INTERNATIONAL COMMISSION
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CONSERVATION of ATLANTIC TUNAS

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INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS

CONTRACTING PARTIES

(as of 31December 2003)

Algeria, Angola, Barbados, Brazil, Canada, Cape Verde, China, Côte d'Ivoire, Croatia, Cyprus, Equatorial Guinea, European Community, France (St. Pierre & Miquelon), Gabon, Ghana, Guinea Conakry, Honduras, Iceland, Japan, Korea (Rep.), Libya, Malta, Mexico, Morocco, Namibia, Panama, Russia, Sao Tomé & Principe, South Africa, Trinidad & Tobago, Tunisia, Turkey, United Kingdom (Overseas Territories), United States, Uruguay, Vanuatu, Venezuela

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-2- Temperate tunas, North	Algeria, Canada, China, Croatia, Cyprus, European Community, France (St. Pierre & Miquelon), Iceland, Japan, Korea (Rep.), Libya, Malta, Mexico, Morocco, Panama, Tunisia, Turkey, United Kingdom (Overseas Territories), United States	European Community
-3- Temperate tunas, South	Brazil, European Community, Japan, Namibia, South Africa, United Kingdom (Overseas Territories), United States, Uruguay	South Africa
-4- Other species	Algeria, Angola, Brazil, Canada, China, Côte d'Ivoire, European Community, France (St. Pierre & Miquelon), Gabon, Japan, Korea (Rep.), Malta, Mexico, Morocco, Namibia, South Africa, Trinidad & Tobago, Turkey, United Kingdom (Overseas Territories), United States, Uruguay, Venezuela	United States

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FOREWORD

The Chairman of the International Commission for the Conservation of Atlantic Tunas presents his compliments to the Contracting Parties of the International Convention for the Conservation of Atlantic Tunas (signed in Rio de Janeiro, May 14, 1966), as well as to the Delegates and Advisers that represent said Contracting Parties, and has the honor to transmit to them the ***"Report for the Biennial Period, 2002-2003, Part II (2003)"***, which describes the activities of the Commission during the second half of said biennial period.

This issue of the Biennial Report contains the Report of the 18th Regular Meeting of the Commission (Dublin, Ireland, 17-24 November 2003) and the reports of all the meetings of the Panels, Standing Committees and Sub-Committees, as well as some of the Working Groups. It also includes a summary of the activities of the Secretariat and a series of National Reports of the Contracting Parties of the Commission, relative to their activities in tuna and tuna-like fisheries in the Convention Area.

The Report for 2003 has been published in three volumes. ***Volume 1*** includes the Secretariat's Administrative and Financial Reports, the Proceedings of the Commission Meetings and the reports of all the associated meetings (with the exception of the Report of the Standing Committee on Research and Statistics -SCRS). ***Volume 2*** contains the Secretariat's Report on Statistics and Coordination of Research and the Report of the Standing Committee on Research and Statistics (SCRS) and its appendices. ***Volume 3*** contains the National Reports of the Contracting Parties of the Commission and Reports of Observers.

This Report has been prepared, approved and distributed in accordance with Article III, paragraph 9, and Article IV, paragraph 2-d, of the Convention, and Rule 15 of the Rules of Procedure of the Commission. The Report is available in the three official languages of the Commission: English, French and Spanish.

MASANORI MIYAHARA
Commission Chairman

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[1] Reports received and distributed for the 2003 ICCAT annual meetings. Many Reports submitted to the Commission append detailed information in the appendices. For reasons of economy, these appendices are not included in this publication, but can be requested from the Secretariat in the original language. In addition, Compliance Reporting Tables have been extracted from the Annual Reports and the information contained therein has been assimilated into the Compliance Tables (Appendix 3 to ANNEX 9 of the 2003 Commission Report).

NATIONAL REPORTS OF CONTRACTING PARTIES

NATIONAL REPORT OF ALGERIA[1]

1. Introduction

The tuna fisheries in Algeria date back to ancient times. The observance of historical indices on the existence of the traps, which date back to Roman times, confirms, in effect, the ancestral dimension of these fisheries. However, proof of generalized activity in this sector dates back to the last colonization. Since then, this fishery has undergone irregular development in Algeria in terms of catches, mostly related to the socio-political situation of the country than to the bio-ecological aspects of the tuna stocks.

Notwithstanding, this situation has undergone an important, qualitative change in recent years and it needs to be more focused in all aspects in the near future: with improved knowledge of the resources, a coherent and ambitious development program, a rehabilitated administration, an improved training system, more involvement of the scientists, or basically, improved organization of the fishing activity, which has long been marginal and undervalued.

The adherence of Algeria to ICCAT in 2001 has contributed in large measure to improving the framework of the fisheries for tunas and swordfish in terms of improved coordination in the area of the of regulations and in implementing management and conservation measures.

In effect, this adherence has resulted in Algeria's benefiting from the knowledge and experience of this organization and its members in matters of management and the sustainable development of the tuna fisheries. It should be noted that these are of considerable importance for the country, on the social level, since an important number of families of fishers make their living from the artisanal fishery, as well as on the economic level, as concerns the phenomenon of training and the effects of structuring generated by the industrialization of such fishing activities.

2. Information on the national fisheries

The national catches of tunas in 2002 are shown in **Table 1**. This catch was made due to the involvement of a fleet of fishing vessels comprised of 22 purse seiners (of which 5 are industrial vessels and 285 artisanal longliners), measuring between 6 and 24 m and with 9 to 500 Hp engines.

During the 2002 fishing season biological sampling was carried out on 1087 bluefin tuna. Analysis of the data from this sampling shows the size frequency distribution of bluefin tuna caught in waters under Algerian jurisdiction **(Figure 1)**. **Figure 2** shows the breakdown of weight frequencies. The relationship between size and weight of the bluefin tuna sampled is given in **Figure 3**.

In the size sampling of 1087 fish, there were 542 males and 545 females. The ratio of males to females is shown in **Figure 4**.

It should be noted that during the 2002 fishing season there was a decrease in the catches per vessel and per fishing day, as compared to 2000 and 2001.

3. Research and statistics

The scheme in effect for the collection of statistical data in Algeria dates back to the 1970s and thus needs to be improved.

[1] Original report in French.

This scheme is based on officers that collect statistics at the port structures, transmit these data periodically to a central location for processing, analysis and consolidation of the information. These officers collect information in two ways:

- By their presence at the landing ports of the products, where they check on site;

- By proceeding to carry out calculations and extrapolations based on fishing effort (number of active vessels, theoretic capacity, average catch). Crosschecks are often made with the information provided by the agents who register on lists the amounts and the species landed and sold.

This procedure generally concerns all the fishery species, including tunas and swordfish.

It should be noted that the procedures applied in the past for the collection of statistical data did not distinguish between tunas and other species. This hampered the scientists' work to monitor and analyze the results relative to this resource.

Furthermore, the Algerian fisheries are characterized by the total lack of the reporting of discards. As regards by-by-catches, these are mainly sharks.

The tuna and swordfish fisheries are covered since 1995 by a specific statistical scheme that is based on the placing of two controllers on board the tuna vessels whose mission is to complete the statistical documents derived from the ICCAT measures and recommendations. This involves forms that have to be collected to inform the administration on the fishing areas, the number of individuals, the species, size, weight, and sex of each fish caught, and the period of the catch.

These data are processed by the administration in collaboration with the scientists and, since three or fours ago, comparative studies are carried out. This scheme still needs to be improved, from a practical standpoint.

To improve the reliability of the information on statistical data, measures have been taken to adapt the current procedures to the new international standards, taking as a reference the measures and recommendations of specialized regional and international organizations (ICCAT, the General Fisheries Commission for the Mediterranean, FAO).

The research on tunas and swordfish is carried out by the *Institut des Sciences de la Mer et de l' Aménagement du Littoral* (Institute of Marine Sciences and Coastal Management) and the *Université des Sciences et des Technologies* (University of Marine Sciences and Technologies) of Algiers, laboratory of pelagic eco-systems. The key on-going research areas are as follows:

- Study of the exploitation of tuna within the framework of the environment and biodiversity;
- Assessment of the stocks of large pelagics from VPA of the pseudo cohorts;
- Bio-accumulation of the heavy metals and contaminating parasites in swordfish;
- Evaluation of the productivity of the large pelagic resources in an environmental context.

Finally, it should be noted that the analysis of the results of the trips carried out to assess the fishery resources and the programming of new trips will result in improved knowledge on these fisheries and will consequently improve the catches.

4. Implementation of conservation and management measures

Long before joining ICCAT, Algeria opted for a policy of rational exploitation of all its resources and adopted legislation and a regulation that reflects this option.

Thus, based at first on the measures and recommendations of FAO, the General Fisheries Commission for the Mediterranean and finally ICCAT, the Algerian fishing sector has tried to adopt all measures aimed at the conservation and protection of the natural resources.

For example, we can cite the ordnance on the general fishing laws of 1976, the legislative decree of 1994 and, more recently, in 2001, the Law No. 01-11 on fishing and aquaculture.

The major objective of these texts is to regulate:

- Fishing zones and seasons;
- Fishing gears;
- Conditions for carrying out fishing;
- Market sizes of the species fished;
- Hygienic conditions, and healthiness of the species, etc.
- Sanctions and penalties, etc.

The fishing by vessels flying foreign flags in waters under national jurisdiction has been regulated since 1995 by Executive Decree No. 95-38, which establishes, in particular, the fishing areas and seasons, fishing gears, minimum market sizes, as well as conditions to carry out fishing and the control mechanisms on fishing through the ministerial decrees of 9 March 1995 and the inter-ministerial decree of 4 November 1995.

Recently the fishing sector updated the decree of 9 March 1995 concerning the opening and closing dates of the commercial fishing seasons on large migratory species in waters under national jurisdiction, in order to adapt it to implementation in accordance with the *Recommendation by ICCAT on Supplemental Regulatory Measures for the Management of Eastern Atlantic Bluefin Tuna* [Ref 93-07].

Moreover, Algeria is concluding the regulatory mechanism from Executive Decree No. 02-419, which establishes the conditions and methods for fishing vessels in waters under national jurisdiction and transposes the pertinent provisions of the *Recommendation by ICCAT by ICCAT on Vessel Chartering* [Ref. 02-21].

Currently, the fishing sector envisages the implementation of the ICCAT statistical document for bluefin tuna and swordfish, in accordance with ICCAT Recommendations [Refs. 93-02, 94-04 and 94-05] for bluefin tuna and [Refs. 00-22 and 01-22] for swordfish.

In this respect, some experiments for implementation of the ICCAT bluefin tuna statistical documents have been carried out.

With a view to improving the implementation of conservation and management mechanisms, Algeria has made considerable efforts in recent years in reinforcing the organization, the means and the efficiency of control mechanisms in place.

5. Inspection schemes and activities

The inspection activities of foreign flag vessels, regulated by Executive Decree No. 95-38, have proven quite effective since controllers from the Administration are present on board these vessels during the fishing trips.

On the other hand, the current monitoring and inspection scheme foresees controls before the start of the fishing operation (at the port), during the fishing operation (with surveillance from the maritime police), and at the end of the fishing operation.

However, as regards the traditional fishing activity, the difficulties of monitoring are more marked, particularly due to the extensive the maritime area to inspect (7.5 million hectares), the number of small vessels fishing these fish in an incidental manner, and the insufficient presence of the Administration and the monitoring mechanisms at the landing points.

One of the priorities of the Ministry of Fishing and Fishery Resources consists mainly in revamping the monitoring and control mechanisms through a program of creating the adequate structures for monitoring, the organization of the fishing activity and the reinforcement of specialized human means.

In this respect, Algeria has requested technical assistance from these its partners within the framework of cooperation programs, to implement a VMS system for vessel monitoring.

6. Other activities

The principal activity that has been carried out by the fisheries Administration for some years now has been a campaign to assess the fishery resources, aimed at adopting a policy of durable exploitation and management. The data are currently being processed.

Another notable aspect within this framework is the closer association of the scientific community with the national program for the development of fishing.

Parallel to these efforts to bring its national regulation into conformity, Algeria is contributing positively, within the ICCAT framework, to the development, adoption and implementation of equitable and durable conservation and management measures.

In this sense, coordination activities aimed at improving the effectiveness of the conservation measures are also being carried out with the structures concerned with the import and export of tunas (customs, coast guard, etc.).

Table 1. Algerian total catches (t) of tunas in 2002.

Species	*Catches*
Bluefin tuna	1,710
Swordfish	814
Small tunas	1,354
Total	**3,878**

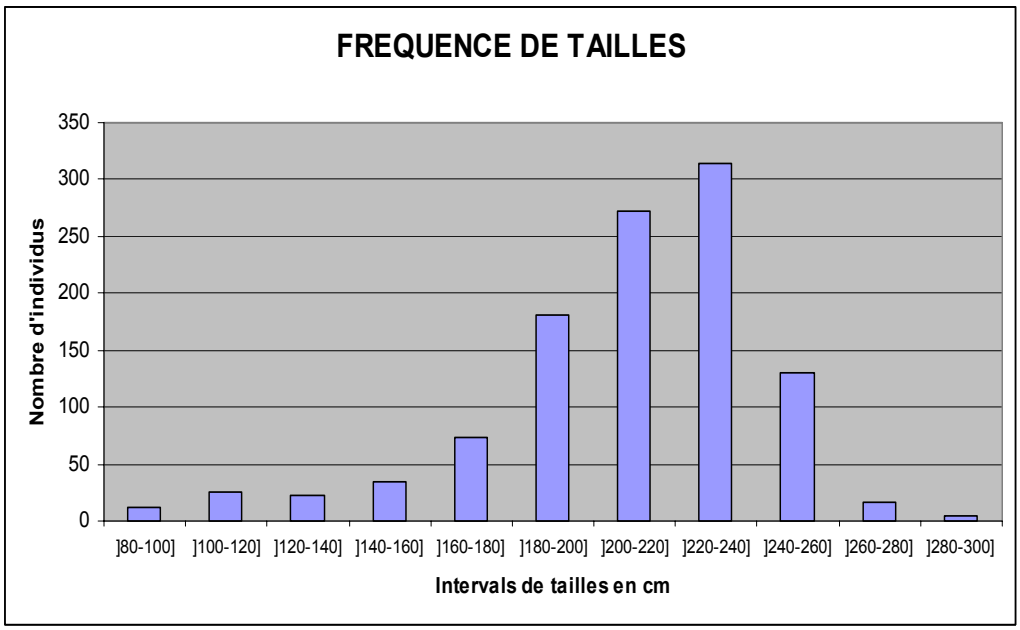

Figure 1. Distribution of size frequencies of bluefin tuna caught in waters under Algerian jurisdiction.

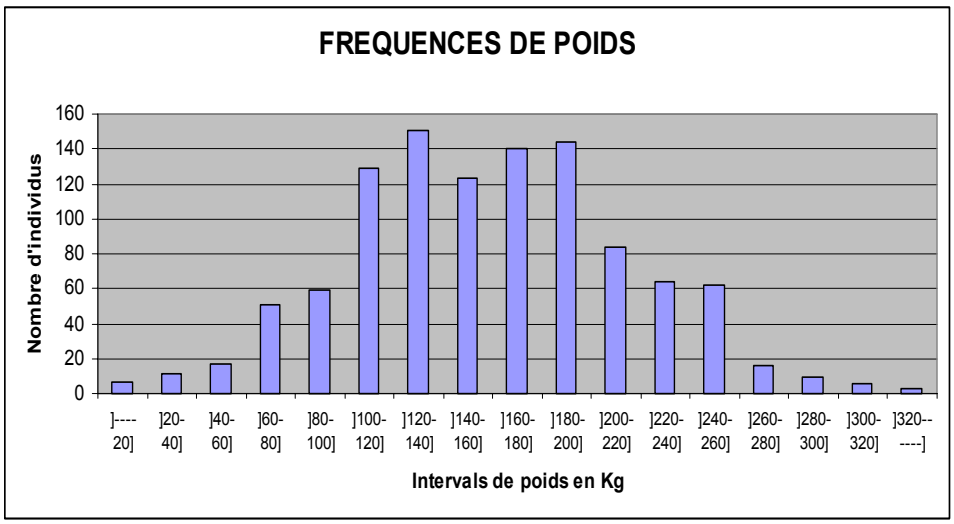

Figure 2. Distribution of weight frequencies.

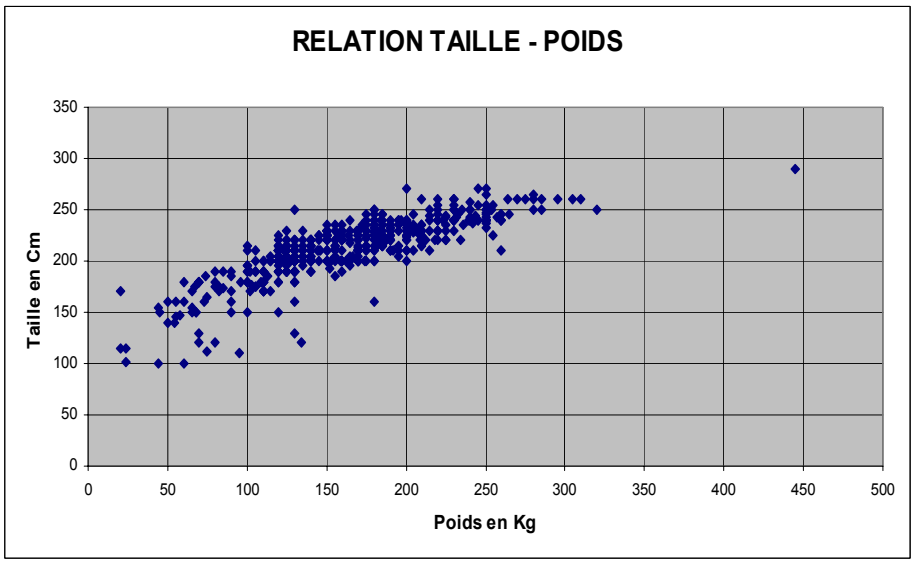

Figure 3. Size/weight relationship of bluefin tuna sampled.

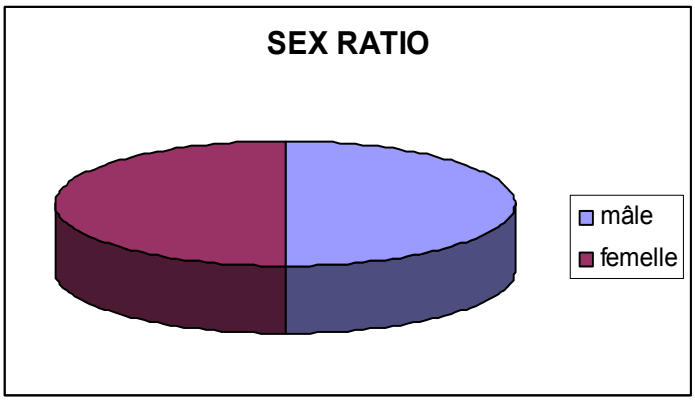

Figure 4. Ratio of males to females.

NATIONAL REPORT OF BARBADOS[1,2]

1. National fisheries information

In 2002, the Barbados registered fishing fleet included 31 longliners ranging between 38' to 75' overall length and propelled by engines within the power range of 160 to 680 HP, the mode being 300 HP. The majority (68%) of longliners have fiberglass hulls with the others being made of wood or steel. In the local fishing fleet, only longliners target the large pelagics, with other vessels only landing them opportunistically with hand or trolling lines. In 2002, the longliners landed around 84% of the local billfish catch, 98% of the swordfish catch and 83% of all local tuna catches.

Local longliners have ice-holds for storing the catch but none have on-board ice making or freezing machinery and ice must obtained at the beginning of each trip from dockside facilities. Longline fishing trips do not usually exceed two weeks in duration and usually operate within a radius of 500 km from the island. No foreign-owned vessels are registered in the Barbados fishing fleet. All Barbadian fishing vessels are home-based and no local vessel uses purse seine gear.

