturus pfluegeri* Longbill spearfish
 SAI *Istiophorus albicans* Atlantic sailfish WHM *Tetrapturus albidus* Atlantic white marlin

Table 8. Nominal catches (t) of unclassified or mixed species of tuna in the Mediterranean Sea, by fleet and gear, 1950-2002.

Species	Flag	Gear	Year																												
			1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976		
BIL	EC-ESPANA	LLHB																													
	EC-PORTUGAL	LLHB																													
	EC-MALTA	UNCL																													
BIL Total																															
MIX	EC-CYPRUS	LL																													
	EC-ITALY	HARP																													
		LL																													
	UNCL																														
EC-PORTUGAL	LLHB																														
GAZA-STRIP	UNCL																														
MIX Total																															
SMT	EC-GREECE	PS																													
SMT Total																															
TUN	EC-CYPRUS	LL																													
		PS																													
		SPOR																													
	EC-ESPANA	TRAP																													
		UNCL																													
	EC-GREECE	UNCL																													
	EC-ITALY	UNCL																													
	EC-PORTUGAL	LLHB																													
	EGYPT	UNCL																													
	ISRAEL	UNCL	100	100	100	200	200	100	200	300	500	500	500	700	1000	900	1100	200	300												
	JAPAN	LLHB																													
	LEBANON	UNCL																													
EC-MALTA	UNCL																														
MAROC	TRAP																														
OTHERS	UNCL																														
TUNISIE	UNCL																														
TUN Total			100	100	100	200	200	100	200	300	521	500	1100	1200	1400	2100	2100	1300	1200	500	1100	1200	500	200	200	300	274	576	149		

Table 8. Continued

Species	Flag	Gear	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
BIL	EC-ESPANA	LLHB																											0
	EC-PORTUGAL	LLHB																									1	25	1
	EC-MALTA	UNCL																			1	1	1						
BIL Total																					1	1	1			0	1	25	1
MIX	EC-CYPRUS	LL																											8
	EC-ITALY	HARP																											2
		LL																											29
		UNCL																											23
	EC-PORTUGAL	LLHB																											0
	GAZA-STRIP	UNCL																					50	102	92	100	100		
MIX Total																						50	102	92	100	100	0	63	
SMT	EC-GREECE	PS																											195
SMT Total																													125
TUN	EC-CYPRUS	LL																											5
		PS																											0
		SPOR																											2
	EC-ESPANA	TRAP																											8
		UNCL																											
	EC-GREECE	UNCL						195	135	40	128	79	129	103	485	485	515	510	510	116	116	116	145	300					
	EC-ITALY	UNCL						18																					
	EC-PORTUGAL	LLHB																											0
	EGYPT	UNCL									32	68	80	80															
	ISRAEL	UNCL																											
	JAPAN	LLHB																											2
	LEBANON	UNCL	130	140	140	140	130	120	110	100	120	130	150	150	150	130	150	150	175	200	500	500							
	EC-MALTA	UNCL	30	2	11	4	10	21	11	14	54	12	11	6	9	4	8		8										
	MAROC	TRAP																											71
	OTHERS	UNCL																											50
	TUNISIE	UNCL																											20
TUN Total			160	142	151	162	140	336	256	154	334	289	370	339	644	619	673	680	1004	421	731	889	802	306	885	913	989	4	

BIL = unclassified billfish species; MIX = mixed species of tuna; SMT= unclassified small tuna species; TUN = unclassified tuna species.

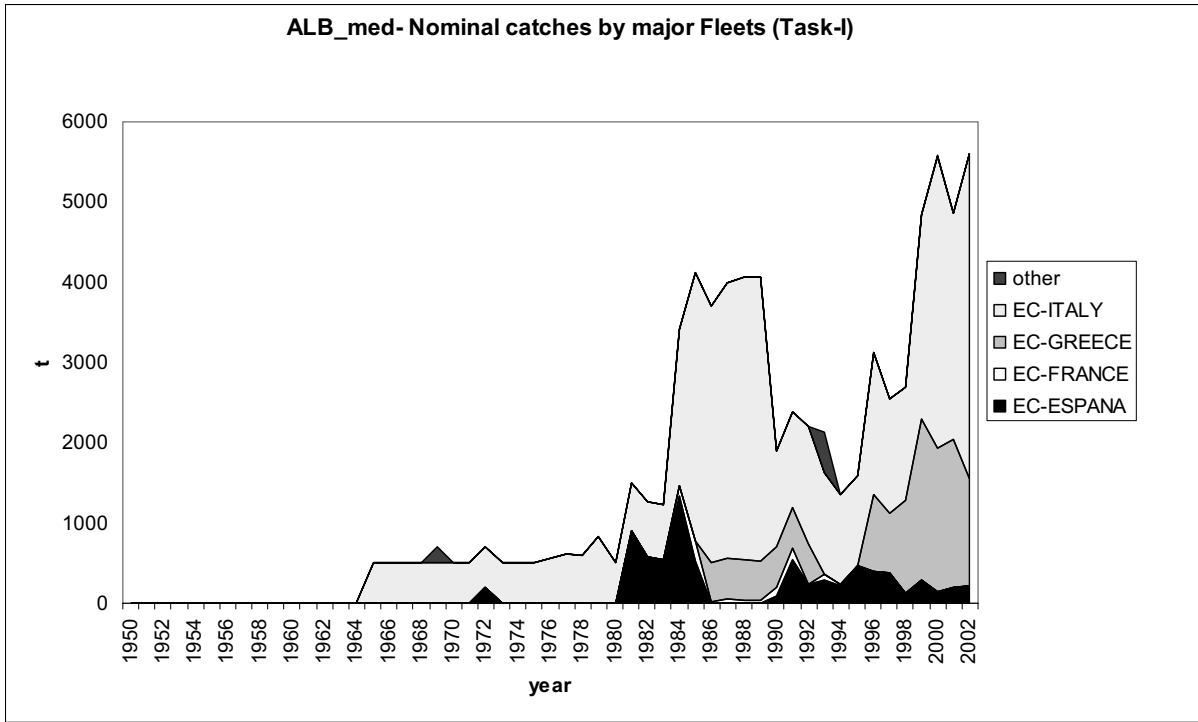


Figure 1. Mediterranean albacore nominal catches (t) by major fleets, 1950-2002.