The preliminary estimated total catch of tuna and tuna-like species was 196.6 t in 2002. Preliminary estimates of the catch by species or species group are presented in **Table 1**. Details of the procedure for estimating the landings of large tuna by species are given in section 2. Round weights for billfish and swordfish were raised from dressed weights by the factors recommended in *ICCAT Field Manual for Statistics and Sampling Atlantic Tunas and Tuna-like Species* (dressed weight x 1.20 and dressed weight x 1.33, respectively). Tunas are also landed dressed. However, no conversion factor from this state to round weight was found in the literature. Round weights were therefore estimated for tunas by multiplying the recorded dressed weight by a factor 1.15. This factor was very crudely derived by increasing the value suggested for gilled and gutted weight (x1.13) by a small amount to account for the head.

2. Research and statistics

There are about 30 fish landing sites around Barbados with various facilities, not all of which are used year round. These are categorized as primary (markets), secondary (sheds) and tertiary (beaches) based on the type of physical infrastructure present. There are currently eight fish markets on the island but by far the majority of fish catches by weight over the last ten years (on average 86%) have been landed at the two largest markets at Bridgetown and Oistins. Bridgetown has a fishing harbour and Oistins has a jetty. In addition to these necessary docking facilities, the other amenities needed for the operation of longliners (e.g. ice-making and dispensing facilities, onshore freezing facilities to store the catch, etc.) are presently only available at these two main fishing ports. As a result, these vessels are forced to land their catches at these sites exclusively. Market staff monitors all landing activities at the markets.

All tunas, billfishes and swordfish are weighed and the dressed weights recorded by market staff. Barbados did not start recording swordfish landings as a separate category until 1994. Prior to this time, swordfish catches were included in the wider category of “billfishes”. Currently the weights of tunas and billfishes are not methodically recorded at the individual species level at the market. The Fisheries Division has identified this as a major shortcoming in the island’s fisheries data collection programme and will undertake a training programme for market staff in procedures for accurately identifying and recording tuna and billfish landings to the species level.

From 1993 Barbados has utilised two computer programmes introduced under the CARICOM Regional Fisheries Management Programme (CFRAMP) to record key fisheries information. Local fish landings data by vessel trip are recorded using the Trip Interview Programme (TIP) and individual vessel specifications (e.g. type of vessel, length, beam, draught and engine power) are recorded using the Licensing and Registration System (LRS). Integrating information from the two databases allows for the generation of a variety of useful information relevant to fisheries management. For example catch-per-unit-effort data may be obtained for specific vessels, vessel types, vessel size and engine power. However, neither the number of unsuccessful fishing

[1] Original report in English; appendix available from the Secretariat.
[2] Fisheries Division, Ministry of Agriculture and Rural Development.

trips, unsuccessful fishing days nor the number of days spent fishing on multi-day fishing trips are presently recorded.

A data collector with the Fisheries Division randomly inspects the catches of longliners as they are offloaded. Counts of the tuna catch by species are made and measurements (pectoral fin to keel) of samples of the landed yellowfin tuna carcases are taken and recorded. These data are presently being collated and verified and will be submitted in the near future.

Estimates of tuna landings broken down by species for the island's catch for 2002 were based on the captains' catch records of three of the 19 longliners that were active during the year. This represents 23% of the longline landings for the year. Despite the low sample coverage, the estimated catch composition is believed to be reasonably accurate based on common knowledge of the local tuna fishery. In most cases billfish catches were not recorded at the species level and as a result no accurate estimates of billfish landings by species could be made.

In an effort to improve the accuracy of landings statistics for large pelagic species, the Fisheries Division designed logbooks in 2002 and distributed draft copies on a voluntary trial basis to the longline fleet in December 2002. However, fisher cooperation in completing the logbooks has so far been poor and the Division in association with the Barbados National Union of Fisherfolk Organisations (BARNUFO) will be undertaking a more intensive programme to finalise the logbook formats and obtain the cooperation of fishers in maintaining the logbooks. It must be noted that these measures are new to both local fishers and market staff and it will take some time before they are fully integrated into the data collection system.

The Fisheries Division has a long history of collaborating with the University of the West Indies in areas of fisheries research. Commencing in January 2004, a post-graduate student of the University of the West Indies will be undertaking a doctoral study of the biology of locally landed billfishes. The Fisheries Division will collaborate fully on this study as it is envisaged that the information will be very relevant to the fishery.

3. Implementation of ICCAT management measures

Most of the legislation related to the management of the fisheries of Barbados is presently consolidated into the Fisheries Act (1993, amended in 2000). The first suite of fisheries management regulations under the Fisheries Act (1993) were enacted in the Fisheries (Management) Regulations (1998). Regulations specific to ICCAT species include prohibiting landing yellowfin or bigeye tunas of less than 3.2 kg live weight. The use of drifting pelagic nets greater than 2.5 km in length is also prohibited. The maximum penalty for breaking any of these regulations is a fine of $50,000 Bds and/or two years imprisonment.

Locally landed swordfish (*Xiphias gladius*) are either sold on the local market or exported to the United States of America. From June 1999, the U.S. Government requires that a Certificate of Eligibility (COE) accompany all shipments of swordfish. The Fisheries Division duly complied with this stipulation. Potential exporters advise the Fisheries Division that they have swordfish for export to the United States and an Officer from the Fisheries Division inspects the fish to ensure that they conform to the export requirements. The relevant information must then be verified and if in order the COE is signed by one of four senior Fisheries Officers (Chief Fisheries Officer, Deputy Chief Fisheries Officer, Fisheries Biologist or Principal Fisheries Assistant) and issued. A copy of the COE presently in use is provided in Appendix 1.[1] A revised COE that includes the additional information (e.g. vessel name etc.) to fully satisfy the reporting requirements of the ICCAT statistical document program will be employed in the near future.

No similar statistical document system has yet been implemented for bigeye or bluefin tuna. However, such a system should be implemented shortly. It should be noted that bluefin tuna are very rarely landed at Barbados and none have been landed here for several years.

4. Inspection scheme and activities

The transshipment of fish from foreign-based (mainly U.S. registered) longliners through Barbados is allowed only with the written permission of the Chief Fisheries Officer. To obtain general permission for the vessel to transship through Barbados, local agents must provide the Chief Fisheries Officer with detailed descriptive

information on each vessel, including the state in which the vessel is flagged, its identification markings, and a photograph of the vessel. The period over which the proposed transshipments will occur must also be provided.

The local agents are also required to report specific dates and times for each transshipment operation within at least 24 hours of the vessel's arrival. The transshipment operations take place within the Bridgetown Port under the supervision of the Customs Department and Port officials. No transshipments at sea are permitted within Barbadian waters. Officers of the Fisheries Division monitor all transshipment operations. Copies of the weigh-out sheets and set logs must be forwarded to the Fisheries Division within 30 days of the respective fishing trip following the transshipment operation.

There was no transshipment of fish from foreign-based fishing vessels through Barbados in 2002.

5. Other activities

Over the last year the Fisheries Division has embarked on a programme for educating fishers about the role, operations and regulations of ICCAT and their impact on local large pelagic fisheries. The Fisheries Act of Barbados provides legal authority for development of a Fisheries Management Plan (FMP) that forms the basis for fisheries policy, management (including conservation and development), administration and the formulation or implementation of fisheries-related legislation. Although aspects of the plan may be revised at any point, it is common at three-year intervals to have a major review, including wide consultation with all fisheries stakeholders to devise a new FMP. The plan for the period 2004 to 2006 is currently in preparation. Following this process it is hoped that stakeholders will be fully aware of the role and operations of ICCAT and mechanisms can be devised and implemented to facilitate, as practical as possible, rapid and full compliance with ICCAT measures.

Table 1. Preliminary landings statistics for tuna and tuna-like species at Barbados in 2002. (See section 2 for estimation methods.)

Species/species group	*Estimated round weight (t)*
Albacore	5.2
Bigeye tuna	10.5
Yellowfin tuna	115.4
Small tunas (bonito, skipjack, frigate)	2.4
Billfish	52.7
Swordfish	10.4
Total	**196.6**

NATIONAL REPORT OF BRAZIL[1]

Dr. Paulo Travassos and Dr. Fábio Hazin[2]

1. Fisheries information

In 2002, the Brazilian tuna longline fleet consisted of 129 vessels registered in the following ports: Rio Grande (2), Itajaí (6), Santos (18), Rio de Janeiro (2), Recife (2), Cabedelo (37), Natal (61), and Belém (1). Of these 129 longliners, 55 were national and 74 were foreign chartered vessels. There was a 4.0% increase in the total number of vessels from 2001, when 124 vessels were operating. The number of baitboats operating in 2002 was 39, with no change from 2001. These 39 vessels were based in the same ports (Rio de Janeiro, Itajaí, and Rio Grande). All baitboats are national. Additionally, two purse seine vessels operated in 2002, both of them based in the Itajaí port.

The Brazilian catch of tunas and tuna-like fishes, including billfishes, sharks, and other species of minor importance (e.g. wahoo and dolphin fish) was 50,575.5 t (round weight), in 2002 **(Table 1)**, representing a decrease of about 1.5% from the catch in 2001 (51,306.8 t). The majority of the catch again was taken by baitboats (24,694.0 t; 48.8%), with skipjack tuna being the most abundant species (18,184.9 t), accounting for 73.6% of the baitboat catches. Catches of this species presented a decrease of 24.3%, falling by 5,853.1 t from 2001. With a total catch of 2,843.4 t, yellowfin tuna was the second dominant species in the baitboat fishery.

The total catch of the tuna longline fishery (16,320.3 t) was about 29.8% lower than 2001, with yellowfin tuna being the most abundant species (3,323.0 t), accounting for 20.4% of the longline catches. Swordfish and albacore, accounting for 17.8% (2,903.0 t) and 17.5% (2,865.5 t) of the catches were, respectively, the second and third most caught species. Bigeye ranked fourth in 2002, with 2,659.0 t, representing 15.8% of the total catch of longliners and remaining very close to the value recorded in 2001, when 2.533.8 t were caught. A total of 3,151.2 t of sharks were caught as by-catch as well as a target species. The most abundant species was the blue shark (*Prionace glauca)* which represented 62.4% of the shark catch **(Table 1)**. The total catches of white marlin, blue marlin and sailfish from all methods (including longliners, baitboats, seiners and unspecified methods) were 407.0 t, 386.9 t and 547.5 t, respectively.

2. Research and statistics activities

With the election of a new government in Brazil, which took power from 1 January 2003, the responsibility for all issues relating to highly migratory species in Brazil (including data collection and submission to ICCAT) was transferred from the Fisheries and Agriculture Department of the Ministry of Agriculture and Supply to the Special Secretariat of Aquaculture and Fisheries (SEAP), which has the status of Ministry. This is the first time in Brazilian history that the management of fisheries has been raised to a Ministerial level. SEAP prepared and submitted Task I and Task II data. Several institutions directly assisted the Secretariat in processing and analyzing data from 2002: Universidade Federal do Pará (Federal University of Pará), located in the North; Universidade Federal Rural de Pernambuco (Federal Rural University of Pernambuco, UFRPE) and Universidade Federal do Rio Grande do Norte (Federal University of Rio Grande do Norte), both located in the northeast, Instituto de Pesca (Fishery Institute), located in the southeast, and Universidade do Vale do Itajaí (UNIVALI), located in the South. These institutions, together with many others, including the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute of Environment and Renewable Natural Resources, IBAMA), continued to conduct several research and statistics activities on tuna species caught by Brazilian boats.

Besides the catch and effort data regularly collected from Brazilian tuna fisheries, a total of 4,026 fish were measured at landing as follows: yellowfin=1,331; bigeye=1,722; swordfish=500; sailfish-89; white marlin=348; and blue marlin=36. Data have also been collected from several recreational fisheries based off northeast and southeast Brazil, mainly in the Rio de Janeiro-RJ and Ilhabela-SP where sport tournaments are conducted by local yacht clubs and billfish tag and release (tags from the Billfish Foundation) has been adopted since the early 1990s.

[1] Original report in English.

[2] Departamento de Pesca-UFRPE.

3. Implementation of ICCAT conservation and management measures

In order to comply adequately with ICCAT recommendations, the Brazilian government has implemented the Rule No. 3 (Instrução Normativa No. 3) regulating the Brazilian tuna fishery, which was published on 19 September 2003 establishing:

- a catch limit for South Atlantic swordfish of 4,086 t, of which 200 t can be caught between 5°N and 15°N;
- a catch limit for North Atlantic swordfish of 50 t;
- a catch limit for North Atlantic albacore of 200 t;
- a catch limit of 52 t of white marlin;
- a catch limit of 253 t of blue marlin;
- the release of all specimens of white marlin and blue marlin that are still alive by the time of boarding;
- the prohibition of sale of any white and blue marlins caught until 31 December 2003;
- the prohibition of chartering of foreign vessels included in the ICCAT and CCAMLR IUU list.

A new Decree (Decreto No. 4810) was published, regulating the operation of fishing vessels in Brazilian jurisdictional waters, including chartered vessels. In relation to chartered vessels, among other provisions, the decree reiterated the obligation for these vessels to be equipped with a VMS System, made the presence of an on-board observer mandatory and prohibited at sea transshipments.

In December 2002 regulations on the management of marine and freshwater recreational fisheries in Brazil were revised and updated, including, as a main provision, the mandatory submission by all organizers of fishing tournaments of detailed reports on catch and effort applied in each tournament. As a result, a new regulation (Portaria IBAMA, No. 30) entered into force on 30 June 2003. In relation to ICCAT recommendations aimed at improving the collection of catch and effort data from recreational fisheries for billfishes, this new regulation includes provisions that make it mandatory to submit logbooks with daily information on catch (including the number of fishes landed or released by each species caught) and effort for each vessel engaged in tournaments targeting tuna and tuna-like species. In addition, a proportion of the total number of vessels engaged in these tournaments will be selected for placing on-board observers to carry out activities for the monitoring of these fisheries.

Table 1. Brazilian catches in 2002 (t round weight; effort in number of hooks for longline and in days of fishing for baitboats and purse seiners).

Species	*Longline*	*Baitboat*	*Purse seine*	*Unspecified methods*	*Total*
Bluefin tuna	0.00	0.00	0.00	0.00	0.00
Yellowfin tuna	3,323.00	2,843.40	5.57	0.00	6,171.97
Albacore	2,865.50	362.61	0.00	0.00	3,228.11
Bigeye	2,581.40	0.05	0.00	0.00	2,581.45
Blackfin tuna	0.00	151.00	0.00	1,518,20	1,669.20
Frigate tuna	0.00	292.31	55.21	769.60	1,117.12
Skipjack	37.80	18,184.88	115.65	0.00	18,338.33
Other tunas	23.90	443.00	0.00	0.00	466.90
Swordfish	2,903.00	7.00	0.00	0.00	2,910.00
Sailfish	325.20	0.00	0.00	222.30	547.50
White marlin	342.00	65.00	0.00	0.00	407.00
Blue marlin	386.90	0.00	0.00	0.00	386.90
Spearfish	39.10	0.00	0.00	0.00	39.10
Other billfishes	0.50	0.00	0.00	0.00	0.50
Others fish	340.90	1,665.49	0.00	5,386.60	7,392.99
Blue shark	1,966.10	4.30	0.00	0.00	1,970.40
Silky shark	327.50	0.00	0.00	0.00	325.50
Shortfin mako	225.70	0.00	0.00	0.00	225.70
Oceanic whitetip	202.50	0.00	0.00	0.00	202.50
Bigeye thresher	71.20	0.00	0.00	0.00	71.20
Other sharks	358.30	675.00	0.00	1,488.10	2,521.40
Total	**16,320.50**	**24,694.04**	**176.43**	**9,384.80**	**50,575.87**

NATIONAL REPORT OF CANADA[1]

M. Calcutt[2], *S. Paul*[3], *J. Neilson*[3] *and O. Murphy*[4]

1. National fisheries information

1.1. Bluefin tuna

Bluefin tuna are harvested in Canadian waters from July through December over the Scotian Shelf, in the Gulf of St. Lawrence, in the Bay of Fundy, and off Newfoundland. In adherence with the ICCAT Recommendation, the Canadian quota for the 2002 calendar year was 594.7 t (573 t allocated quota plus 21.7 t underage from 2001). The Canadian nominal landings of Atlantic bluefin tuna in 2002 were 603.6 t **(Table 1)**. In addition, 36.9 t were estimated to be discarded dead from the swordfish longline fleet **(Table 2)**. Canada has 5.6 t of the overall allowance for dead discards from ICCAT Recommendation 98-7. This results in a net discard of 31.3 t plus an overage of 8.9 t against the 594.7 t quota which must be deducted from the 2003 quota of 620.15 t.

All traditional bluefin tuna fishing areas produced catches of tuna in 2002 **(Table 2)**. However, in most of the previous years, the tended line fishery in the area between Georges and Browns Bank off southwest Nova Scotia known as the Hell Hole has produced the largest fraction of the total Canadian landings. In 2002, the landings of bluefin tuna in the Gulf of St. Lawrence fishery considerably exceeded those from the Hell Hole. In 2002, the Hell Hole (125 t) constituted 21% of the Canadian landings **(Table 2)**. The landings in the Gulf of St. Lawrence comprised 34% (205 t) of the total Canadian landings in 2002. The Gulf of St. Lawrence fish weigh about 400 kg (round), on average. Fish captured in the Hell Hole fishery weigh about 200 kg (round), on average.

Additional catches **(Table 2)** were also taken from the St. Margaret's Bay traps (28 t), from the rod and reel fishery off northeastern Nova Scotia (35 t), and from coastal fishing areas off Halifax and Liverpool, Nova Scotia (114 t). The latter fishery is relatively new and landings have followed an increasing trend. In the Bay of Fundy, 13 t were taken by electric harpoon. In 2002, 68 t were taken in the tended line fishery on the Tail of the Grand Banks of Newfoundland; this fishery has shown marked fluctuations in recent years **(Table 2)** due primarily to decreased effort in the groundfish fishery and irregular presence of fishing vessels in the offshore fishing grounds. The offshore longline vessel, which directs for tuna other than bluefin in the northwest Atlantic, caught 16 t of its 20 t by-catch limit in 2002.

In 2002, 479 licensed fishermen actually participated in the directed bluefin fishery, one offshore longline license was authorized to direct for other tuna with a small bluefin by-catch provision, and four fish-trap license holders in St. Margaret's Bay used 11 bluefin tuna trapnet licenses **(Table 3)**.

1.2. Swordfish

Swordfish occur in Canadian waters from April to November, primarily on the edge of Georges Bank, the Scotian Shelf and the Grand Banks of Newfoundland. The ICCAT recommendation for the Canadian swordfish quota for 2002 was 1018 t, less the overage from the 2001 quota of 29.5 t plus a return of 10% of the unused dead discard quota of 30.1 t in 2000[5], for a total of 991.5 t of Canadian quota in 2002 (1018 t – 29.5 t +3 t = 991.5 t). The Canadian nominal landings of swordfish in 2002 were 959 t **(Table 1)**, and resulted in a 32.2 t underage in quota which will be added to the 2003 quota. The ICCAT recommendation for the Canadian swordfish quota for 2003 is 1338 t. Further additions to the 2003 Canadian quota include a 25 t transfer from the United States and unused dead discard quota of 67.9 t accumulated over the past three years (27 t in 2000, 33.6 t in 2001 and 7.3 t in 2002). This brings the total 2003 Canadian quota to 1463 t (1338 t + 32.2 t + 25 t + 67.9 t). Landings of undersized swordfish were as close to zero as possible (~ 0.5%). In 2002, Canada had a dead discard allowance of 40 t. Based on data from at-sea observers on the swordfish longline fleet, 32.7 t of swordfish were estimated to have been discarded dead **(Tables 4, 5)**, leaving 7.3 t that gets rolled back into the Canadian quota in 2003.

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[1] Original report in English; appendices available from the Secretariat.
[2] Fisheries and Oceans Canada, Resource Management Branch, Ottawa, ON, K1A 0E6.
[3] Fisheries and Oceans Canada, Science, Biological Station, St. Andrews, NB, E2L 4L9.
[4] Fisheries and Oceans Canada, Resource Management, Dartmouth, NS B2Y 4T3.
[5] Canada had erroneously interpreted ICCAT recommendation 99-2 paragraph 3 (c) as meaning that Canada only got back 10% of unused quota. However, it was clarified at the 2002 ICCAT that Canada is entitled to roll back to fishable quota all unused dead discards in the following year.