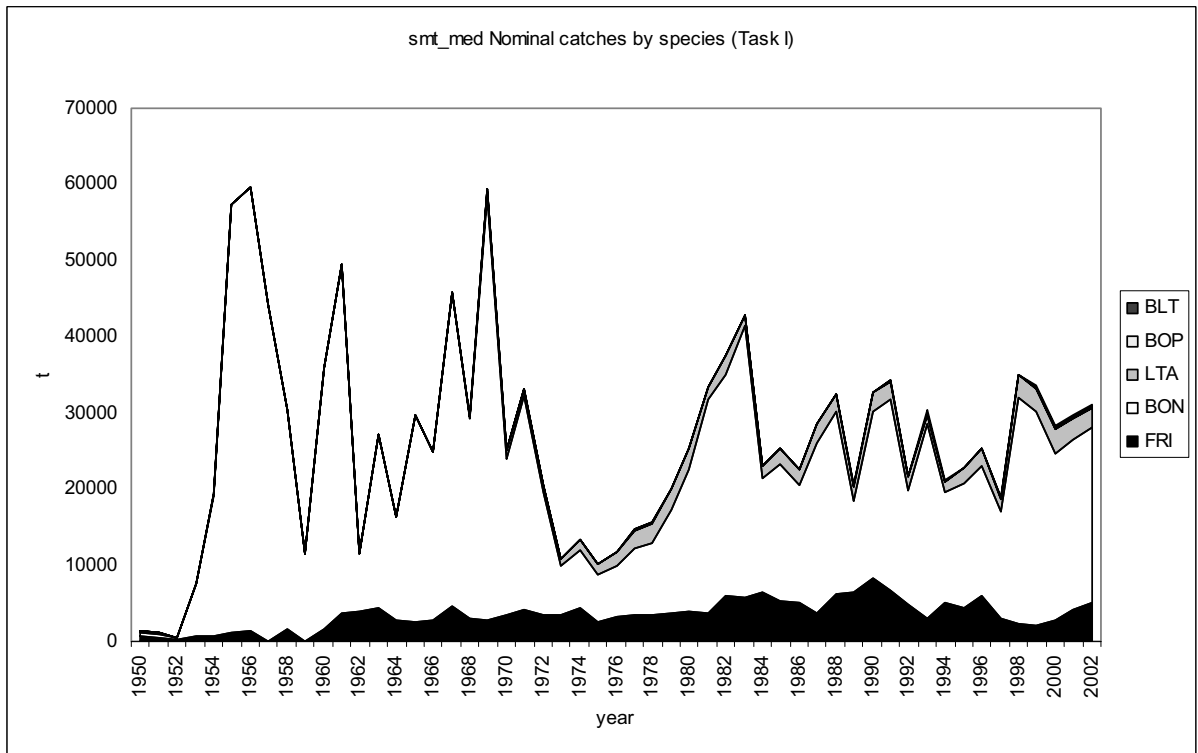


Figure 2. Mediterranean small tuna nominal catches (t), 1950-2002.

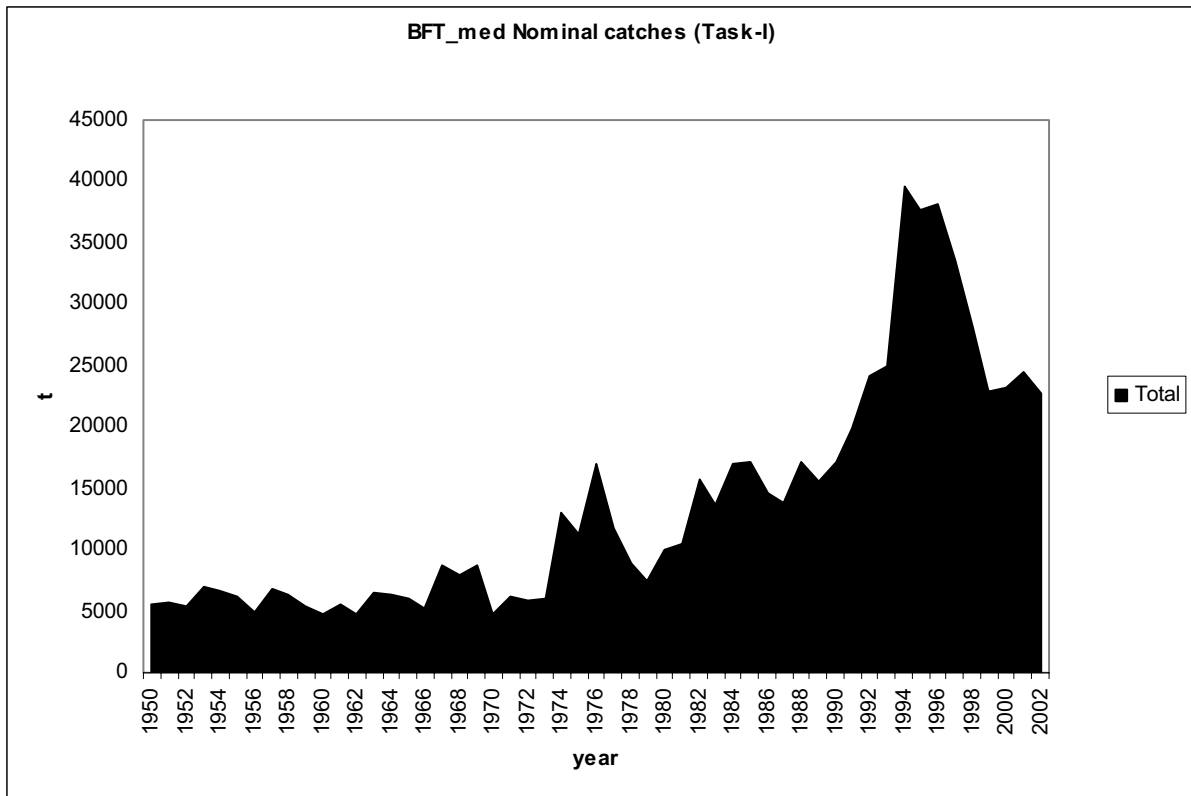


Figure 3. Mediterranean bluefin tuna nominal catches (t), 1950-2002.

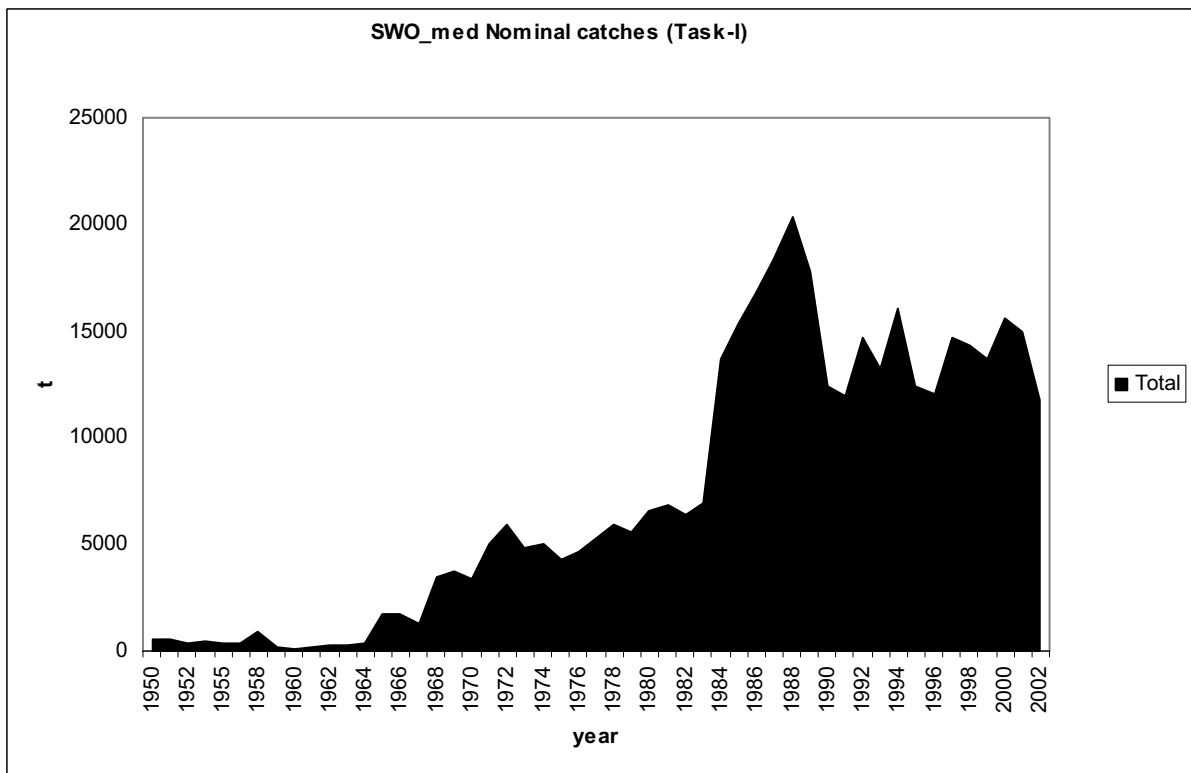


Figure 4. Mediterranean swordfish nominal catches (t), 1950-2002.