In 2002, the fishery changed from a competitive one to one operated under Individual Transferable Quotas (ITQ's). Under a competitive scheme, other tunas were taken early and late in the season, before and after the swordfish quota was caught. Under the ITQ system, fishers are able to direct for swordfish or use the IQ for by-catch to support an other tunas fishery. This resulted in a longer fishing season for swordfish than in previous years, ending in November, rather than August.

The tonnage taken by longline was 922 t (or 96% of the catch), while 38 t were taken by harpoon **(Table 4)**. The mean round weight of fish caught by longline and harpoon was 72 kg and 117 kg, respectively **(Table 4)**. Only 46 of the 77 licensed swordfish longline fishermen landed fish in the 2002 fishery **(Table 4)**. This represents the lowest number of licensed vessels landing fish since 1992, and is in marked contrast to 1993-96 when all, or nearly all, of the swordfish longline licenses were active **(Table 4)** due to the decline of groundfish stocks. The reduced effort in recent years is a result of a combination of factors including the reduced quota, increased opportunities for fishing other species (especially crab and shrimp in Newfoundland), relatively low prices, and the introduction of the ITQ system for this fishery. Although a total of 1,316 fishermen are eligible for harpoon licenses, only 71 were active in 2002 as harpooning swordfish is usually an opportunistic activity conducted during other fisheries. In addition, one offshore longline license was issued for tunas other than bluefin. In the past, this license was restricted by a 5 t by-catch of swordfish. However, in 2002 this restriction was lifted when temporary IQ was transferred to this license, resulting in a catch of 43 t of swordfish.

1.3. Other tunas

The other tunas (albacore, bigeye and yellowfin) are at the northern edge of their range in Canada, and they are found along the edge of the Gulf Stream and Georges Bank, the Scotian Shelf and the Grand Banks (and beyond) throughout the year. Canadian catches of these species have traditionally been a minor portion of the overall Canadian catch of large pelagic species. However, with the reduction in swordfish quota over the past several years, much more attention has been given to fishing for these species, especially bigeye (279 t in 2002). The other tunas are taken by longline (94%), tended line (5%) and rod and reel (1%). In 2002, catches were spread throughout the fishing season (May-December), peaking in September. In addition to bigeye there were also catches of albacore (113 t) and yellowfin (70 t; **Table 1**). Catches of the other tunas by the Canadian swordfish and tuna longline fleet represented 32% of the overall catch of the fleet in the year 2002. The ITQ management regime allows for more emphasis on the development of the other tunas fishery.

One Canadian offshore longline vessel has been authorized to direct for other tuna species with a bluefin tuna by-catch, and the 77-vessel swordfish/other tunas longline fleet has been permitted to direct for other tunas with no bluefin tuna by-catch. In addition, bluefin tuna vessels are authorized to catch and retain an incidental by-catch of other tuna while fishing for bluefin.

1.4. Sharks

Porbeagle is the only shark species for which there is a directed longline fishery. Historically, blue shark and shortfin mako have been a by-catch of the Canadian swordfish and groundfish longline fisheries although small amounts are also landed from other fisheries. It is believed that the by-catch for these two shark species is larger than reported because of discarding and live releases. A Management Plan for all shark species was first implemented in 1995. The 2001 porbeagle stock assessment resulted in a new five-year management plan for sharks beginning in 2002, including a 75% quota reduction for porbeagle and closure of the porbeagle mating grounds in order to facilitate stock rebuilding. Total reported landings in 2002 were 237 t of porbeagle, 5.1 t of blue shark and 78 t of shortfin mako **(Table 1)**.

In 2002, 27 exploratory shark fishing licenses were authorized to land porbeagle and/or blue shark, with all other sharks, including shortfin mako restricted to a by-catch **(Table 3)**. This is a reduction from 55 licenses in 2001 by attrition of inactive licenses, a management measure in response to the current stock status. In addition, there were >1200 recreational shark licenses restricted to hook and release only **(Table 3)**, except for a small number of approved derbies that allow for retention of catch.

2. Research and statistics

The Canadian Atlantic statistical systems provide real time monitoring of catch and effort for all fishing trips. In 1994, an industry-funded Dockside Monitoring Program (DMP) was established in Atlantic Canada, according to Department of Fisheries and Oceans (DFO) standards, for the swordfish longline fleet and the majority of

bluefin landings. Since 1996, this system has applied to all fleets (including sharks), and included monitoring of all trips even when no fish were caught. At the completion of each fishing trip, independent and certified Dockside Monitors must be present for off-loading, and log record data must be submitted by each fisherman to the Monitoring Company that inputs the data into a central computer system. Log records contain information on catch, effort, environmental conditions (e.g., water temperature) and by-catch. Log records from trips with catch must be received from fishermen before they can proceed with their next fishing trip (log records from zero catch trips can be mailed in at a later time). Ideally, this ensures 100% coverage of properly completed log records and individual fish weights. Prior to the implementation of the Dockside Monitoring Program, even though the submission of logbooks was compulsory, less than 50% of trips were represented by useable log records and information on individual sizes of fish (see **Table 4** for swordfish). The effectiveness of this system was thoroughly reviewed in 1998 and 1999, and appropriate changes implemented, as necessary. Problems such as by-catch and highgrading are assessed through Observer Programs and at-sea surveillance on the domestic fleet. License holders who fail to comply with the domestic regulations and conditions of license are liable to prosecution that may include fines, and suspension of license privileges.

2.1 Bluefin tuna research

Canada fully supports research that improves the basic inputs and approaches of the Atlantic bluefin stock assessments. Canada (government scientists and managers, and industry) has supported and participated in recent state-of-the-art bluefin tagging studies that have raised the possibility of a previously unknown spawning area in the Central Atlantic. As the management implications of possible spawning of bluefin tuna in the central Atlantic are enormous, Canada fully supported the 2001 and 2002 exploratory research cruises to sample spawning size bluefin tuna and larvae in the central north Atlantic through both cash and in-kind contributions (as per the ICCAT Recommendation).

The 2002 scientific research program at the Biological Station (St. Andrews) was as follows:

1) Continued a collaborative (Canada/USA/Science/Industry) high-tech satellite tagging project.

2) Member of Central North Atlantic Bluefin Tuna Research Steering Committee, conducted exploratory fishing in the central north Atlantic in 2002 using four chartered vessels and a Japanese Research vessel, and presented results on research activities to ICCAT (SCRS/2002/016 and SCRS/2002/170).

3) Dockside Monitoring for all bluefin tuna landed in Canada, and data entry by the Monitoring Companies or Regional Statistical offices. Since 1996, there has been monitoring and data entry for all trips even when no fish were landed.

4) Collected bluefin blood and tissue samples for a NMFS (USA) research project on bluefin sexual maturity and genetics.

2.2 Swordfish research

The 2002 scientific research program at the Biological Station (St. Andrews) was as follows:

1) Dockside Monitoring in place for all longline swordfish landed in Canada and data entry conducted by the Monitoring Companies or Regional Statistical offices. Since 1996, there has been dockside monitoring for both the longline and harpoon fleets.

2) Provided preliminary estimates of dead swordfish and bluefin discards based on Observer coverage of the domestic large pelagic longline fleet. In 2002, the observer coverage target on this fleet was augmented to 20% from the standard 5% level.

2.3. Other tunas

Sampling of the domestic fleet consisted of submission of tally sheets and logs, and close to 20% observer coverage. Data on catch and size have been provided to ICCAT. Dockside Monitoring is in place for the other tuna fisheries.

2.4 Sharks

1) An intensive research program on porbeagle, conducted and funded in collaboration with the shark fishing industry since 1998, was completed in 2001. The program collected detailed catch, sex and length composition information from all fishers, as well as allowed an on-board scientific presence for detailed biological sampling. The collaborative program resulted in a relatively complete biological understanding of porbeagle, including publications on porbeagle population dynamics, age and growth, maturity and reproduction, migration patterns, diet and temperature preferences. In addition, a reconstruction of past population trends was integrated with estimates of current population status to form an updated analytical stock assessment, which was presented to the fishing industry and fisheries management in 2001. This assessment resulted in a new five-year management plan for sharks beginning in 2002. The new management plan includes a 75% quota reduction and closure of the porbeagle mating grounds in order to facilitate stock rebuilding. This plan is still continued for 2003.

2) The primary directed fishery for blue sharks is recreational. Therefore, catch-effort, maturity, diet, and sex and size composition data were once again collected from all shark derbies in eastern Canada (six derbies in total for 2003). These data will be used to assess the impact of derby catches on population abundance in a report for the fall of 2004.

2.5 Incidental catch

1) A report on the analysis of Canadian Observer data with respect to the incidental catch of all species on longline in the Canadian Atlantic pelagic fishery is in progress. This report will include recommendations for future research and industry-driven mitigation measures.

2) Collaborative research with NMFS to collate and analyze historical research cruise data.

2.6 Precautionary approach

Canada strongly supports the Precautionary Approach and assigns a high priority to its implementation in fisheries management domestically as well as in the context of ICCAT. Recognizing that ICCAT stocks are currently not information rich, Canada fully supports new research aimed at improving stock assessments. Furthermore, as the Precautionary Approach is not limited to the development of reference points, Canada also strongly promotes the use of appropriate fisheries management and compliance measures to ensure the rebuilding and safeguarding of the resource.

Canada is a member of the ICCAT *Ad Hoc* Working Group on Precautionary Approaches.

3. Implementation of ICCAT conservation and management measures

For bluefin, swordfish, sharks, and the other tunas (bigeye, yellowfin, and albacore) Canada has issued multi-year management plans prior to the opening of the respective fishing seasons. Details of management measures and their enforcement are provided in Appendix A. These plans are compiled in consultation with the fishing industry and incorporate all relevant ICCAT regulatory recommendations. They are implemented under the *Fisheries Act of Canada*. The necessary ICCAT regulatory recommendations are either specified in the *Atlantic Fishery Regulations* (1985) (made pursuant to the *Fisheries Act*) or are handled as written Conditions of License (issued pursuant to the Fishery (General) Regulations), both of which are legally binding on fishermen.

3.1 Catch limits and minimum sizes

Bluefin tuna. Canada has implemented the ICCAT regulatory recommendations that apply to bluefin tuna in the Canadian Atlantic Bluefin Management Plan (Appendix A). The 2002 quota was set at 594.7 t (see 1.1 above), and no person shall have in his possession any bluefin weighing less than 30 kg. In addition, Canada has limited entry into the fishery; and restrictions on the amount and type of gear used, vessel replacement, management fishing areas, and license transfer requirements.

Swordfish. Canada has implemented the ICCAT regulatory recommendations that apply to swordfish in the Canadian Atlantic Swordfish Management Plan (Appendix A). The 2002 quota was set at 991.5 t (see 1.2 above), and there is a prohibition on the taking and landing of swordfish less than 119 cm LJFL (no tolerance).

In 2002, a restructuring of the fleet, through the implementation of individual transferable quotas ensures the quota is not overrun. In 1998-2002, landings of fish <119 cm LJFL were reduced to as close to zero as possible.

Other Tunas. In 1998-1999, the first Canadian Atlantic Integrated Fishery Management Plan was issued for bigeye, yellowfin and albacore. Measures adopted in that plan remained in effect through to 2002. Fishing effort is restricted by limiting entry into the directed fishery to vessels having a swordfish/other tunas longline license and to one offshore vessel with an other tuna longline license. No person shall have in his possession any bigeye or yellowfin weighing less than 3.2 kg.

3.2 Closed seasons

Swordfish. In addition to the ICCAT regulatory recommendations, Canada has limited entry into the fishery, strict by-catch provisions, time-area closures to minimize by-catch, and gear restrictions. In an effort to protect large (spawning stock) swordfish, the industry initiated a closure of a substantial portion of the Scotian Shelf to harpoon gear, for the past several years from early autumn to the end of the season. Since 1995, a relatively large portion of the southwestern part of the Scotian Shelf has been closed to swordfish longline gear for a period of up to two months to minimize by-catch of bluefin tuna.

3.3 Observer programs

Canada has had an excellent Observer Program since 1977. Observers collect biological data, and monitor compliance with fishing regulations. In 2002, 19% observer coverage (by trip) on the fleet fishing for other tunas was achieved. Data from the Observer Program are used to estimate dead discards, and document incidental catch of non-target species.

3.4 Vessel monitoring

Although Canada has eight licenses for large pelagic vessels over 24 meters in length, and most fishing is conducted within the 200-mile zone. In 2002, Canada operated five vessels and all were equipped with a VMS system as per the recommendation adopted by ICCAT. The remaining three licenses eligible to be placed on a vessel greater than 24 meters in length were used on smaller vessels.

3.5 Inspection schemes and activities

Canada has a Port Inspection Scheme consistent with the ICCAT Regulatory Recommendation that entered into force on 13 June 1998 (see section 4).

3.6 Measures to ensure effectiveness of ICCAT Conservation and management measures and to prohibit Illegal, Unreported and Unregulated fisheries.

Canada participates in the Statistical Document Programs for bluefin tuna, swordfish and bigeye. Programs for swordfish and bigeye tuna were introduced in 2003 for all exports.

3.7 Other recommendations

Prior to the implementation of the ICCAT Bluefin Tuna Statistical Document Program, Canada developed a system of uniquely numbered tags to be attached to all bluefin tuna landed in Canada. Since 1995, it has tracked the utilization of these tags through a computerized system and can cross reference data from this system with the information on the Bluefin Tuna Statistical Documents once copies are returned from Japan.

Statistical Document Programs for swordfish and bigeye use government accredited organizations to validate export documents.

4. Inspection schemes and activities

Canada has a Port Inspection Scheme consistent with the ICCAT Regulatory Recommendation that entered into force on 13 June 1998. Canada uses a comprehensive enforcement protocol that involves a combination of the Dockside Monitoring Program (see section 2), and shore and sea-based patrols of Department of Fisheries and

Oceans Fisheries Officers to ensure compliance with domestic regulations (which include ICCAT regulatory recommendations; see section 3).

In addition to the Dockside Monitoring Program to ensure complete coverage of the catch and effort of the Canadian fleet (see 2 above), aerial and vessel surveillance are used to monitor the fleets at-sea. Shore-based patrols monitor routine landings, watch for illegal landings and conduct airport and border surveillance. Observer coverage is used periodically to monitor specific important management questions in the commercial fishery. Test fisheries are established to define areas and times to minimize the catch/by-catch of restricted species or undersized, targeted species.

Table 1. Canadian landings (t, round weight) of large pelagic fish species, 1992-2002.

Species	*Landings*									
	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1998*	*2000*	*2001*	*2002*
Swordfish	2233.7	1675.7	1609.2	739.1	1089.5	1115.1	1118.5	967.8	1078.9	959.3
Bluefin tuna	458.6	391.6	576.1	598.0	504.5	596.0	576.1	549.1	523.7	603.7
Albacore	8.7	32.2	11.5	23.9	30.8	23.2	38.8	121.7	51.0	112.7
Bigeye tuna	124.1	110.5	148.6	144.0	165.7	119.6	262.8	327.0	241.2	279.3
Yellowfin tuna	71.5	52.3	174.4	154.5	100.1	56.6	21.8	105.2	125.3	70.4
Unspec. tuna	9.1	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0	.1
Blue shark	20.8	112.5	137.8	11.8	10.9	4.5	53.5	18.4	0.4	5.1
Shortfin mako	152.2	157.2	111.2	67.4	110.1	69.5	70.4	77.8	69.3	78.2
Porbeagle	832.0	1544.9	378.0	1015.4	1339.4	1007.8	958.2	902.3	498.6	236.6
Unspec. sharks	22.7	107.1	38.4	12.7	42.5	37.3	17.6	10.7	19.7	21.1
Marlin[1]	0.0	4.4	4.4	8.3	8.3	7.9	4.8	5.3	3.2	2.1

[1] Prior to 2002, marlin catches were reported as white marlin, although the ability to distinguish between white and blue marlin is not clear. This has been addressed for 2002.

Table 2. Canadian bluefin tuna landings and discards (t, round weight) by fishing area, 1992-2002.

Bluefin fishing area (west to east)	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Bay of Fundy	0	0	34	43	32	55	36	38	18	31	13
Hell Hole	289	223	165	211	147	101	152	182	74	182	125
St. Marg's Bay	1	29	80	72	90	59	68	44	16	16	28
SWNS (coastal)	0	0	0	0	60	84	106	93	113	61	114
NE Nova Scotia	29	45	39	61	41	69	82	26	7	25	35
G of St. Lawren.	61	111	61	175	111	101	115	164	236	149	205
Newfoundland	56	26	5	10	95	30	21	10	71	51	68
Offshore	8	25	0	4	22	6	16	18	13	7	16
Year-end adj[1]	-	-	7	-	-	-	-	1	1	<1	<1
Total Landings	**443.5**	**458.6**	**391.6**	**576.1**	**598.0**	**504.5**	**596.0**	**576.1**	**549.1**	**523.7**	**603.6**
Discards[2]	-	-	-	-	-	6.0	16.3	10.7	46.0	13.2	36.9
Canadian quota	*573.0*	*587.5*	*510.0*	*613.5*	*613.5*	*552.6*	*600.7*	*577.7*	*569.5*	*553.0*	*594.7*

[1] e.g., seized, Bermuda fishery or tournaments .

[2] Discarded dead from swordfish longline fishery: no estimates prior to 1997; 1997 actual tonnage observed by at-sea observers; 1998-2002 estimate for entire fishery based on observer coverage (see SCRS/99/77).

Table 3. Distribution of tuna, swordfish longline and shark fishing licenses by region and species[1] in 2002.

Region	*Number of licenses*[1]							
	Bluefin		*Swordfish (LL)*		*Other tuna (LL)*[4]		*Sharks*	
	Total	*Active*	*Total*	*Active*	*Total*	*Active*	*Explor.*	*Rec.*
Gulf	601	383	0	0	0	0	9	60
Newfoundland	55[3]	30	7	2	7	2	0	10
Scotia-Fundy	42	38	70	44	71	45	16	11-1200
St. Margaret's Bay[2]	24	11	-	-	-	-	-	-
Quebec	54	17	0	0	0	0	2	0
Total	776	479	77	46	78	47	27	>1200

[1] Bluefin tuna, swordfish, other tunas, and sharks (exploratory longline licenses) are regulated by limited entry. Recreational shark licenses are restricted to hook and release only, and the number varies from year-to-year, depending on demand.

[2] Four fish trap license holders with 6 bluefin trapnet licenses each.

[3] 38 of these licenses are subject to a reduced level of fishing activity and restricted to NAFO Divisions 3LNO.

[4] Restricted to tunas other than bluefin (albacore, bigeye, yellowfin).

Note: Active fishermen are those that picked up their licenses, license conditions and tags, and submitted log records.

Table 4. Summary of 1992-2002 swordfish vessels landing fish, landings (t, round weight), discards[1], average weight of fish (kg round) by gear, percentage of small fish by number[2], amd percentage of catch sampled for size.

	1992	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Number of vessels landing fish	46	75	74	77	77	60	49	53	61	63	46
Longline	72	72	32	97	112	105	109	66	92	84	71
Harpoon											
Landings (t)	1486	2206	1654	1421	646	1000	875	1101	873	957.6	922
Longline	60	28	22	188	93	89	240	18	95	121.3	38
Harpoon	1546	2234	1676	1609	739	1089	1115	1119	968	1078.9	959
Total	-	-	-	-	-	5.0	51.7	34.6	49.9	26.4	32.7
Discards (t)[1]											
Ave. weight (kg)	57	56	63	68	69	70	61	56	58	69	72
Longline	(5904)	(19469)	(26279)	(20247)	(9077)	(14438)	(13447)	(19630)	(12991)	(13611)	(12859)
(# sampled)	67	129	120	122	161	131	126	109	111	102	117
Harpoon	(136)	(151)	(83)	(1131)	(561)	(652)	(1911)	(147)	(830)	(1287)	(413)
(# sampled)											
% small fish by number landed[2]	**16**	**15**	**11**	**9**	3	5	3	3	3	2	<1
<125 cm	7	9	6	4	**<1**	**2**	**<1**	**<<1**	**<<1**	**<1**	**<<1**
<119 cm	23	50	99	94	97	100	95	100	100	100	100
% of catch sampled											

[1] Discarded dead from swordfish longline fishery: no estimates prior to 1997; 1997 actual tonnage observed by at-sea observers; 1998-2001 estimate for entire fishery based on observer coverage (see SCRS/99/77).