Agenda

- 1 Opening, adoption of agenda and meeting arrangements
- 2 Review of fishery developments in participating countries
- 3 Review of biological knowledge
 - 3.1 Albacore
 - 3.2 Small tunas
 - 3.3 Others species
- 4 Review and updates to fishery database
 - 4.1 Albacore
 - 4.2 Small tunas
 - 4.3 Other species
- 5 Evaluation of data availability and feasibility of albacore assessments in the near future
- 6 Other matters
- 7 Recommendations
- 8 Adoption of the report and closure

List of Participants

CONTRACTING PARTIES

EUROPEAN COMMUNITY

Addis, Piero

Universita Cagliari, Via le Poetto 1, Cagliari, 09126, Italy

Tel: +39 070 67 58 082; Fax: +39 070 675 8022; E-mail: addisp@unica.it

Biagi, Franco

European Commission, Directorate General for Fisheries, 99 rue Joseph II, Brussels, B-1049, Belgium

Tel: +322 2994104; Fax: +322 299 4802; E-mail: franco.biagi@cec.eu.int

Camiñas, Juan A.

Puerto Pesquero s/n 29640 Fuengirola, Spain

Tel: +34952478148; Fax: +34952463808; E-mail: jacaminas@ma.ieo.es

Deflorio, Michele

STR. PROV: Per Casamassima km-3 70010 Valenzano (Bari), Italy

Tel: +390805443907 ; Fax: +390805443908; E-mail: m.deflorio@veterinaria.uniba.it

Demetrio, Gregorio

STR. PROV: Per Casamassima km-3 70010 Valenzano (Bari), Italy

Tel: +390805443907; Fax: +390805443908; E-mail: g.demetrio@veterinaria.uniba.it

De la Serna Ernst, Jose Miguel

Ministerio de Ciencia y Tecnología (MCYT) Instituto Español de Oceanografía, Apartado 285 - Puerto Pesquero s/n, Fuengirola, 29640, Spain

Tel: +34 952 476 955; Fax: +34 952 463 808; E-mail: delaserna@ma.ieo.es

Di Natale, Antonio

AQUASTUDIO Research Institute, Via Trapani, n° 6, Messina, 98121, Italy

Tel: +39 090 346 408; Fax: +39 090 364 560; E-mail: adinatale@acquariodigenova.it

Garcia, Alberto

IEO Centro oceanografía de Malaga 29640 Fuengirola Malaga, Spain

Tel:+34952476955; Fax:+34952463808; E-mail: agarcia@ma.ieo.es

Junquera, Susana

Comision Europea, Direccion ngeneral de Pesca Joseph II 99 Bruselas, Belgium

Tel:+3222984727; Fax: +3222955700; E-mail: susana.junquera@cec.eu.int

Macias, David

Ministerio de Ciencia y Tecnología (MCYT), Apartado 285 / Puerto pesquero s/n, Fuengirola, 29640, Spain

Tel: +34 952 476 955 ; Fax: +34 952 463 808; E-mail: david.macias@ma.ieo.es

Mazzola, Salvatore

IRMA.ENR Vial:vaccara n-61 91026 Mazara del vallo(TP), Italy
Tel: +390923948966; Fax: +390923906634; E-mail: Salvo.mazzola@irma.pa.enr.it

Moteagudo, Juan Pedro

ANABAC/OPTUC, c/ Txibitxiaga, 24 - entreplanta, Spain
Tel: +34 94 688 2806; Fax: +34 94 688 5017; E-mail: monteagudog@yahoo.es

Ortiz de Urbina, Jose Maria

Ministerio de Ciencia y Tecnología (MCYT) Instituto Español de Oceanografía, Apartado 285 – Puerto Pesquero s/n,
Fuengirola, 29640, Spain
Tel: +34 952 476 955; Fax: +34 952 463 808; E-mail: urbina@ma.ieo.es

Pallares, Pilar

Instituto español de Oceanografía, Corazon de maria,8 26002 Madrid, Spain
Tel:+34913473620; Fax:+34914135597; E-mail: pilar.pallares@md.ieo.es