[2] Minimum size under regulation in bold: <25 kg round weight or <125 cm LJFL with 15% tolerance (by number) from 1991-1995, and <119 cm LJFL with no tolerance since 1996.

NATIONAL REPORT OF CAPE VERDE[1]

V. Marques da Silva Monteiro[2]

1. Introduction

Tunas are migratory species that seasonally pass by the Cape Verde Islands.

Baitboat fishing bait was introduced in Cape Verde in the mid-1950s, which coincided with the general development of tuna fishing in the Atlantic.

The major species of tunas and tuna-like species caught are: yellowfin tuna *(Thunnus albacares)*, skipjack tuna *(Katsuwonus pelamis)*, bigeye tuna *(Thunnus obesus)*, Atlantic black skipjack *(Euthynnus alletteratus)*, frigate tuna *(Auxis thazard)* and wahoo *(Acanthocybium solandri)*, which comprise one of the most important resources since they are very important for the country's economy.

In Cape Verde the most important areas for the tuna fleets are located around the islands and the underwater seamounts.

Since the 1990s the quantity of tunas and tuna-like fish in the total catches by the national fleet has declined. However, since 1999 catches have increased again, and this variation is directly linked to the reduction in fishing effort on small pelagics.

In recognition of the importance of these resources as very sought after species on the world level, since they constitute a source of protein and income, the Government of Cape Verde decided to adhere to ICCAT (International Commission for the Conservation of Atlantic Tunas) and, inasmuch as possible, to adopt the management recommendations proposed by this Commission in its legislation

Various estimates of the potential of the resource have been carried out: Aubrey 1977, Moal 1977, Fonteneau 1985, Diouf 1991 and Hallier 1996. The last one estimated a potential total of 25,000 t (12,000 t in coastal waters and 13,000 t on the high seas).

2. Information on the fisheries

The exploitation of these resources in our waters is carried out by three distinct fleets: the national artisanal fleet (hand line), the national industrial fleet (hand line, baitboat, and purse seine), and the foreign industrial fleet.

Some species are destined for export or are the prime material for the national canneries and then they are exported. The national catches of tunas amounted to 3,306 t in 2001.

2.1 National fishery

In the artisanal fishery practically all the catches made by hand line fishing and are mainly comprised of yellowfin tuna. Their development shows a certain stability in recent years.

The industrial fishery is carried out mainly by rod and reel and hand line, and is comprised essentially of skipjack and yellowfin. The activity of the industrial fishery is limited in the warm months and is more significant from June to November. Its development underwent various fluctuations due to the start of an easy and interesting market for mackerel scad (*Decapterus macarellus*), to problems on the international market for skipjack and to the embargo on exports, among other reasons.

[1] Original report in French.

[2] Institut National de Développement des Pêches.

2.2 Foreign fishing and fishing agreements

A foreign fleet is authorized to fish in the Cape Verde EEZ, in virtue of agreements and fishing contracts.

The Government of Cape Verde has established agreements with countries of the Regional Fishing Commission, within a framework of the principle of reciprocity. Since 1995, there is a protocol of cooperation with the Government of Angola.

3. Research activities

- Continuation of the intensive collection of statistical data on the catches of tunas and tuna-like species and their entry in a database.
- Since 1985, publication of a statistical bulletin with data series available since 1985, and the reference number for 2002 will be issued as soon as possible.
- Contribution with information to the updating of the ICCAT stock assessments.
- Participation in ICCAT activities.

NATIONAL REPORT OF CHINA[1]

S. Liming[2], Zhao Liling[3]

1. Fishery Information

Longline is the only fishing gear for tunas by the China fishing fleet in the Atlantic Ocean. The total number of tuna longliners that operated in the Atlantic Ocean was 60 in 2002, with a total catch of tunas and tuna-like species of 8,026.8 t, lower than that of 2001 (9,370.4 t) (Dai *et al* 2003). **Table 1** shows the species composition of the catch in the total Atlantic Ocean since 1994. The targeted species are bigeye tuna and bluefin tuna. Yellowfin tuna, swordfish and albacore are taken as by-catch. The fishing gear is deepwater longline, with 17-19 hooks between two buoys; the branch line is 49-53 meters long. The length of the main line between the two branch lines is 46-51 meters.

1.1 Albacore

Albacore were caught by the Chinese longline fleet as by-catch in the Atlantic Ocean. The total catch of this species in 2002 was estimated at about 225.7 t, which is a 143 t increase as compared to that of the previous year (82.7 t) (Dai *et al* 2003).

1.2 Bluefin tuna

Bluefin tuna were targeted by the Chinese longline fleet in the North Atlantic Ocean. Only one company is authorized to fish for this species. The total catch in 2002 was 39.1 t, a 42% (68.1 t in 2001) (Dai *et al* 2003) decrease from the previous year.

1.3 Tropical tunas

Tropical tunas include bigeye tuna and yellowfin tuna in the Atlantic Ocean. The total catch of bigeye tuna in 2002 amounted to 5,839.5 t, while yellowfin tuna catches amounted to 696.7 t, 34% less than that in 2001 (1,055.8 t) (Dai *et al* 2003).

1.4 Swordfish

The total catch of swordfish in 2002 was 513.2 t, which was an increase of 211.2 t (70%) (Dai *et al* 2003) from the previous year, among which 90.2 t (101.7 t in 2001) (Dai *et al* 2003) were caught in the North Atlantic Ocean and 423 t (200.3 t in 2001) (Dai *et al* 2003) in the South Atlantic Ocean.

2. Research and Statistics

Shanghai Fisheries University (SHFU) is in charge of the data collection and compilation of Atlantic tuna fishery statistics. The compiled data including Task I and Task II, as well as the number of fishing vessels, have been routinely reported to the ICCAT Secretariat.

In accordance with the Commission's recommendation on the bigeye tuna observer program adopted in 1997, China began to carry out a tuna observer program in ICCAT waters in 2001. Three observers were sent to the Chinese Atlantic tuna longline fishing fleet in 2001. Three observers covered the area of 17°N-8°S, 12°W-43°W. A summary report on the 2001 Observer program in China, including data collection, size measurements and biological sampling of tunas and other fishes, was presented to the 2002 SCRS meeting. One observer was sent to the Chinese Atlantic tuna longline fishing fleet in October 2002. The observer-covered area was 12°20'N-1°51'S, 21°30'W-41°05'W and 1120 bigeye tuna, 157 yellowfin tuna, 83 albacore, and 59 billfish were measured. The duration of the observer investigation was from 16 October 2002 to 4 July 2003. The observer data are being compiled.

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[1] Original report in English.

[2] Shanghai Fisheries University, 334 Jungong Road, Shanghai 200090, People's Republic of China.

[3] Division of Distant Water Fisheries, Bureau of Fisheries, Ministry of Agriculture, No. 11 Nongzhanguan Nanli, Beijing 100032, People's Republic of China..

In order to support the tag research program on tunas, posters of tag information in Chinese have been prepared by Shanghai Fisheries University and distributed to all Chinese fishing vessels in the Atlantic Ocean.

3. Implementation of ICCAT conservation and management measures

3.1 Catch quota and minimum size limit

In order to comply with the catch limits on bigeye, eastern bluefin tuna, northern and southern swordfish, blue marlin and white marlin established by ICCAT, the fishery administration authority of china required all the fishing companies operating in the Atlantic Ocean to report their catch monthly to the Tuna Working Group in Shanghai Fisheries University and the China Fisheries Association.

It is recalled that 5,100 t (including the transformed 1,100 t from Japan and approved by the ICCAT Commission.) of bigeye tuna quota was allocated to the tuna fleet of China by the Commission. However, this catch quota cannot meet the minimum demand of the Chinese fleet for subsistence. The fishery administration authority of China requires that the catch of bigeye tuna by the Chinese fleet not exceed the 5,100 t limit.

In order to implement conservation and management measures for bigeye tuna, the fishery administration authority of China has urged some of tuna fleet operating in the Atlantic Ocean to shift their fishing grounds to the Indian Ocean and the Pacific Ocean seasonally.

The Chinese tuna fleet strictly followed the minimum size criteria set by the ICCAT Commission in order to protect young tunas.

3.2 Fishing vessel management

It is noted that the Government of China issued fishing licenses to all Chinese fishing vessels operating in the high seas of the world´s oceans on 1 December 2003. Each license specifies the type of fishery, fishing grounds, targeted species and quota etc. This facilitates inspection at the fishing port and also helps the Government of China to effectively supervise its fleet.

A Vessel Monitoring System (VMS) scheme is being developed. Within one year, this scheme will cover all the large longliners of China operating in the high seas of the world's oceans. Once the scheme is implemented, fishing position can be monitored simultaneously.

3.3 Observer program

A scientific observer program will continue to be implemented in 2003. The fishery administration authority of China allocated another 50 t of the bigeye tuna quota to the fishing vessel that accepted the observer so as to encourage the fishing vessel to carry the observer.

Reference

DAI, X.J., L.X. Xu and L.L. Zhao. 2003. National Report of China. *In* ICCAT Report for Biennial Period, 2003/03, Part I (2002)-Vol. 3:18-20.

Table 1. Catches of tunas and tuna-like species (in round weight, t), 1994-2002.

Species	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Bluefin tuna	97.4	136.9	92.8	48.7	85.3	103	79.6	68.1	39.1
Yellowfin tuna	155.9	200.0	124.3	83.6	698.3	2190	1674.2	1055.8	696.7
Bigeye tuna	428.3	475.7	519.8	427.1	1502.9	7347	6563.5	7210	5839.5
Swordfish	85.7	104.2	131.9	39.6	365.3	838	365.6	302	513.2
Albacore	14	8	20	----	----	60	104.7	82.7	225.7
Skipjack	----	----	----	----	4.0	----	----	----	----
Unspecified shark	----	----	----	----	5.0	31	----	----	420.0
Shortfin mako	----	----	----	----		----	152.8	----	11.4
Spearfish	----	----	----	----	2.4	----	----	----	----
Blue marlin	----	----	----	----		----	23.2	91.6	87.8
White marlin	----	----	----	----	3.6	----	2.4	19.8	22.8
Sailfish	----	----	----	----	----	----	7.4	8.1	11.7
Other	68	76	80	90	----	415	234.2	532.4	590.3
Total	**849.3**	**1000.8**	**968.8**	**689.0**	**2666.9**	**10984**	**9207.6**	**9370.4**	**8026.8**

NATIONAL REPORT CÔTE D'IVOIRE[1]

N. Ngoran, J.B. Amon Kothias[2]

1. Introduction

Although Côte d'Ivoire does not have tuna fishing vessels, it plays a very important role in the management of Atlantic tunas. The *Centre de Recherches Océanologiques* (CRO) (Center for Oceanographic Research) is in charge of the research work on marine and high seas fisheries. This center is responsible for the research and statistics on tunas landed regularly at the fishing port of Abidjan. As in previous years, in 2002 the industrial tuna fishery was monitored by the CRO, together with the *Institut de Recherche pour le Developpement* (IRD) (Research Institute for Development) and the *Instituto Español de Oceanografía* (IEO) (Spanish Institute of Oceanography). The costs (operation, equipment and personnel) are covered by the three centers that benefit from three sources of funding:

- General Operating Budget (BGF) of Côte d'Ivoire;
- FAC financing within the framework of a CRO-IRD program of common interest;
- European Union (EU) within the framework of fishing agreements between Côte d'Ivoire and the EU.

In addition to the industrial fishery, there is an artisanal fishery that also lands small tunas and mainly billfishes (marlins and swordfish) and sharks. The monitoring of this fishery has been reinforced due to the ICCAT Program on Enhanced Research on Billfish ("Billfish Program") that helped the authority in charge of the monitoring the landings in Côte d'Ivoire through a subsidy that enabled it to contract staff (researcher) to reinforce the collection of statistics.

This report summarizes the data relative to the large pelagics, particularly tunas, at the fishing port of Abidjan through the activities of the tuna vessels (mainly French and Spanish) and the canoe fishery with driftnets that operate along the Ivorian coasts. With regard to the industrial tuna fishery, the importance of the fishing port of Abidjan is demonstrated by the total landings and tuna species and by the number of tuna vessels that visit this port. While there are lists of all the vessels (including Spanish vessels) that landed or transshipped at the port of Abidjan in 2002, the catch data that are calculated here do not include the Spanish data, which are processed by our Spanish colleagues. Also noteworthy are the important quantities "false tuna" landed. This type of fish contributes in large measure to the diet of the low-income population in Côte d'Ivoire. With regard to the artisanal driftnet fishery that targets large pelagics, this report shows the nominal and weighted catches of the various fish caught, as well as the fishing effort deployed.

2. Tuna landings at the fishing port of Abidjan

Tuna landings at the port of Abidjan in 2002 were mainly made by French and Spanish purse seiners. In addition to these vessels, there were some vessels flying flags of other countries, in particular Ghana. A total of 46 boats landed or transshipped at the fishing port of Abidjan in 2002 **(Table 1)**. The breakdown is as follows: 16 Spanish vessels, 15 French, 8 Ghanaian, and 7 other flag vessels.

A scientific team comprised of 14 persons contracted by the three centers were in charge of the collection, data entry and processing of statistical data in 2002. This team is comprised of the following: 3 research scientists (2 CRO and 1 IRD), 4 high level technicians (I CRO, 2 IRD and 1 IEO), 1 data entry technician (from the partnership), and 7 samplers (all from the partnership, paid by EC and IRD financing).

The landings are monitored daily by this team of scientists. **Table 2** shows the catches, by tuna species, landed by the French and Ghanaian tuna vessels that visited the port in Abidjan in 2002. The Spanish data are processed by the delegate from the Secretariat of Fisheries of Spain. These total landings that amounted to 57,772 t are comprised, in descending order, by yellowfin (38,168 t), skipjack (16,487 t), bigeye (3,100 t), and albacore (17 t). These catches differ very little from those of the previous year (57,514 t) and are on the same order as those of previous years **(Table 3)**. Similarly, there was a report catch of about 5,000 t of "false tuna". Consumption of these "false tuna" is increasing more and more in Côte d'Ivoire. This has increased since 1990 due to the fishing

[1] Original report in French.

[2] Centre de Recherches Océanologiques, B.P. V-18, Abidjan, Côte d'Ivoire. Tel: +225 21 355 014, 355 880; Fax: +225 21 351 155. E-mail: ngoran@cro.ird.ci.

under floating objects **(Figure 1)**. These catches are mainly comprised of Atlantic black skipjack and frigate tuna.

3. Ivorian artisanal catches of other large pelagics (billfishes and sharks)

There is an artisanal fishery off the Ivorian continental shelf that exploits tunas and other large pelagics. This is a driftnet canoe fishery that started in 1984. Since 1988, this artisanal fishery has been regularly monitored. The monitoring of the landings on land by the CRO has improved within the framework of ICCAT Billfish Program. Three samplers, of which two are paid from the Billfish Program, carry out the work. The major groups of fish landed are: billfish (sailfish and marlins), swordfish, sharks and small tunas. The fishers use canoes to fish at night using driftnet close to Abidjan, where they can easily sell their catches. The fishing zone is located 5 to 10 miles from the coast, beyond the continental shelf, which is not very extensive. The net sets last one night and the fish are directly sold every morning at the port of Abidjan.

As concerns the large pelagics caught by the canoes, the most abundant billfishes in the catch are as follows : blue marlin *(Makaira nigricans)*, white marlin *(Tetrapturus albidus)*, sailfish *(Istiophorus albicans)*, and swordfish *(Xiphias gladius)*. Shark catches are comprised mainly of silky sharks *(Cacharhinus falciformis)*, smooth hammerhead sharks *(Sphyrna zygaena)*, scalloped hammerhead sharks *(S. lewini),* and mako sharks *(Isurus* spp.*)*, are second in importance **(Table 4)**. Tunas, such as yellowfin *(Thunnus albacares)*, skipjack *(Katsuwonus pelamis)*, frigate tuna *(Auxis thazard)*, and Atlantic black skipjack *(Euthynnus alletteratus)* are next in importance. As by-catch, the canoes also catch large fish such as bigeye *(Thunnus obesus)*, rays *(Manta* spp.*)*, wahoo *(Acanthocybium solandri)*, dolphin fish *(Coryphena* spp.*)*, sea turtles *(Chelonia mydas, Dermochelys coriacea)* and some dolphins. **Table 4** shows the total annual catches (nominal and weighted) of large pelagics (billfishes and sharks) taken by the driftnet canoe fishery. Important quantities of large pelagics (billfish and sharks) are landed annually by this fishery, as are small tunas and other fish species. It is noted that these catches have decreased considerably since 1999.

4. Conclusion

The quantities of tunas that are landed or transshipped annually at the fishing port of Abidjan supply the three large canneries of Abidjan and consequently sustain an important source of employment and an impressive economic activity. The regular monitoring of the statistics on these landings by the CRO contributes to the improvement of ICCAT´s knowledge of the Atlantic tuna fisheries. The analysis of the data from the surveys carried out on the artisanal driftnet fishery shows the importance of this fishery both in terms of the quantities landed and in the diversity of the species. The importance of the landings of billfishes and swordfish by the Côte d'Ivoire artisanal fishery is only a reflection of the artisanal catches of these fish off the coasts of the Gulf of Guinea. Therefore, the monitoring of this fishery should be developed in the coastal countries of the Gulf of Guinea, from Senegal to Gabon. The sampling method and the data processing scheme used by the CRO of Abidjan seem to give satisfactory results, which could be applied in other countries through sub-regional collaboration. Further, the billfish landings off the Gulf of Guinea coasts could be better monitored and coordinated. The development of abundance indices from Ivorian data could serve as indicators of the state of the stocks of the central East Atlantic.

Table 1. List of tuna vessels that landed at the fishing port of Abidjan en 2002.

No.	*Name*	*Flag*	*No.*	*Name*	*Flag*
1	Via Euros	France	24	Mervent	France
2	Via Mistral	France	25	Kurtzio	Spain
3	Via Avenir	France	26	Ile Tristan	France
4	Almadraba 2	Spain	27	Juan Maria Soroa	Panama
5	Pere Briant	France	28	Via Gwalarn	Seychelles
6	Montefrisa 9	Spain	29	Alboniga	Spain
7	Txori Eder	Spain	30	Via Libeccio	France
8	Albacora 10	Neth. Antilles	31	Zuberoa	Spain
9	Gure Campolibre	Ghana	32	Albacora 9	Neth. Antilles
10	Almadraba 1	Spain	33	Bermeotarak Dos	Spain
11	Cap Saint Pierre 2	France	34	Playa de Aritzatxu	Spain
12	Cap Saint Paul	France	35	Egalabur	Spain
13	Bermeotarak Tres	Spain	36	Sinfin Uno	Ghana
14	Via Harmattan	France	37	Marine 707	Ghana
15	Santa Maria	France	38	Egaluze	Spain
16	Matxikorta	Spain	39	Monteneme	Venezuela
17	Txirrine	Spain	40	Marine 703	Ghana
18	Montecelo	Spain	41	Prince de Joinville	France
19	Avel Viz	France	42	Jito	Ghana
20	Belouga	France	43	L. A. Bougainville	France
21	Albacora Caribe	Venezuela	44	Avel Huel	Ghana
22	Agnes 1	Ghana	45	Izurdia	Spain
23	Germon	Morocco	46	Ghako 101	Ghana

Table 2. Landings (t) of tuna by French and Ghanaian vessels that visited the fishing port of Abidjan in 2002.

Yellowfin-YFT	*Skipjack-SKJ*	*Bigeye-BET*	*Albacore-ALB*	*Total*
38,168	16,487	3,100	17	57,772

Table 3. Landings (t) of tunas and at the fishing port of Abidjan by French and Ghanaian vessels, and "false tuna", from 1996 to 2002.

Year	*Total tunas*	*"False tuna"*
1996	78,929	10,899
1997	50,334	9,221
1998	46,122	9,168
1999	55,045	11,923
2000	54,399	14,000
2001	57,514	10,000
2002	57,772	5,000

Table 4. Côte d'Ivoire annual catches (t) of billfishes and sharks by driftnet, from 1988 to 2002

Year	*Effective effort**	*Sailfish (l. albicans)*	*Blue marlin (M. nigricans)*	*White marlin (T. albidus)*	*Swordfish (X. gladius)*	*Various sharks*	***Total***
1988	2,908	65.6	130.3		12.22	242.2	**450.3**
1989	2,430	54.5	82.0		6.77	146.7	**290.1**
1990	2,920	57.9	88.1		7.52	181.5	**334.9**
1991	4,981	38.2	105.1		18.02	185.9	**347.2**
1992	6,196	68.8	79.2		13.05	284.0	**455.0**
1993	7,707	39.5	139.5		14.42	199.5	**392.9**
1994	12,756	54.4	211.6		19.98	273.2	**559.2**
1995	14,141	66.3	176.7		18.78	289.0	**550.8**
1996	14,478	90.6	157.4	0.7	25.76	404.8	**679.2**
1997	12,874	65.1	222.1	1.8	17.66	286.3	**592.9**
1998	10,328	35.3	182.4	0.9	25.12	156.4	**400.1**
1999	15,244	80.1	275.5	5.4	25.72	313.1	**699.8**
2000	12,145	44.5	205.9	1.2	20.1	47.4	**319.1**
2001	13,994	47.0	196.0	2.4	18.9	65.9	**330.2**
2002	13,061	65.4	77.9	1.8	19.0	77.0	**241.1**

* Effective effort = nominal effort in number of trips corrected by the development of fishing power (rate of increase of the size of the nets). .

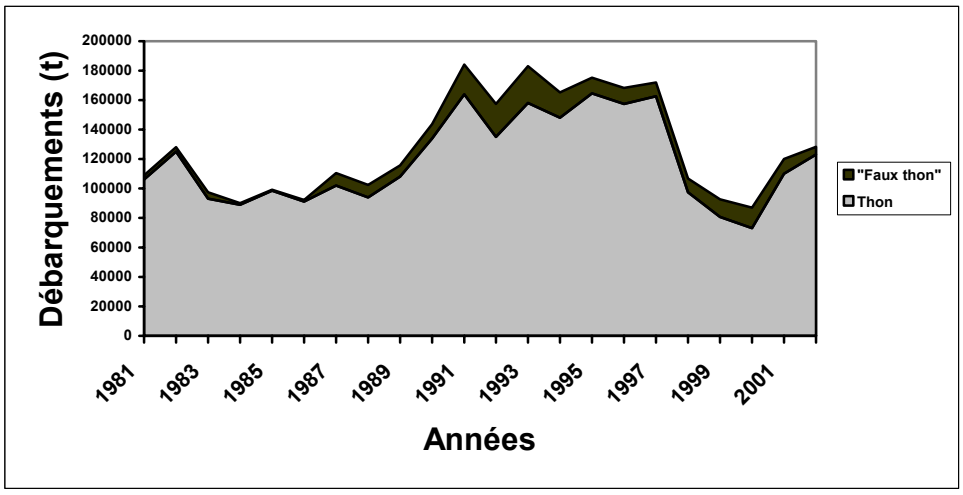

Figure 1. Development of the total landings of tunas (all tuna vessels combined) and « false tuna » at the fishing port of Abidjan, from 1981 to 2002.

NATIONAL REPORT OF CROATIA[1,2]

1. National fisheries information

The total Croatian catches of tuna and tuna-like fishes in 2002 were 977 t. Bluefin tuna comprise 100% of the catch. Over 99% of the fish were caught by purse seiners, and the remainder by longliners and sport fishing (hooks). Almost the total purse seine catch is transferred to floating cages for growing purposes. Due to the lack of giant tuna in the Adriatic Sea, 1683 t of large bluefin tuna were imported in Croatia in 2002 from Italy, Spain and Tunisia.

The number of licensed vessels actively fishing for tuna and tuna-like species was 31, while 14 of these were licensed large-scale vessels (> 24 m). Most of the vessels are owned or contracted by tuna farmers. There is significant investment in the modernization of the fleet.

2. Statistics and research

2.1 Research

Since 2002, a study on bluefin tuna farming based on the tagging of live specimens in the grow-out floating cages, within the framework of ICCAT Bluefin Year Program (BYP), has been under way. Currently, this research is targeting specimens of approximately 12-15 kg (live round weight). Specimens that were tagged last year are still alive in the cages. Additionally, samples of heart muscles of dead specimens have been taken for genetic studies and sent to Dr. Carles Pla, as suggested by the BYP Working Group.

2.2 Statistics

The Croatian bluefin tuna fishery continues to be regulated by quota, season, gear restrictions and size limits. Croatian purse seiners fishing in the Adriatic Sea in 2002 caught 975 t of bluefin tuna **(Table 1)**. The average size of the fish was 8.26 kg; 1 t was caught by longline and 1 t by sport fishing (hooks).

The National Fisheries Information System for the collection of catch data, which was introduced in 1999, is providing all data required but still there is some uncertainty since almost the total catch is used for farming purposes, which results in contradictions between catch and trade data. It is also very difficult to determine size-distribution data, due to the small sample available.

Growth technology is developing which results in growing periods of one, two and even three years. Such technology is causing even more contradictions between catch and trade data.

3. Implementation of ICCAT conservation and management measures

All the recommendations have already been incorporated in national regulations, while the catch quota is regulated for each calendar year by the particular Ordinance in the Official Gazette.

4. Inspection schemes and activities

Croatia has nothing to report at this time.

Table 1. Croatian catch statistics for calendar year 2002.

Species	*Gear*	*Catch limit (t)*	*Catch (t)*	*Est. catch over/under catch limit (t)*	*Catch of Age 0*	*Estimated catch over 15% tolerance of fish bellow 6,4 kg*
Bluefin	PS, LL, HOOKS	1.232*	977	- 255	0	0

* 876 t + 356 t under catch from 2001.

[1] Original report in English.

[2] Ministry of Agriculture and Forestry, Directorate of Fisheries.

NATIONAL REPORT OF CYPRUS[1]

G.P. Gabrielides[2], N. Hadjistephanou[2], D. Konteatis[2]

1. Introduction

The large pelagic species are caught by almost all types of fishing methods in Cyprus i.e. by the inshore fishery, the multi-purpose fishery and by the trawl fishery. The inshore fishery takes place within the territorial waters of Cyprus, whereas the multi-purpose fleet and the trawlers operate within the territorial waters of Cyprus, as well as within the international waters, mainly in the eastern Mediterranean. The fishing grounds are thus distinguished as "Cyprus waters" and "international waters".

"Cyprus waters" refer to the area under Government control. It is known that, since 1974, the most important fishing grounds of Cyprus are occupied. From the 846 sq. nautical miles of continental shelf, only 507 sq.nm are free. From the total coastline of 773 km, 55% is not accessible to the Government of Cyprus.

2. National fisheries information

2. 1 Bluefin tuna

Bluefin tuna are present in the waters of Cyprus all year round and they are fished from April to November in the territorial waters of Cyprus as well as in the international waters around the island. The Cyprus nominal landings of bluefin tuna in 2002 were 91.4 t **(Table 1)**. Catches of bluefin tuna increased during the last four years, as the importance and the demand of tuna in the market is increasing; thus the fishery is directed towards this species.

In 2002, 40 multi-purpose licensed vessels participated in the bluefin fishery **(Table 2)**. **Table 3** presents the total production of all species of Cyprus (t) and CPUE (kg/working day) for all segments of the fishery (1990-2002). **Table 4** presents, analytically, data on catch (kg) and effort (working days and number of hooks) for the Cyprus multi-purpose fishery.

2.2 Swordfish

Swordfish occur in the waters of Cyprus all year round, but they are fished mainly from April to November, with the peak season in the summer months. Swordfish, as well as the other large pelagics, are caught by surface drifting longlines. The Cyprus nominal landings of swordfish in 2002 were 103.6 t. **(Table 1)**. The landings are 32.2 t less than in 2001, but 21.3 t more than in 2000. Swordfish landings vary from a maximum of 172.6 t (1990) to a minimum of 39.9 t (1996).

In 2002, 40 multi-purpose licensed vessels participated in the swordfish fishery **(Table 2)**. Production and CPUE are given on **Tables 3 and 4**.

2.3 Other tunas

Other tunas (albacore, bigeye tuna, bonito, etc.) are collectively reported as "tuna-like species" in the log records. Yellowfin tuna do not to occur in the waters of Cyprus. The landings of the tuna-like species in 2002 were 21.8 t (**Table 1)**. An increasing trend is noted.

2.4 Sharks

The Cyprus fishery is not directed at sharks, the majority of which are caught incidentally. Although some identification was tried, more systematic work has to be done.

[1] Original report in English; the Appendix is available from the Secretariat.

[2] Department of Fisheries and Marine Research, Ministry of Agriculture, Natural Resources and Environment, Nicosia, Cyprus.

The shark catch of the trawl and the inshore fishery is rather insignificant. The multi-purpose fishery often catches sharks on the surface drifting longlines and their quantities are also small in comparison to the total catch, representing a mean of 11.22% (range of 6.8 to 16.0%) of the swordfish catch.

In 2002 the catch of shark species was 21.9 t, whereas 11.6 t were reported in 1999 and 26.5 t in 2001 **(Table 1)**. Production and CPUE are given on **Tables 3 and 4**.

3. Research and statistics

3..1 Statistics

In Cyprus, the authority responsible for the collection and processing of fishery statistics is the Department of Fisheries and Marine Research (DFMR), Ministry of Agriculture, Natural Resources and Environment. The DFMR has also the responsibility for the transmission of the fishery statistics to all international organizations and agencies.

The collection of fishery statistics is based on the Fisheries Law, Chap. 135 and subsequent amendments of 1961 to 2000, as well as the Fisheries Regulations of 1990 to 2000, based on Article 6 of the Basic Law (Appendix 1).

According to the system all vessels must keep a logbook. Collection of trawlers´ data is carried out by daily return of logbook sheets, which all skippers are required to hand in prior to landing their catch. The logbook sheets of the multi-purpose fleet are handed in to the fisheries Inspectors of the Department after each trip and, in any way, within one month of their last report. All catches are inspected upon landing, to ensure that they were weighed and recorded accurately. All the information given is verified by the Fisheries Inspectors.

Log records contain information about the vessel, the fishing area, port of landing, on effort (number of active fishing days, number of hooks), the total catch and the breakdown of the catch by species and quality. Furthermore, log records contain information on the number of large pelagic fish and weight. The logbook sheets are collected by the Fisheries Inspectorate Service, located at the main ports of Cyprus (see Section 4). These data are sent at regular intervals to the Statistical Service of the DFMR for the computer processing and analysis.

Swordfish, bluefin tuna and cartilaginous fish, mainly sharks, are mostly caught by the multi-purpose surface drifting longlines, the main catch of which is swordfish. For this reason, the multi-purpose fleet of Cyprus is often called the “swordfish fleet”. As a result, bluefin tuna and sharks were categorized as “by-catch” together with the other large pelagics of the “swordfish fleet”. In 1998, bluefin tuna and sharks started being reported in separate categories of the logbooks. Similarly, the trawl and the inshore fishery reported their cartilaginous fish catch in the general category of “sharks and rays” and the tuna-like species, in the general category “tonakia”. The separation of the various chondricthyan groups started in 1999, when fishermen were provided with new logbook sheets. This enabled the Department of Fisheries and Marine Research to separate each group species within the reported catch.

The system ensures 100% of properly completed log records and individual fish weights. The licensed fishermen comply with the regulations and conditions of licenses and incidents of contraventions are very rare. However, fishermen who fail to comply with the domestic laws and regulations are liable to prosecution, which include fines and suspension of licenses.

3.2 Research

Cyprus fully supports research on large pelagic species. During the past years some research was carried out, mainly on swordfish. However, research has been limited in recent years, during which research activities have been minimized due to limited facilities, funds and personnel. One of the main reasons is that the current personnel have been fully occupied with the work needed for the Cyprus accession to the EU.

4. Implementation of ICCAT conservation and management measures

Cyprus implements ICCAT conservation and regulatory recommendations. Most of the ICCAT recommendations are included in the Fisheries Law and Regulations. All ICCAT regulatory recommendations will be gradually implemented, as Cyprus has become a Contracting Party to ICCAT and will become an EU member in 2004.

4.1 Catch limits and minimum sizes

Up to now, Cyprus was included in quotas for non-Contracting Parties. However, there is an upper ceiling in the number of licenses issued, according to the Fisheries Law and relevant regulations. The Cyprus legislation provides for restrictions on the amount and type of gear used, minimum size and management of fishing areas.

4.2 Closed seasons

In addition to the ICCAT regulatory recommendation Cyprus has introduced a time-area closure for five months (October to February) in its territorial waters, in order to minimize the catch of young swordfish.

4.3 Ban on imports

There is no ban of imports of any fishery product in Cyprus. All species of fish can be imported, provided that the relevant duties are paid. However imports of live fish are forbidden without a license.

4.4 Observer programs

Observers from the DFMR regularly collect biological data aboard vessels and monitor compliance with the fishing regulations.

4.5 Vessel Monitoring Systems

Cyprus is now introducing a satellite Vessel Monitoring System, which will cover all vessels over 15 m in total length. The relevant tenders have been recently awarded and the system will be operational early in 2004.

4.6 Inspection schemes and activities

Cyprus has a specialized Inspectorate Service consistent with the ICCAT regulatory recommendation (see Section 4).

4.7 Measures to ensure effectiveness of ICCAT conservation and management measures and to prohibit illegal, unreported and unregulated fisheries

The Inspectorate Service is continuously upgraded and strengthened. As mentioned above, the satellite VMS will soon be operational.

4.8 Recreational fisheries

The Cyprus recreational fisheries are being regulated by the Fisheries Law and Regulations. A license from the DFMR is needed for any kind of recreational fishing carried out from a vessel. The licenses are issued with written conditions, which are legally binding.

5. Inspection schemes and activities

Cyprus has a specialized Inspectorate Service, comprised of 24 Inspectors located in the four coastal District Offices and the DFMR. The Service is equipped with patrol boats and cars, which patrol and inspect all fishing activities in the waters around the island and on the coast.

The Inspectorate Service is responsible for law enforcement and monitoring of landings.

Table 1. Cyprus landings (round weight, T) of large pelagic fish species, 1990-2002.

Species	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Swordfish	172.6	162.4	56.2	116.1	159.2	89.2	39.9	51.1	61.1	91.6	82.3	135.8	103.6
By-catch*	46.0	42.5	24.0	33.9	94.4	51.8	56.1	32.6	57.1	5.0	5.1	8.1	8.4
Bluefin										31.3	60.8	85.2	91.4
Sharks										11.6	22.0	26.5	21.9
Tuna-like species	22.7	24.5	21.3	10.5	22.8	9.6	19.0	29.6	9.6	16.4	19.6	22.8	21.8

*Prior to 1998 bluefin tuna and some shark species were reported as by-catch of the multi-purpose fishery.

Table 2. Cyprus fishing licenses, 1990-2002.

Gear	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Multipurpose vessels	-	23	27	17	32	34	38	42	24	31	39	40	40
Bottom trawlers	16	14	14	14	14	18	18	19	21	21	20	24	30
Inshore boats	761	761	469	469	438	491	500	466	490	498	500	500	500

Table 3. Cyprus production (t) and CPUE (kg/working day) for all segments of the fishery, 1990-2002.

Year	*Inshore fishery*		*Multi-purpose fishery*		*Trawl fishery*	
	Production (t)	*CPUE (kg/working day)*	*Production (t)*	*CPUE (kg/working day)*	*Production (t)*	*CPUE (kg/ working day)*
1990	1598.2	15.59	218.6	196.6	801.0	768.2
1991	1777.8	18.84	190.3	157.9	648.9	670.0
1992	1807.9	19.27	73.1	78.0	784.7	827.1
1993	1786.1	17.53	138.2	135.0	781.7	804.9
1994	1789.5	17.18	218.8	190.6	800.9	767.7
1995	1587.2	14.51	122.0	135.7	828.1	725.5
1996	1648.5	14.97	74.9	93.3	860.6	790.6
1997	1498.0	15.5	71.3	91.6	738.4	712.4
1998	1520.9	15.02	94.5	139.2	801.7	679.3
1999	1299.6	11.44	139.5	121.7	826.1	674.1
2000	1341.4	12.04	157.1	122.2	720.4	624.4
2001	1168.7	11.56	237.1	146.8	840.8	502.1
2002	1062.8	12.61	211.2	105.3	612.0	524.2

Table 4. Catch and effort data of the Cyprus multi-purpose fishery, 1999-2002.

Year	*Fishing effort*		*Swordfish catch*					*Tuna catch*		*Shark catch*		*Other catch (kg)*	*Total catch*		
	No. of work. days	*No. of hooks*	*No. of fish*	*Total*	*Weight (kg) mean/ fish*	*mean/ hook*	*catch/ w.d.*	*No. of fish*	*Weight (kg)*	*No. of fish*	*Weight (kg)*		*Total*	*Weight (kg) mean/*	*Catch/ w.d.*
1999	1,146	860,080	4,368	91,561	20.96	0.11	79.9	664	31,290	550	11.644	5,041	139,536	0.16	121.76
2000	1,286	933,673	5,705	82,335	14.43	0.09	64.0	1,302	60,822	821	8.848	5,066	157,071	0.17	122.14
2001	1,615	1,071,690	5,248	135,792	25.88	0.13	84.08	2,003	85,201	128	8.070	8,068	237,131	0.22	146.83
2002	2,006	1,141,250	3,075	103,584	33.69	0.09	51.64	2,170	91,352	119	7.866	8,382	211,184	0.19	105.28

REPORT OF THE EUROPEAN COMMUNITY[1]

1. Information on the fisheries

The various fleets of the European Community fish all the major species that are under ICCAT regulations in the Atlantic and Mediterranean.

The total catches of tunas and tuna-like species obtained by the various fleets in 2002 amounted to 198,755 t, a reduction as compared to 2001 (Annex 1).

Section I of the national reports of the various Member States of the European Community, which contain details and technical aspects on the various fisheries, by species as well as by fishing gears, have already been transmitted to ICCAT for their analysis during the SCRS meeting.

2. Research

All the Member States of the European Community have national research institutes or regional laboratories that, in some cases, are supervised by the major universities of the country. A detailed description of the research activities carried out by the Member States of the Community, which are provided in Section 2 of the national report, has already been transmitted to ICCAT.

As concerns the tropical tuna fisheries, the Member States work in close collaboration with the research institutes of third countries in which the fleets concerned land all or part of their catches.

Scientists of the European Community and its Member States regularly participated in the scientific meetings organized by ICCAT.

The European Community totally or partially finances research programs on large migratory species, which are implemented jointly with the Member States directly concerned. The major studies carried out in 2003 within the framework of the European programs were as follows:

2.1 Bluefin tuna

- Development of biological parameters (BFTMED Program, in collaboration with the FAO/COPEMED Project);
- Objectives of the STROMBOLI Program: collection and analysis of historical catch data from the Atlantic and Mediterranean traps, testing by simulation models of the potential to resist exploitation based on their biological and ecological characteristics, testing the possibility of establishing indices of abundance from aerial surveys. The final report on the development of this program is available at the ICCAT Secretariat;
- Evaluation of the impact of the age-old periodic fluctuations in the stock assessment of this stock (FEMS Program);
- Collection of numerous parameters, from fishing effort to the cumulative biological data, from catches of target species to the incidence of by-catches;
- Study of the impact of sport fishing on bluefin tuna;
- Indices of abundance of spawners in the Mediterranean Sea;
- Sexual maturity, by means of hormonal and histological analyses;
- Tagging.

2.2 Swordfish

- Biological sampling to obtain size-sex variables by time-area strata;
- Electronic tagging and scientific observers;
- Analysis of the structure of the Atlantic and Mediterranean stocks by nuclear NDA (FAIR Program);
- Observers on-board longline vessels (juvenile catches, analysis of by-catches and discards, SHKLL Program);
- FAO/COPEMED Program.

[1]Original report partially in French and partially in English; the annexes are available from the Secretariat.