Peristeraki, Panagiota

Hellenic Center of Marine Research P.O. Box 2214, Iraklion, Greece
Tel:+302810337830; Fax:+302810337820; E-mail: notap@imbc.gr

Pertierra, Juan Pablo

European Commission, J99 6/20, Brussels, B-1049, Belgium
Tel: +322 296 6443 Fax: +322 295 7862; E-mail: juan-pablo.pertierra@cec.eu.int

Piccinetti, Corrado

Lab. Biologia Marina e Pesca Viale Adriatico 1/N .61032 Fano, Italy
Tel: +390721802689; Fax : +390721801654; E-mail: cpiccinetti@mobilieria.it

Rollandi, Lorenzo

IRMA-CNR Sez. Terr. IAMC, Via Luigi Vaccara, 61, Mazara del Vallo, 91026, Italy
Tel: +39 0923 948966; Fax: +39 0923 906634; E-mail: lorenzo.rollandi@irma.pa.cnr.it

Tserpes, George

Institute of Marine Biology of Crete, P.O. Box 2214, Iraklion, 71003, Greece
Tel: +30 2810 337851; Fax: +30 2810 337820; E-mail: gtserpes@imbc.gr

MOROCCO

Abid, Noureddine

Center Regional de L'INRH á Nador, B.P. 493, Nador
Tel: +212 56 60 08 69; Fax: +212 56 60 38 28; E-mail: n.abid@inrh.nador.gov.ma

Srour, Abdellah

Directeur, Centre Régional de l'INRH, B.P. 5268, Drabeb, 90000
Tel: +212 3932 5134; Fax: +212 3932 5139; E-mail: a.srour@menara.ma

TUNISIA

Hattour, Abdallah

INSTM, 28 Avenue 2 mars 1934 2025 Salambo
Tel:+21671730420; Fax : +21671732622; E-mail: abdallah.hattour@instm.rmrt.tn

TURKEY

Gundogdu, Mehmet

Ministry of Agriculture, General Directorate Protection and Controls-Fisheries Departments Bakanliklar/Ankara
Tel: +903124255013; Fax: +903125198319; E-mail: mehmetga@kkgm.gov.tr

Oray, Isik K.

University of Istanbul, Ordu Cad. n° 200, Laleli, 34470
Tel: +90 212 514 0388; Fax: +90 212 514 0379; E-mail: isikoray@yahoo.com

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

Bonzon, Alain

FAO Fisheries Department Room 408 Via delle Terme Caracalla Rome, Italy
Tel: +390657056441; Fax : +390657056500; E-mail: alain.bonzon@fao.org

Garibaldi, Luca

Fishery Information, data and statistics unit (FIDI) FAO Viale delle Terme Caracalla Rome, Italy

Tel: +390657053867; Fax : +390657052476; E-mail: luca.garibaldi@fao.org

Majkowski, Jacek

Fishery Resources Officer Marine Resources Service Fishery Resources Division - FAO,
Via delle Terme di Caracalla, Rome, 100, Italy
Tel: +39 06 5705 6656; Fax: +39 06 5705 3020; E-mail: jacek.majkowski@fao.org

ICCAT SECRETARIAT

C/ Corazón de María, 8 - 6ª planta, 28002 Madrid, Spain
Tel: +3491 416 5600; Fax: +3491 415 2612; E-mail: info@iccat.es

Kebe, Papa

E-mail: papa.kebe@iccat.es

Restrepo, Victor

E-mail: victor.restrepo@iccat.es

Appendix 3

List of Documents

- SCRS/2004/068 Reproductive characteristics of swordfish (*Xiphias gladius*) caught in the southwestern Mediterranean during 2003. MACÍAS, D., A. Hattour, J.M. de la Serna, M.J. Gómez-Vives, D. Godoy.
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**Research Program on Biology and Fishing of Small Tuna in the Mediterranean
Bullet tuna (*Auxis rochei*), Atlantic bonito (*Sarda sarda*), Little tunny (*Euthynus alleteratus*)**

J.M de la Serna & A.Hattour
IEO (Spain) INSTM (Tunisia)

1 Introduction / Background

Socio-economic importance of the small tuna fishery. The catch for the three species reached 31,109 t in 2002. High uncertainty for the stock state. Statistical uncertainties. Absence of biologic research. SCRS recommendations relative to the need of developing the research on biological parameters and obtaining statistical improvements of catch and effort (elaboration of abundance indexes) and studies on the stock structure through genetic analysis, tagging-recapture. (ICCAT SCRS –2003). Development of DG-XIV-96-93 EU project by Italy, Spain and Greece on small tuna. Scientific papers on small tuna to be produced by Tunisia, Libya and Spain within the frame of the FAO-COPEMED project and Turkey.

2 Target Species

Bullet tuna (*Auxis rochei*), Atlantic bonito (*Sarda sarda*), Little tunny (*Euthynus alleteratus*).

3 Objectives

- 3.1 Description of small tuna fisheries.
- 3.2 Catch and effort per species, gear and space-time stratum.
- 3.3 Lengths distributions of catches by species, gear and space-time stratum or area.
- 3.4 Biometric relations between length-weight per species, gear and stratum.
- 3.5 Sex-ratio per length class, species, gear and space-time stratum.
- 3.6 Growth studies: growth equation; direct determination of age.
- 3.7 Reproduction:
 - Collection and analysis of Gonadsomatic Indices (GI) and their evolution over space and time;
 - Larval distribution (larval research);
 - Spawning area and season;
 - Spawning characteristics: histological analysis of gonads;
 - Environmental and oceanographic characteristics in the spawning areas;
- 3.8 Study of the stock structure:
 - Genetic analysis of samples obtained in the different areas of study;
 - Analysis of the data obtained by the tagging-recapture activity.
- 3.9 Development of standardized abundance indices by species/gear and area.

4 Environment

Description and analysis of the relation between environmental (and oceanographic) factors and spawning and recruitment areas. Factors which can influence the fishing yields.

5 Methodology

To be determined.

6 Activities

- Hold a meeting for methodology standardization;
- Establishment of a network in information and sampling ports;

- Establishment of a Biological Sampling Program and collection of samples;
- Analysis and laboratory work;
- Shipping of samples for genetic analysis;
- Campaign of larval research;
- Tagging-recapture activities;
- Work groups: joint analysis and studies;
- Joint scientific papers ICCAT SCRS;
- Draft of the Year Report.

7 Possible Participants

IEO (Spain), INRH (Morocco), INSTM (Tunisia), MCFS (Malta), MBRC (Libya), University of Istanbul, IMBC (Crete Greece), University of Bari (Italy).

8 Funding proposal

- National funding, all countries;
- National Plan of Collection of Basic Data, EU;
- COPEMED. Morocco, Tunisia and Libya;
- Proposal for a Small Tuna Intensive Research Program “SMTYP-ICCAT”.

Strategy for the implementation of the project

1. Present the proposal to ICCAT’s SCRS (including methodology, budget, etc.)
2. Hold a meeting to discuss planning, participation, responsibility and timetable issues.
3. Confirm funding.
4. Criterion: the same research will be carried out in each area (Med-W, Med Central, Med E). Comparative studies will be conducted through workshops.
5. Expected results: possibility of establishing criteria regarding populations; distributions of these populations; stock structure.
 - Knowledge of migrations;
 - Knowledge of biological parameters;
 - Knowledge of abundance tendencies;
 - Creation of the database (ICCAT Tasks) needed for evaluation;
 - Assistance/recommendations for the balanced/sustainable exploitation of these resources. Regulation of fishing rules and guidelines.

Timetable

1. Presentation and recommendation in Ad Hoc Groups CGPM-ICCAT (Málaga).
2. SCRS-ICCAT Madrid (October 2004) SMTYP recommendation.
3. Meeting for Methodology Standardization And Planning.
4. Meeting for Report 2004.