2.3 Tropical tunas

- Definition of a standard sampling strategy for the overall EC fleet (determination of species composition of the landings and population structure of each species);
- Analysis of the association between fish schools and fishing vessels (MAC Program: schools associated with purse seine vessels;
- Analysis of yellowfin tuna feeding;
- Evaluation of the impact of the regulatory measures (moratorium, restriction on the use of some fishing gears on the management of the stocks that are exploited by mixed fisheries), FEMS European Program.
- Real-time monitoring of the environmental conditions of the sub-surface in the Gulf of Guinea, PIRATA Program;
- Development and updating of the "GAO" oceanographic database so that the fishery scientists have valid data available to them that is easily accessible, by various time-area strata;
- Development of fishing power of tropical purse seiners (ESTHER Program).

Parallel to the Community programs, some Member States finance research programs that are carried out jointly with other Member States or with third countries. In general terms, significant efforts are made within the framework of national programs aimed at improving the collection of data, particularly those relative to fishing effort, biology of the species, catches of target species and by-catches (see Section 2 of the reports transmitted to ICCAT for review by the SCRS):

3. Statistics

In 2002, the European Community, as well as its Member States, continued their close collaboration with the SCRS.

The European Community already has a regulatory instrument in place for its Member States, applicable to all the fleets involved in the fishing of large migratory fish in their various areas of activity. This instrument applies the ICCAT recommendations.

This regulation is aimed at responding to the ICCAT requirements for Task I and II data. The instruments used (logbooks, landings reports, etc.) and the possibility of crosschecking the data these provide result in more rapid and concise monitoring of the catch data.

Furthermore, the Community has an instrument (EC Regulation No. 1543/2000) that establishes provisions for the collection and processing of the data needed for the development of common fishing policy.

Besides, the Member States adopt national regulations which apply and, in some cases, complement the Community instruments, in order to take into account the specific characteristics of the national fisheries.

The European Community finances programs aimed at improving fishery statistics, such as:

- Sampling programs and logbook correction;
- Collection of data from landings of bluefin tuna in the Mediterranean (BFTMED Program).

The Member States have also developed networks for the collection and processing of catch data from the various fleets concerned.

One Member State has implemented specific measures to monitor the sport fishery.

Within the framework of its Action Plan for durable fishing in the Mediterranean, the Council of Ministers has requested the European Commission to encourage the improvement of scientific knowledge on fishery resources, taking the protection of the environment into account and, on this scientific basis, to favor coordination of the durable exploitation of these resources at the international level, in particular, within the framework of GFCM and ICCAT. Furthermore, in February 2003, the European Commission adopted a communication on the improvement of scientific and technical advice for fisheries management (Annex 2).

4. Implementation of ICCAT conservation and management measures

Following each plenary session of ICCAT, the European Community incorporates the conservation measures adopted into its regulations, so that these are binding on its Member States and their nationals within the time frames for the entry into force established by ICCAT.

All the technical conservation measures in force on highly migratory species have been assembled in EC Council Regulation No. 973/01, which establishes the technical measures for the conservation of specific stocks of highly migratory fish (J.O. L137/1 of 19 May 2001).

The monitoring measures adopted by ICCAT have also been transposed in Community law by EC Council Regulation No. 1936/01. For this, monitoring measures are established that are applicable to the fishing activities of specific stocks of highly migratory species (J.O. L 236/1 of 3 October 2001).

These two instruments were the object of a procedural modification in the Council to adapt them to the new conservation and management measures adopted within regional fishery organizations (RFOs), particularly ICCAT.

In 2002, the Community transposed the statistical document programs in a Council regulation, instituting in the Community a statistical reporting regime for bigeye tuna, swordfish and bluefin tuna. The Member Sates have put these programs in place prior to the entry into force of this regulation.

The measures related to the catch limits of bluefin tuna, South and North Atlantic swordfish, North and South Atlantic albacore, bigeye tuna, and while marlin and blue marlin have been incorporated in the Council Regulation that establishes TACs and quotas. The limit on the number of vessels authorized to fish North Atlantic albacore have been incorporated in the same regulation.

The European Community has complied with the 2002 recommendation on the moratorium on fishing under floating objects in the Gulf of Guinea, particularly as concerns the coverage rate of the fleet by observers (Annex 3). The Community regrets that the other Contracting Parties that fish in the area have not complied with this commitment.

Furthermore, the Member States are making important efforts at the national level to comply with ICCAT´s requirements, in terms of limiting fishing effort (capacity/number of vessels), catch limits (management of the quotas), and monitoring of the landings of third country vessels, particularly, the monitoring of vessels flying flags of convenience. In this respect, the fight against illegal fishing (IUU) is one of the priorities of the Community, with:

- On the one hand, a communication from the Commission on this subject, in relation to the implementation of the FAO Plan of Action.
- On the other hand, a Community plan of action for the Mediterranean Sea. In this plan of action, the Commission proposes:

  - To adopt a concerted approach in the establishment of protection areas of fishing;
  - To make the management of fishing effort the principal instrument of this policy;
  - To perfect fishing techniques in order to reduce their negative effects on the resources and on the marine environment;
  - To intensify the monitoring and implementation of these measures;
  - To improve the quality of scientific advice;
  - To reinforce participation of the fishing sector in the consultation process;
  - To encourage international cooperation.

These Commission proposals have been approved by the Council of Ministers of 16-20 December 2002.

5. Supplemental conservation and management measures

The European Community has a new fishing policy since 1 January 2003 (Annex 4). The objectives of the common fishing policy have been revised and oriented towards the durable exploitation of the living aquatic

resources, based on sound scientific advice and on the precautionary approach in the management of fishing, on the one hand, and on durable aquaculture on the other. The major changes introduced are summarized as follows:

- A long-term approach to fisheries management, including the development of multi-year stock rebuilding plans, that are below the biological limits of security, and multi-year management plans for the other stocks;
- A new policy for the fleet: a simplified policy for the fleet that imposes responsibility on the Member States to make the fishing capacity correspond to the fishing possibilities, a progressive elimination of public aid to private investments;
- A better application of the regulations: adoption of measures aimed at developing cooperation among the various participants concerned and to reinforce uniformity of the controls and sanctions in the entire Community. The competences of the Community inspectors has been broadened, which will allow them to guarantee that the equity and efficiency of the controls within the Community.
- Participation of those concerned: creation of regional consultative councils to improve the participation of the fishers and other concerned parties in the common fishing policy.

This reform of the common fishing policy will result in durable fishing from the legal, environmental and economic point of view.

The European Community has established a monitoring regime applicable to Community fishing policy that imposes obligations on the Member States in monitoring matters. To this effect, each Member State controls, inspects and monitors, in its own territory and in the maritime waters under its sovereignty or its jurisdiction, all the activities of the fishing sector, in particular, the fishing, transshipment, landing, commercialization, transport and storage of the fishing products, as well as the registry of landings and sales (EEC Council Regulation No. 2847/93 of 12 October 1993, establishing a monitoring regime applicable to the common fishing policy, JOUE No. L261 of 20 October 1993, p. 1). This monitoring regime has been reinforced with the reform of the common fishing policy.

In addition to these mandatory instruments, the Member States concerned adopted more stringent instruments for certain species than those imposed at the Community level or by ICCAT. These instruments, adapted to their national situation, are always aimed at the rational management of the fisheries as well as a more exhaustive monitoring of the fisheries, up to the commercialization phase of the catches. According to the State and the fishery concerned, the following instruments are noteworthy: annual fishing plans, specific mandatory annual licenses (special fishing permits), limits on the number of licenses, withdrawal of the license in case of an infraction, detailed fishing sheets, scientific observers on board vessels, notification of arrivals and departures from the ports and fishing areas, limits on by-catches, fishing vessel quotas, seasonal closures, and minimum size.

Some Member States are studying the future application of new measures aimed at monitoring the fishing activities for highly migratory fish and the protection of the resources. These measures should considerably reinforce supervision of the monitoring network of the fish, from capture to commercialization.

The European Community has established specific programs for some species and gears:

- Prohibition on the use of driftnets to catch highly migratory species since 1 January 2002; mandatory Community fishing logbook;
- Placement of scientific observers on board longliners (juvenile catches);
- Monthly transmission of catches of all the species under TAC and quotas and quarterly reporting for other species;
- Prohibition of purse seiners that fish under floating objects in the Gulf of Guinea;
- Mandatory satellite tracking of all vessels over 24 meters and since 1 January 2004 for vessels over 18 m;
- Adoption of Regulation 1185/2003 relative to the removal of shark fins (Annex 5).

The European Community has also reinforced its monitoring regime on three areas considered as priorities: improvement of control after landing, the monitoring of third country vessels fishing in Community waters, and cooperation among the Member States and the European Commission.

6. Inspection schemes

6.1 Member States

6.1.1 On-land and at-port inspection

Land-based inspections by the Member States are generally carried out at the landing port and/or when the fish are sold, when this is done by auction. Inspections can also take place during transport or at the central markets. These controls are centered essentially on the amounts landed, sizes, age and weight of the fish, and in compliance with the closed fishing seasons. They can also take place during commercialization to crosscheck data.

Some Member States have established an information network among the various landing ports, to better supervise the movements of the vessels.

These systematic controls are also carried out at the time of the landings of tropical tunas by Community vessels in Africa, by inspectors of third countries and by the observers from the scientific institutes.

These controls at the port are also carried out in case of the transshipment of the catches, including foreign vessels, from ICCAT Contracting and non-contracting Parties.

6.1.2 At-sea and aerial inspection

In addition to the means on land, the Member States have maritime and aerial means to monitor fishing activities as well as the compliance of Community vessels with the technical and administrative conditions imposed on each fishery. Aerial and maritime monitoring campaigns, regular or random, are organized during the fishing seasons.

It should be noted that the responsible administrations of some Member States encounter many practical difficulties to effectively monitor the often very high number of landing points located within their own territories.

Since 1 January 2000, the satellite tracking of vessels, which is mandatory for vessels over 24 meters, has improved at-sea surveillance.

6.1.3 Means in place and results (2002)

- Spain:
  - Results at the port:
    Atlantic: 202 vessels inspected (38 infractions)
    Mediterranean: 90 vessels inspected (25 infractions)
  - Results at sea:
    Atlantic: 9 vessels inspected (3 infractions)
    Mediterranean: 96 vessels inspected (30 infractions)
  - Aerial controls:
    Atlantic: 93 vessels inspected (0 infractions)
    Mediterranean: 67 vessels inspected (1 infraction)
  - Tropical tunas: On-board observers during the period from 1 November 2002 to 31 January 2003, to assure observance of the moratorium in the Gulf of Guinea.

- France:
  - Results at the port:
    Atlantic: 12 vessels inspected (0 infractions)
    Mediterranean: 8 vessels inspected (0 infractions)
  - Results at sea:
    Atlantic: 29 vessels inspected (7 infractions)
    Mediterranean: 5 vessels inspected (0 infractions)
  - Aerial controls:

Atlantic	63 vessels inspected (0 infractions)
Mediterranean	9 vessels inspected (0 infractions)

– Bluefin tuna (Mediterranean): at-sea and aerial controls; monitoring of minimum size/weight of landings, for all stages of commercialization; crosschecking with the data from the logbooks and trade data. The monitoring of landings carried out in France has not shown any infractions. It is noted that, at the time of the at-sea inspections, the manner of storage of the tuna on the vessels (container of ice water and 15% tolerance) makes it difficult to control the quantities retained with precision.

– It is noted that the activity of the purse seiners in the Mediterranean, which represents more than 80% of the catches of bluefin tuna, is carried out essentially in waters under Spanish sovereignty or on the high seas far from the French coasts. Besides, the transshipment(s) of fish are also carried out outside waters under French sovereignty or jurisdiction. Therefore, the monitoring of French vessels that fish bluefin tuna in the Mediterranean is essentially carried out by the Spanish authorities.

– Albacore (Atlantic): 1 high seas tugboat has carried out patrols in the Bay of Biscay. As compared to 2001, the at-sea means have decreased due to their use in the fight against the petroleum spill caused by the vessel *Prestige*;

– Tropical tunas: On-board observers during the period from 1 November 2002 to 31 January 2003, to assure observance of the moratorium in the Gulf of Guinea.

- Italy:

In the framework of the implementation of the Community monitoring regime, which includes implementation of the ICCAT measures, Italy has deployed the following means:

– Human, maritime and aerial means (various administrations);
– Important development of training of inspectors (specialization in fishery matters);
– 298 Patrol vessels, 20 aerial means;
– 195 on-land inspections, 12 infractions;
– 108 at-sea controls, 23 infractions;
– 72 aerial controls, 0 infractions.

- Portugal:

– Human, maritime (Marines) and aerial means;
– Aerial surveillance missions;
– 34 inspections (at-sea and on-land)
– On-land inspections (swordfish, tuna), from landing to commercialization (minimum sizes, sale value, statistics, etc.); mandatory auctions (fresh fish);
– 5 cases of infraction.

- Greece:

– Human, maritime and aerial means: 270 inspectors, with 202 inspection vessels;
– 250 inspections of tuna vessels, 9 infractions detected and sanctioned;

- United Kingdom:

– Human and maritime means;
– On-land inspections.

- Ireland:

– All the landings are inspected at port to assure the vessels' compliance with the regulations;
– 6 patrol boats that carried out inspections during different periods, 0 infractions detected;
– Surveillance planes have also carried out inspection missions;
– There is control of all the vessels engaged in the fisheries before they carry out fishing activities (via authorization to fish).

- Other Member States:

  – The other Member States also carry out controls in accordance with Community regulations to assure compliance with ICCAT conservation measures.

- Satellite tracking centers:

The Member States, in accordance with Community legislation, have created surveillance centers of the fisheries to manage the surveillance systems by satellite, aimed at monitoring Community fishing vessels over 24 meters.

6.2 European Commission

In parallel with the activities of the Member States, the European Commission has an Inspection Unit comprised of 25 fishery inspectors whose function is to supervise the inspection and monitoring activities carried out by the national services of the Member States.

During the course of 2002, 24 inspection missions, or 20% of the overall inspections carried out, centered on the surveillance of the tuna fisheries, in particular the bluefin tuna fisheries in the Mediterranean.

The major objectives of these missions were:

- To verify compliance of the Community regulations concerning driftnet fishing in the Mediterranean and the northeast Atlantic;
- To verify the measures adopted by the Member States to implement the technical measures in force in the Mediterranean, particularly those recommended by ICCAT;
- To verify the application of Community regulations concerning the reporting of catches and landings of highly migratory species;
- To evaluate the control mechanisms implemented by the Member States.

7. Other activities

In 1998, the European Union introduced a satellite-based Vessel Monitoring System (VMS). Since 1 January 2000, all vessels exceeding 20 meters between perpendiculars or 24 meters overall length, wherever they operate, are subject to VMS.

In view of the importance of VMS as a means of control, the European Union decided in December 2002 to extend the scope of VMS even further. Indeed, VMS will apply to vessels exceeding 18 meters length overall as from 1 January 2004 and to vessels exceeding 15 meters length overall as from 1 January 2005.

The satellite tracking devices fitted on board the fishing vessels shall enable the vessel to communicate its geographical position to the flag state and to the coastal Member State simultaneously. In practice, position reports are retransmitted in nearly real time from the flag state to the coastal state.

The data obtained from VMS shall be treated in a confidential manner.

Tampering with VMS has been defined as a serious infringement[2].

An obligation is placed on Member States to establish and operate Fisheries Monitoring Centers (FMC) which will be equipped with the appropriate staff and resources to enable Member States to monitor the vessels flying their flag as well as the vessels concerned flying the flag of other Member States and third countries operating in the waters under the sovereignty or jurisdiction of the said Member State.

Member States shall take the necessary measures to ensure that the position reports received from fishing vessels to which a VMS applies are recorded in computer-readable form for a period of three years. The European Commission shall have access to these computer files on the basis of a specific request.

Each FMC receives a substantial amount of position reports. Although not an explicit requirement, it is commonly considered a good practice to analyze incoming reports automatically in order to detect "events" which may be of interest for MCS activities. Such "events" include:

[2] Council Regulation (EC) No 1447/1999 of 24 June 1999 establishing a list of types of behavior that seriously infringe the rules of the common fisheries policy.

- a vessel failing to report on schedule,
- a vessel reporting a position which is inconsistent or not credible compared to previously received reports,
- a vessel entering or leaving a specific area,
- a vessel traveling at, above or below a given speed,
- a vessel landing abroad.

Sophisticated VMS software may be capable of detecting complex events which might be a combination of those referred to above (for example, a vessel of a particular type, traveling below a given speed in a defined geographical area). Furthermore, with VMS the time of arrival in port, the time of arrival on a specific fishing ground, can be predicted.

The detailed rules for the implementation of VMS are contained in Commission Regulation (EC) No 1489/97 laying down detailed rules for the application of Council Regulation (EEC) No 2847/93 as regards satellite-based vessel monitoring systems.

The main provisions concern:

- the requirements for the satellite tracking devices,
- the frequency of position reporting,
- the format for transmission to the coastal Member State,
- the procedures in case of technical failure,
- access to computer files by the European Commission, and
- a number of administrative arrangements between Member States and the Commission.

Several satellite systems exist that can meet the requirements of the EU Regulations. Neither the Council nor the Commission have imposed a particular system. Therefore any solution that meets the requirements is acceptable, and different vessels may be equipped with different systems.

VMS has not replaced conventional enforcement tools such as patrol vessels and aircraft, it nevertheless improves the efficiency and effectiveness of their deployment.

Besides monitoring fisheries in Community waters, the European Union is also responsible for a significant number of its vessels operating in different parts of the oceans.

Outside Community waters, fishing must take place with due regard to the management measures adopted by the competent international and regional bodies, and by the coastal states. Furthermore, where applicable, masters of community fishing vessels must comply with the national laws and regulations governing the waters of the coastal state, as well as with the specific provisions contained in the Fisheries Agreements.

The European Union is anxious to ensure that its vessels respect the various rules applicable in waters of third countries and on the high seas.

Since the satellite tracking devices installed on board EU fishing vessels must be operational at all times, wherever the vessels operate, the control of the fleet operating outside Community waters is being increased significantly by the introduction of VMS. Indeed, the flag Member State knows at all times where its vessels are operating. Therefore the European Union is endeavoring to use VMS in bilateral fisheries agreements with third countries and in the framework of regional fisheries organizations such as the North East Atlantic Fisheries Commission, more commonly referred to as NEAFC. The NEAFC was established in 1953. At present, there are 6 Contracting Parties, one of which is the European Union. The NEAFC took the responsibility to regulate a number of species, such as oceanic redfish, blue whiting, atlanto scandic herring and mackerel. These regulatory measures are complementary to those within the national fishing zones.

In 1998, the Contracting Parties agreed upon a Joint Control and Enforcement Scheme to be applied in the Regulatory Area[3]. This Scheme entered into force on 1 July 1999.

VMS is one of the key elements of the Scheme. Under the Scheme, Contracting Parties shall track their vessels by VMS. Entry/exit reports and position reports are forwarded to the NEAFC Secretariat in computer-readable format (the so-called North Atlantic format). These reports are retransmitted in real time in the same computer-readable format to Contracting Parties with an active inspection presence in the Regulatory Area, in compliance with specific provisions on secure and confidential treatment.

[3] The scheme of control and enforcement in respect of fishing vessels fishing in areas beyond the limits of national fisheries jurisdiction in the Convention area ("The Scheme").

From a technical point, satellite systems continue to evolve[4] and there may be further developments in the near future regarding the expansion of other applications such as an interface with an electronic logbook or the linking of VMS with vessel sensors placed in trawl winches which will allow the enforcement authorities to monitor the vessel more thoroughly. A number of EU Member States is exploring the potential of remote sensing techniques for fisheries monitoring. A study concerning the NAFO area has clearly shown that space borne synthetic aperture radar (SAR) images could complement VMS[5]. A project is conducted to investigate means to make these images available for operational MCS in nearly real time at an affordable price. It is worthwhile pointing out here that the European Union is already using remote sensing for the control of area-based subsidies to farmers.

Further trials will be conducted as necessary in order to gain experience with other advanced technologies with a view of promoting their introduction by Member States.

[4] The future of satellite systems in European fisheries protection and management, Study in support of the Common Fisheries Policy, Final Report, August 1998 - Navigs s.a.r.l.

[5] SAR - imagery for fishing vessel detection, Final Report, October 2000 - Joint Research Centre (JRC) of the European Commission.

NATIONAL REPORT OF FRANCE (ST. PIERRE AND MIQUELON)[1,2]

1. Introduction

The St. Pierre and Miquelon archipelago is a French overseas territory with a population 7,000. Due to its island nature and its geographic location, the socio-economic equilibrium of the overseas territory rests on maritime fishing, a traditional activity and the major economic sector of St. Pierre and Miquelon.

In spite of the general decline in reported fisheries resources in recent years, the fishing industry continues to be an essential activity for St. Pierre and Miquelon. This industry generates the employment of 200 people, both on board the vessels as well as in the companies that process the sea products.

This situation puts the overseas territory of St. Pierre and Miquelon among the communities that are dependent on fishing.

The overseas territory borders on the areas under mandate of the International Commission for the Conservation of Atlantic Tunas (ICCAT) and participates in the work of this organization. After the adherence of the European Community to ICCAT in 1997, France continues to be a member of the Commission on behalf of the overseas territory of St. Pierre and Miquelon, which is not covered by the provisions of the Treaty of Rome relative to Community fishing policy.

2. Information on national fisheries

The fishing activities of St. Pierre and Miquelon are carried out mainly on the stocks in waters under French jurisdiction or sovereignty, all along the coasts of the overseas territory.

These activities also fall within the framework of agreements between France and Canada that oversee the common management and conservation of the fishery resources that are found in French and Canadian maritime areas, and which are based on the recognition of reciprocal rights on the pertinent fishing stocks.

The local fishing activities proceed from laws open within the framework of regional organizations that cover the sectors and the coastal stocks of the territory of St. Pierre and Miquelon. Within this framework, France, on behalf of the overseas territory of St. Pierre and Miquelon, adhered to the North Atlantic Fisheries Organization (NAFO) in 1994 and to the International Commission for the Conservation of Atlantic Tunas (ICCAT) in 1997, and since then has participated in the work of these two organizations.

3. Research and statistics

The *Institut Français de Recherche pour l'Exploitation de la Mer* (IFREMER) (French Research Institute for the Exploitation of the Sea), which has a permanent delegation in St. Pierre and Miquelon, is responsible for the scientific and fishery research activities for St. Pierre and Miquelon. The IFREMER participates in the scientific and research work developed within the framework of NAFO and ICCAT.

The IFREMER also provides technical support to operations of statistical monitoring of the catches, which are the competence of the legal administrations of the State that are present in St. Pierre and Miquelon.

4. Implementation of the ICCAT conservation and management measures *(as concerns the stock of bluefin tuna stock under ICCAT competence)*

The bluefin tuna fishing carried out in St. Pierre and Miquelon, within the possibilities that ICCAT constituted, up to now, taking into account the level of quota available, a supplemental activity for the island's small artisanal fishing companies that do not fish this species as a target species. This corresponds to a type of subsistence fishing.

[1] Original report in French.

[2] Service des Affaires Maritimes de Saint-Pierre et Miquelon.

However, since August 2002, a more important fishery has been started in international waters through the chartering of a Canadian vessel, an action was repeated in September 2003. It should be noted that this activity has generated the creation of employment at sea and on land.

Fishing vessels must have an authorization (license) issued by the competent administrative authorities and in accordance with the pertinent national regulations on maritime fishing. This procedure allows for strict and constant control of fishing effort.

The individual authorizations (licenses) to fish bluefin tuna issued to St. Pierre & Miquelon vessels (10 vessels involved) also establish some technical measures to carry out fishing that refer, in particular, to the characteristics and conditions on the use of the fishing gears. In 2003, only floating lines equipped with a maximum of two hooks per vessel were authorized. These gears are under constant surveillance of the vessels that deploy them.

The vessel captains are responsible for reporting all the catches made to the administration. These reports represent an optimal control of the fishery and a permanent statistical monitoring of the usage of the available quotas.

5. Inspection scheme and activities

All the regulatory measures indicated in section 4 and applicable to St. Pierre & Miquelon vessels were the object of monitoring on the part of the competent authorities, and are liable, in the case of violations, to judicial actions and to the withdrawal or suspension of the fishing authorizations issued.

The services of the State administration present in St. Pierre & Miquelon also exercise their competence as regards to ICCAT Resolution [Ref. 94-9] relative to vessel sighting. The corresponding actions have centered, in particular, on the collection of information on the transshipments of bluefin tuna products reported at the port of St. Pierre & Miquelon by foreign vessels (three Japanese vessels in 2003).

The information collected is transmitted to the ICCAT Secretariat in accordance with the provisions of Resolution [Ref. 94-9].

6. Catches in 2002

The maritime fishing catches by the overseas territory of St. Pierre & Miquelon are as follows for 2002:

Under ICCAT (figures on 2003 activities, which were not available at the time of this report, will be included in the report to be submitted in 2004)

- 2,604 kg bluefin tuna
- 20,710 kg bigeye tuna
- 10,187 kg swordfish
- 3,835 kg North Atlantic albacore
- 343 kg sharks

Under NAFO

- 32 t shrimp, on a quota of 67 t allotted to France in area 3L
- 47 fishing days, of the 100 days authorized in area 3M (shrimp)
- No activity on other quotas granted to the archipelago (Atlantic halibut, squid, rockfish)

Under fishing agreements between Canada and France:

NAFO area 3Ps (Annex I to the agreement of 2 December 1994):

- Atlantic cod: 2,219 t (of which 1,627 t were caught by Canadian vessels and landed and processed at St. Pierre & Miquelon)
- Rockfish: 319 t (of which 292 t were caught by Canadian vessels and landed and processed at St. Pierre & Miquelon)

– Gray plaice: 38 t (of which 24 t were caught by Canadian vessels and landed and processed at St. Pierre & Miquelon)
– Canadian plaice: 115 t (of which 53 t were caught by Canadian vessels and landed and processed at St. Pierre & Miquelon).

NAFO area 2 3K (Annex II to the agreement of 2 December 1994):

– No catches of black halibut (Canadian EEZ)

National stocks - all in NAFO area 3Ps:

– Snow crabs: 150 t
– Lumpfish: 3 t
– Whelk: 42 t
– Other species: 721 t

7. Summary of tuna catches for 2003 by St. Pierre & Miquelon

The overall landings of bluefin tuna made in the archipelago up to October 15, 2003 (from international waters) amounted to a total catch of 890 kg.

This catch level is less than the previous year due to the late date in which the Canadian vessel was chartered by I.C.E., in relation to the fishing season.

As regards species other than bluefin tuna, the Canadian longliner chartered by I.C.E., delivered the following tuna catches:

– Bigeye tuna: 85 kg.
– Swordfish: 2,849 kg.
– Sharks: 263 kg.
– No catches of North Atlantic albacore

NATIONAL REPORT OF GABON[1]

1. Introduction

The *Direction Générale des Pêches et de l'Aquaculture*, DGPA (General Directorate of Fisheries and Aquaculture) collects, analyzes the data on tunas and tuna-like species and guarantees the monitoring of the fishery. Consequently, the DGPA formulates the proposals and recommendations for the management of tuna fishing.

Nevertheless, the exploitation of tunas and tuna-like species in Gabonese waters is limited to a non-national activity. The national catches of the industrial and artisanal fisheries are considered as by-catches.

The fishing activity for tuna has been dominated by the fleet of foreign flag vessels that fish within the framework of a Gabon-EU fishing agreement on the one hand, and on the other by some Asiatic vessels that request private licenses, on the other. This fleet targets yellowfin, skipjack, bigeye tunas and sailfish.

This report summarizes the activities carried out within the framework of its attributions.

2. Information on the fishery

2.1 Fishing areas

Tuna fishing in the Exclusive Economic Zone of Gabon is carried out from 12 nautical miles. The vessels fish the area between South latitudes (0º00S-4º00S) and East longitudes (7º00E-10º04E) where the average surface water temperature ranges between 22º and 26ºC.

2.2 Average catches

Surface longline and purse seine fishing are the main tuna fishing methods utilized by the foreign vessels fishing in Gabonese waters.

At the national level, there is no specific tuna fishery, and the catches of tunas and tuna-like species are taken incidentally by the gears targeting other species, in the industrial as well as in the artisanal fishery. These gears are trolling lines, driftnets, hand lines and trawls.

3. Statistics

Statistics on tuna and tuna-like fisheries are provided in **Tables 1 and 2**.

The statistical monitoring scheme for the industrial fleet is based on trip reports collected from the national and foreign boat owners.

In the artisanal fishery, the statistical surveys established from sampling scaled in time and area. Three types of surveys are carried out regularly by the statistical center: sampling survey of the landings, sampling survey on fishing effort, and the survey framework.

The reports of catches of the European Community vessels are from three sources prior to final processing of the data:

- The DGPA has created a database in place to monitor the "entry and exit" of each vessel fishing tunas and tuna-like species in the Gabonese EEZ. At the time of notification of its exit by fax, the vessel must also provide an estimate of the catches made during its stay in the EEZ of Gabon.

- The monitoring of the vessel activities is done with the help of the data forms developed by ICCAT. These forms are completed and provided by the boat owners to the DGPA through the Delegation of the European Community in the Gabonese Republic.

[1] Original report in French.

– Moreover, the DGPA receives the catch reports for each vessel processed by the research institutes: the IRD for France and the IEO for Spain.

The other foreign vessels also notify the DGPA, via fax, during their stay in Gabonese waters of the entries/exits on the forms established for this purpose, as well as their weekly reports.

4. Research activities

4.1 Billfish research

Research on the time-area breakdown and biology of billfishes, whose work plan has already been developed by the DGPA, is scheduled to start in December 2003. These activities should result in completing the data on tuna and tuna-like species in Gabon.

4.2 Shark research

In November 2002, a Spanish vessel carried out a research cruise in waters of Gabon. The vessel covered the area between 0 m and 1,000 m using deep trawl. This cruise followed a stratified sampling scheme. To this effect, emphasis has been placed on analyzing the data on sharks. The results, which are in the processing stage, will be available at the end of 2003.

Moreover, a national plan of action for the conservation and management of sharks has been developed by the fisheries administration to gain knowledge on the real situation and to take strategic management actions on the resource.

5. Implementation of the ICCAT conservation and management measures

– In 2002, the Government of Gabon adopted a satellite monitoring system on fishing vessels. In July 2003 the DGPA was equipped with an operational system for the satellite monitoring of fishing activities: Vessel Monitoring System (VMS). During the pilot phase, this system has been installed on some vessels that do not target tunas and tuna-like species. Starting in January 2004, it will be extended to all the fishing vessels.
– The updating of the statistical program ARTFISH under WINDOWS has been carried out with the assistance of FAO. The program is operational and monthly estimates for the Province of Estuaire have been regularly produced.

Table 1. Catches (in t) of tunas and tuna-like species, by activity sector.

Species	*European Union*	*National industrial fishery*	*National artisanal fishery*	*Other tunas*	*Total*
Yellowfin	1,531	245.1		35.9	1,812.0
Swordfish				12.5	12.5
Bigeye	318			189.3	507.3
Skipjack	2,435				2,435.0
Atlantic black skipjack		45.8	11.4		57.2
Atlantic bonito			58.1		58.1
Spotted Spanish mackerel		258.0	9.2		265.2
Others	9				9.0
Total	**4,293**	**546.9**	**78.7**	**237.7**	**5,156.3**

Table 2. Catches (in t), by species.

Species	*Catches*	*%*
Yellowfin	1,812.0	35
Swordfish	12.5	0
Bigeye	507.3	10
Skipjack	2,435.0	48
Atlantic black skipjack	57.2	1
Atlantic bonito	58.1	1
Spotted Spanish mackerel	265.2	5
Others	9.0	0

NATIONAL REPORT OF GHANA[1]

Paul Bannerman[2]

1. Introduction

The Ghanaian tuna fleet comprises mainly baitboats and purse seiners that fish off the EEZ of Ghana and exploits mainly skipjack tuna (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*).

The total number of vessels fishing tuna resources are 36, comprising 26 baitboats and 10 purse seiners.

2. Resources

Tunas are grouped under the large pelagics occurring in Ghanaian waters and are part of a large community in the entire Atlantic Ocean. Skipjack tuna has been the most abundant of catches in the past decades followed by yellowfin and bigeye tunas, respectively. Tuna baitboats are the main exploiters of tunas in Ghanaian waters, using anchovy (*Engraulis encrasicolus*) as the main bait for their operations. In addition to the use of anchovy to attract tunas, bamboo rafts (payaos) are used as fish aggregating devices (FADs).

3. Research and catch statistics

The Marine Fisheries Research Division of the Fisheries Directorate is the Government agency responsible for tuna research and statistics in Ghana. Catches dropped to 66,000 t in 2002 from 88,700 t in 2001. Baitboat catches in 2002 amounted to 57% of the overall landings. Skipjack landings contributed 59% followed by yellowfin (31%), bigeye (3%) and other tuna-like species (7%). Catches of minor tunas, particularly black skipjack (*Euthynnus alletteratus*), rose remarkably from a low of 700 t in 2001 to over 4,700 t in 2002. Previous high catches over 3,000 t were recorded in 1990 and 1992. **Table 1** shows landings by the various fleets for the years 2001 and 2002.

Sampling of the three major species of tuna was carried out from the port of Tema to determine, among others, length frequency distribution to be used for stock assessment purposes. Data (Task I, II and III) for 2002 were duly forwarded to ICCAT. Logbook recovery was 70% in 2002. Size ranges of tunas caught during 2002 are shown in **Table 3**.

4. Bigeye Year Program (BETYP)

ICCAT initiated a tagging program in 1999 code-named BETYP (Bigeye Year Program). As part of the program, a dedicated cruise off the southeast Atlantic Ocean was carried out from June-August 2002. Scientific Officers from the Marine Fisheries Research Division (MFRD) participated. Over 5,000 tuna species were tagged and released with 490 bigeye tuna. Most recaptured tuna species have been caught by large purse seiners operating in the equatorial part of the Atlantic Ocean. Preliminary analyses of early recoveries show a westward migration within the sub-region.

4.1 Statistics improvement

The recent innovation in the fishery with the use of FADs, since the early 1990s, has led to a mixture of varying sizes of fish often landed by the baitboats and to some problems in stratification by gear. Hence, a workshop was organized by ICCAT/MFRD Scientists in Tema on 2-5 February 2003 to address this issue. A proposed sampling scheme adopted took advantage of these characteristics to strongly improve the global sampling of the Ghanaian catches. This was done in order to determine the level of sampling, both the number of samples (on a monthly basis) to be analyzed for each commercial category, and the number of samples to be examined.

[1] Original report in English.

[2] Fisheries Department, Ghana.

Preliminary analysis of data spanning April-July 2003 has began and a final scheme would be decided at the end of 2003.

4.2 Moratorium on the use of FADs

ICCAT´s recommendation on the closed area/season for the use of FADs by all surface fleets to reduce the excessive destruction of juvenile tunas, especially bigeye tuna, was carried out from 1 November 2002 to 31 January 2003. Eighteen (18) scientific observers from the MFRD were deployed on tuna vessels to observe and record activities with respect to compliance of the moratorium. A total of 763 observer days was recorded whilst fishing covered a wide area between longitudes 3^{o}E and 17^{o}W and Latitudes 4^{o}N and 2^{o}S. Preliminary estimates of catch were approximately 7,000 t. Skipjack dominated the catch (54.7%), yellowfin (17.26%), with bigeye catches amounting to 8.68%. A few by-catch species, notably the rainbow runner (*Elagatis bipinnulata*) formed the greatest composition of by-catch species. Sizes of fish did not differ much; however there were a few large-sized fish (yellowfin and bigeye) caught by the purse seiners. The observer program was successful and a fair assessment of total catches was made.

4.3 Billfish Program

Beach sampling of billfishes continued off the western coast of Ghana. Data for 2002 were submitted accordingly.

Table 1. Ghanaian landings (t) in 2001 and 2002

	Yellowfin		*Skipjack*		*Bigeye*	
Gear	2002	2001	2002	2001	2002	2001
Baitboat	10,422	15,989	24,633	39,835	374	419
Purse seine	9,889	13,313	14,301	16,582	1,660	1,939

Table 2. Landings and fleet size, 1990-2002

	Ghana	*Flag*		*Gear*		*Fishing potential*	
Year	*production*	*Ghana flag*	*Foreign flag*	*BB*	*PS*	*BB*	*PS*
1990	40,803	40,803	0	40,803	0	33	0
1991	37,794	37,794	0	37,794	0	29	0
1992	30,774	27,685	3,089	27,685	3,089	28	1
1993	36,856	36,856	0	36,856	0	25	0
1994	36,973	36,973	0	36,973	0	26	0
1995	33,905	33,905	0	33,905	0	30	0
1996	37,255	37,255	0	33,266	3,989	31	2
1997	53,625	53,625	0	38,338	15,287	28	5
1998	65,568	65,568	0	43,497	22,071	27	6
1999	83,552	83,552	0	47,196	36,357	25	8
2000	53,255	53,255	0	32,364	20,891	26	10
2001	88,700	88,700	0	56,539	32,268	26	10
2002	66,046	66,046	0	37,775	28,271	26	

Table 3. Size (cm) ranges of tunas in 2002

Gear	*Skipjack*	*Yellowfin*	*Bigeye*
Baitboat	31-69	30-76	32-66
Purse seine	32-67	34-128	42-80

Table 4. Billfish catches (t) in 2002

Sailfish	*Blue marlin*	*White marlin*	*Swordfish*
529.21	998.53	2.28	371.68

NATIONAL REPORT OF ICELAND[1]

D. Ólafsdóttir[2]

1. Introduction

Iceland has conducted experimental longline fisheries for bluefin tuna in the waters south of Iceland since 1996. The project is organized by the Marine Research Institute in Reykjavík, Iceland and operated in cooperation with the Japanese fishery agent, Tairyo Trading Company Ltd, Japan.

The purpose of the project is to detect the autumn migration of bluefin in Icelandic waters, its catchability in the area as well as to gather various information on the biology and ecology of the fish.

The statistics of the experimental fisheries have been reported to the SCRS and various samples from the catch have been shared with laboratories in ICCAT member countries.

Iceland joined ICCAT in 2002 and participated in the annual meetings of the SCRS and the Commission as a full member nation for the first time in 2003.

2. The fisheries

The total catch of bluefin reported by an Icelandic fishing agent was 9 fish weighing 1133 kg in total in 14 operation days. The fishing locations were 46°N-19°W and 46°N-20°W.

3. Research

All fishery and biological research on bluefin tuna in Iceland is conducted at the Marine Research Institute, Reykjavík.

The experimental fisheries for bluefin tuna were continued in 2002. Five Japanese longline vessels operated in the area south of Iceland in September-November **(Figure 1)**. The operation was fully covered by Icelandic observers and catch data and biological samples were obtained from the catch (muscle, liver, blood, gill for DNA analysis, vertebra and spine for ageing). The results of the fisheries conducted within the Icelandic EEZ are shown in **Table 1** and **Figure 2**.

Age frequency distribution of the bluefin catch from the experimental fisheries south of Iceland was obtained for 1999-2002 (SCRS/2003/082).

Diet analyses of bluefin tuna in the area south of Iceland are in progress.

Studies of the population genetic structure of bluefin tuna from Icelandic waters are in progress in cooperation with scientists at the Virginia Institute of Marine Science, Virginia, USA.

4. Other activities

The Marine Research institute has sent tissue samples from bluefin tuna caught in the experimental fisheries to the ICCAT sample archive in Charleston, South Carolina, USA. The list of samples sent in 2002 is shown in **Table 2**.

[1] Original report in English.

[2] Marine Research Institute, Skulagata 4, P.O.Box 1390, 121-Reykjavík, Iceland, email: droplaug@hafro.is

Table 1. Catch estimates from experimental fisheries for bluefin tuna within the Icelandic EEZ, 1996-2002.

Year	*Date*	*Total fishing days*	*Total number of fish*	*Total weight (t)**	*Mean number of fish per fishing day +/- SD*	*Mean weight per fishing day (kg) +/- SD*
1996	**August 2-19**	**8**	**7**	**1.041**	**0.9 +/- 1.0**	**130 +/- 153**
	August 22-31	18	195	21.602	10.8 +/-6.6	1200 +/- 774
1997	September	63	699	82.757	11.1 +/-5.3	1314 +/- 670
	October	70	568	63.174	8.1 +/- 5.4	902 +/- 572
	November 1-19	15	115	15.050	7.7 +/- 4.5	1003 +/- 559
	Total	**166**	**1577**	**182.583**	**9.5 +/- 5.6**	**1100 +/- 656**
	August	130	346	41.853	2.7 +/- 2.3	322 +/- 285
1998	September	132	761	84.144	5.8 +/- 4.7	637 +/- 518
	October	121	1146	117.793(+1)	9.5 +/- 7.1	973 +/- 776
	November 1-5	2	6	680	3.0 +/- 1.4	340 +/- 85
	Total	**385**	**2259**	**244.470(+1)**	**5.9+/- 5.7**	**635 +/- 614**
	August	69	74	8.960	1.1 +/- 1.2	130 +/- 143
1999	September	125	298	31.875(+6)	2.4 +/- 2.3	255 +/- 260
	October	103	369	36.157	3.6 +/- 2.8	351 +/- 291
	Total	**297**	**741**	**76.992(+6)**	**2.5 +/- 2.5**	**259 +/- 263**
	August 10-31	79	93	10.415(+1)	1.2 +/- 1.3	132 +/- 165
2000	September	104	224	22.331	2.2 +/- 2.0	215 +/- 207
	October	92	353	36.061(+1)	3.8 +/- 2.8	392 +/- 305
	Total	**275**	**671**	**68.607(+2)**	**2.4 +/- 2.4**	**250 +/- 257**
	September	52	55	5.955	1.1 +/-1.4	115 +/- 144
2001	October	26	52	6.573	2.0 +/- 2.0	253 +/- 241
	Total	**78**	**107**	**12.528**	**1.4 +/- 1.7**	**161 +/- 192**
	September	78	230	28.574	2.9 +/- 2.5	366 +/- 297
2002	October	21	73	9.062	3.5 +/- 2.7	432 +/- 346
	November	6	21	2.716	3.5 +/- 2.2	453 +/- 271
	Total	**105**	**324**	**40.352**	**3.1 +/- 2.5**	**384 +/-304**

* The number of fish for which weight data is missing is shown in ( ).

Table 2. Number of bluefin samples sent to the ICCAT sample archive in Charleston, USA.

Length range (cm)	*Liver*	*Muscle*	*Serum*
68-77	2	2	1
100-149	36	31	11
150-199	552	552	52
200-249	590	593	88
250-299	41	40	13
No data	10	9	3
Total	**1,231**	**1,227**	**168**

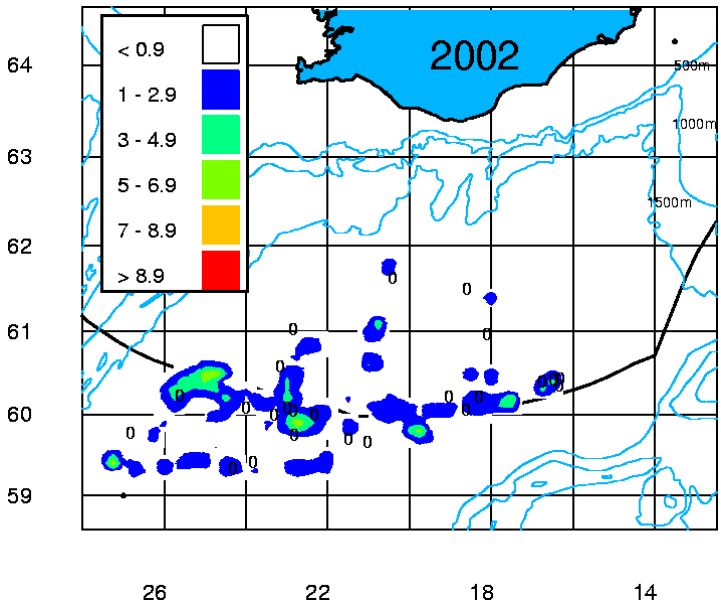

Figure 1. The area of Operation area of the experimental longline fisheries is south of Iceland in September to November 2002. Contours present number of fish per line setting and "0" indicate settings with zero catch.

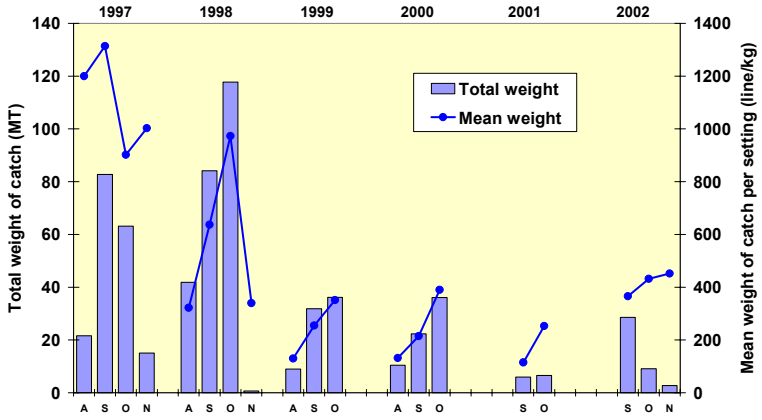

Figure 2. Catch results from the experimental fisheries within the Icelandic EEZ 1997-2002.

NATIONAL REPORT OF JAPAN[1,2]

1. Fisheries information

1.1 Type of fisheries

Longline is the only tuna-fishing gear deployed by Japan at present in the Atlantic Ocean. Two other types of fishery (baitboat and purse seine) stopped fishing in the Atlantic in 1984 and 1992, respectively.

1.2 Statistical coverage

The National Research Institute of Far Seas Fisheries (NRIFSF) has been in charge of compiling fishery statistics from logbooks submitted by the fishermen as well as biological data. The final logbook coverage from the Japanese longline fleet operating in the Atlantic has been very good (90-95%). To reach this level, it takes almost two to three years after the completion of a given calendar year. This year's data processing has been conducted as scheduled. The current coverage, which completed collation in electronic form for 2002, is estimated to be about 70%. Information for total raising has already been collected up to 2001. However, since some trips made by the Japanese longline boats are often longer than six months, the coverage for the latter part of 2002 is expected to be much lower than the overall coverage. Therefore, caution is required when readers refer to the 2002 figures for catch and effort statistics as well as the geographic distribution in this paper, as the information might have come from relatively low statistical coverage.

With regard to the implementation of conservation measure on North Atlantic swordfish, Japan instructed its fishermen to release all the swordfish caught in the North Atlantic (North of 5°N) since February 2000. Since then, all the catches were returned to the water. At the same time, the Fisheries Agency of Japan (FAJ) requested fishermen to submit those release information in a designated format. In this paper, the estimated discards are given for 2000 to 2002.

All statistics on catch in this paper are raised so that they represent total statistics.

1.3 Fishing effort trends

The number of Japanese longliners that operated in the Atlantic in 2001 and 2002 was estimated at 187 and 180, respectively **(Table 1)**. These numbers are the lowest since 1989 and very close to those of 1988. This decline has continued since 1996 from a high of 291 boats. The most recent two years are close to 60-65% of 1996. Fishing days also exhibited a similar trend, but with a more marked decline. The number of fishing days (47,100 days in 1996) was the highest since 1981, while those values in 2001 and 2002 were 60% lower, suggesting that the fleet spent a lesser amount of time in the Atlantic in those two years. The fishing days in 2002 are the fourth lowest since 1981.

The geographic distribution of longline fishing effort in 2002 and 2001 **(Figure 1)** showed that fishing effort was exerted in a wide area of the North Atlantic from the south of Iceland to the central tropical waters between Africa and South America, as well as in waters along the African side in the South Atlantic. There was also a tendency of higher concentration of fishing effort in the temperate North Atlantic between 25°N and 35°N. On the other hand, less fishing effort was observed in the coastal waters of southern Africa.

1.4 Catch trends

In accordance with the declining trend in fishing effort, the total catch has been decreasing in recent years as well. The most important species is still bigeye representing about 60 to 70% of the total tuna and tuna-like fish catch. In terms of weight, bluefin tuna, yellowfin tuna and albacore or southern bluefin tuna are, in this order, the next important species in the most recent years. The 2001 catch of tunas and tuna-like fishes (excluding sharks) in the Atlantic Ocean and the Mediterranean Sea by the Japanese fishery has been estimated at 26,612 t

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1 Original report in English.

2 Fisheries Agency of Japan, 1-2-1 Kasumigaseki, Chiyoda-ku, Tokyo, 100, Japan; National Research Institute of Far Seas Fisheries, Fisheries Research Agency, 5 chome, 7-1, Orido, Shimizu, Shizuoka-shi, Shizuoka-pref., 424-8633, Japan.

(Table 2). This is a 10,000 t or 28% decline over 2000, quite a large decline that is similar in magnitude to that which took place in 1997. As shown in **Tables 1 and 2**, it is worth noting that although the total amount of fishing effort in 2001 is similar to 1988, the total catch is only 56% of that year. This difference is attributable to a decline in the catches of bigeye tuna (by 14,000 t), yellowfin tuna (by 3,400 t) and swordfish (by 3,300 t), as compared to 1988 **(Table 3)**. The 2002 provisional catch of tunas and tuna-like fishes was 23,418 t, and this is a further decline of 3,000 t or 12% over the 2001 figure. The largest decline was observed for bigeye tuna (by 3,000 t) followed by yellowfin tuna (800 t) and albacore.

An area breakdown of catch by species is also shown in **Table 4** for the two most recent years (2001-2002). All the 2001 and 2002 swordfish catches in the North Atlantic have been discarded since February 2000. The amount of annual dead discards of swordfish was re-estimated to be 580 t, 571 t and 314 t for 2000-2002, respectively. It was also indicated that there was a greater decline in catches of tropical species (e.g., bigeye tuna and blue marlin) in the North Atlantic in 2002 compared to 2001.

The geographic distributions of catches by species are shown in **Figure 2** (bluefin tuna), **Figure 3** (bigeye tuna), **Figure 4** (swordfish) and **Figure 5** (blue marlin). In general, the distributions of bigeye tuna reflect the geographic pattern of fishing effort between 40°N and 40°S. In contrast, catches of bluefin tuna and blue marlin are limited to north of 40°N and the inter-tropical area between 20°N and 20°S, respectively. These patterns can be more easily seen in **Figure 6** that indicates the geographic distribution of catches by species.

1.5 New developments or shifts in the fishery

No new developments or changes were observed in recent years. However, there has been a decline in the total amount of fishing effort in the Atlantic in recent years. This decline has continued since 1996 and occurred in the bigeye fishing area located in the tropical and sub-tropical waters. This change seems to be caused by the shift of some fleets to the Pacific Ocean due mainly to the lower CPUE of bigeye tuna.

2. Research and statistics

The NRIFSF has been in charge of data collection and compilation of Atlantic tuna fishery necessary for scientific research on Atlantic tuna and billfish stocks. The required statistical data have been routinely reported to the ICCAT Secretariat and the results of scientific research have also been presented at the regular meetings and inter-sessional workshops of the Standing Committee on Research and Statistics (SCRS).

2.1 Fishery data

The NRIFSF provided the ICCAT Secretariat with almost 2001 catch, catch/effort and partial size frequency data (Task I, II and biological sampling) on the longline fishery. The compilation of the same data for 2002 is in progress as usual. The preliminary 2002 catch estimates are given in this report. This year, the catch-at-size data for yellowfin tuna and albacore were created and used in the SCRS meetings.

In accordance with the 1996 ICCAT recommendation on the bigeye tuna observer program and the 2000 recommendation on the swordfish observer program, eight observer trips on longline vessels in the Atlantic were conducted between September 2002 and January 2003. Most of the trips were made on boats targeting bluefin in the North Atlantic (30°-61°N, 5°W-50°W) and relatively fewer observations were conducted in the tropical and subtropical waters such as off Dakar, Abidjan and Angola. A total of 503 fishing days were monitored. The summary report of these cruises regarding data collection, size measurements and biological sampling of tunas and other fishes, including sharks, was presented as an SCRS paper (Matsumoto, Saito and Miyabe *in press*). The results of pop-up tagging of blue marlin are also reported in the same paper. This year's activities have already started, and in total nine trips will be made between August and January in 2004. Pop-up tagging on bluefin is also scheduled in waters of southern Iceland.

2.2 Tuna biology and stock assessment

The biological and stock assessment studies carried out by the NRIFSF on Atlantic tunas and billfishes have been continued.

With respect to the research on the stock boundary of Atlantic swordfish, an additional 109 tissue samples were collected in 2002 in the tropical and sub-tropical Atlantic (approximately delineated by 10ºS and 35ºN as well as 10ºW and 60ºW). As in past studies, genetic variation at the calmodulin gene locus (*CaM*) was investigated and the results were compared with past studies (Chow and Nakadate *in press*). Of those samples, two local samples were obtained between 10ºN to 20ºN; one (n=18) by R/V Shoyo-Maru at 14ºN and 48ºW and the other (n=24) by commercial vessels operated in the range of 10ºN to 20ºN and 28ºW to 37ºW. The former sample represented intermediate allele frequencies (A=0.667, B=0.333) between the north and south stocks, while the latter showed more affinity (A=0.896, B=0.104) with the stock in the south. These results suggested that the boundary zone between the two stocks may be located at a somewhat lower latitude in the west than in the east.

In 2003, the NRIFSF participated in the following ICCAT-related meetings, in addition to the regular SCRS meetings: ICCAT Meeting for improving the collection of fishery statistics in Ghana (February 3-5, Tema, Ghana), Multifan-CL Workshop (March 10-21, Madrid, Spain), Inter-sessional Meeting of the Sub-Committee on Statistics (March 24-27, Madrid, Spain), ICCAT Assessment Method Working Group Meeting on Habitat Model (April 7-11, Shimizu, Japan), GFCM/ICCAT Joint Meeting on ad hoc Working Group on Sustainable Tuna Farming/Fattening Practices in the Mediterranean (May 12-14, Rome, Italy), ICCAT Yellowfin Tuna Stock Assessment Session (July 21-26, Merida, Mexico), ICCAT Albacore Stock Assessment Session (September 15-20, Madrid, Spain).

3. Implementation of ICCAT conservation and management measures

3.1. Catch quota and management system on the number of bigeye tuna vessels

3.1.1 Reporting by radio

The Fisheries Agency of Japan (FAJ) requires all tuna vessels operating in the Atlantic Ocean, except those fishing for bluefin tuna (see b below), to submit the following information every ten-day period (early-, middle- and late-period of a month) by radio or facsimile to the FAJ:

- Position (Longitude and Latitude) of each vessel in order for FAJ to know the movement of all vessels operating in the Atlantic Ocean.

- Catch weight of bluefin tuna, swordfish, blue marlin, white marlin and bigeye tuna (Ministerial order on April 2, 1975, supplemented on December 13, 1991 for swordfish, on February 20, 1998 for blue marlin and white marlin, and on July 30, 2001 for bigeye tuna)

3.1.2 Reporting via VMS

About 100 Japanese longline vessels fishing for bluefin tuna in the Convention area are required to report their catches and vessel positions in real time. The current satellite monitoring devices onboard, whose installation started 1992, are now old and causing malfunction on some vessels. The FAJ is in the process of renewing the system and intends to have all the Japanese vessels in the Convention Area equipped with the new system.

3.1.3 Catch quotas management

i) Catch quotas

The FAJ sets catch quotas for western and eastern Atlantic bluefin as well as for North and South Atlantic swordfish, blue marlin, white marlin and bigeye tuna, by a Ministerial Order, in accordance with the relevant ICCAT recommendations.

ii) Fishing year

The FAJ sets the "Fishing Year (August to July)" for purposes of proper quota management for bluefin tuna, swordfish, blue marlin, white marlin and bigeye tuna. The 2002 quotas for these tunas are applied to the 2002 Fishing Year which starts on August 1, 2002 and ends on July 31, 2003.

3.1.4 Number of fishing vessels

The FAJ has submitted the list of all the tuna fishing vessels which are licensed to fish for tuna and tuna-like species in the convention area based on the 2002 recommendation for the establishment of an ICCAT record of vessels over 24 meters authorized to operate in the Convention area.

The FAJ collects data on the exact number of vessels actually fishing for bigeye tuna in the convention area, by means of the mandatory check in/out reporting system via radio as well as the VMS based on the 1998 recommendation on the bigeye tuna conservation measures for fishing vessels larger than 24 meters length overall.

3.2 Minimum size limits

In accordance with ICCAT recommendations, the FAJ prohibits, by a Ministerial order, the catch of undersized fish, with an exemption of a certain percentage of tolerance. The catch prohibition of undersized bluefin tuna and yellowfin tuna was established by a Ministerial order on April 2, 1975. The FAJ amended this Ministerial order several times to cover undersized bigeye tuna, swordfish, etc. The latest amendment of this order was in April of 2003 to implement the 2002 recommendation concerning a multi-year conservation and management plan for bluefin tuna in the east Atlantic and Mediterranean.

All the Japanese pole and line vessels reluctantly ended their operations in the Convention area to observe the 1972 recommendation that prohibits any taking and landing of yellowfin tuna weighing less than 3.2 kg, because of their high by-catch rate.

3.3 Time and area closure

As a domestic measure, the FAJ has prohibited Japanese longline vessels to operate in the Mediterranean from June 1 to July 31 by the Ministerial order in accordance with the 1993 ICCAT recommendation. The FAJ also has prohibited Japanese longline vessels from operating in the Gulf of Mexico.

3.4 Prohibition of import of Atlantic bluefin tuna, swordfish and bigeye tuna

Japan has prohibited the import of Atlantic bluefin tuna and its products in any form from Belize and Equatorial Guinea since September 3, 1997 and August 1, 2000, respectively, the import of Atlantic swordfish and its products in any form Belize since August 1, 2000, and the import of Atlantic bigeye tuna and its products in any form from Equatorial Guinea on August 1, 2001 and from Belize, St. Vincent and the Grenadines, Cambodia on October 15, 2001, in accordance with ICCAT recommendations.

The import prohibitions on Atlantic bluefin tuna from Panama and Honduras were lifted on April 3, 2000 and on June 5, 2002, respectively. The import prohibition on Atlantic swordfish from Honduras was lifted on June 5, 2002. The import prohibition on Atlantic bigeye from Honduras was lifted on January 1, 2003. Japan conducts DNA examination against imported tunas to prevent false imports.

3.5 Implementation of the ICCAT Bluefin Tuna Statistical Document (BFTSD) Program

From September 1, 1993, the Japanese Government has been collecting BFTSDs for frozen product in accordance the 1992 recommendation. In addition, from June 1, 1994, the Japanese Government started collecting BFTSDs for fresh product, in accordance with the 1993 recommendation.

The FAJ reports the data collected by the program to the Executive Secretary on a biannual basis.

3.6. Implementation of the ICCAT Bigeye Tuna Statistical Document (BETSD) Program

Since July 1, 2002, the Japanese Government has been collecting BETSDs for frozen product, in accordance with the 2001 recommendation.

The FAJ reports the data collected by the program to the Executive Secretary on a biannual basis.

3.7 Implementation of the ICCAT Swordfish Statistical Document (SWOSD) Program

Since January 1, 2003, the Japanese Government has collected SWOSDs for fresh and frozen product, in accordance with the 2001 recommendation.

The FAJ will report the data collected by the program to the Executive Secretary on a biannual basis.

3.8 Implementation of the positive listing measure

Based on the 2002 recommendation to establish an ICCAT record of vessels over 24 meters authorized to operate in the Convention area, the Japanese Government will start the Positive Listing Measure in October or November 2003.

4. Inspection schemes and activities

4.1. Assignment of patrol vessels

Since 1976, Japan has dispatched patrol vessels to the North Atlantic and/or the Mediterranean every year for a certain period of time to monitor and inspect Japanese tuna vessels. The FAJ dispatched a patrol vessel to the North Atlantic in the 2002 fishing year. These vessels have also collected information on activities of non-contracting parties.

4.2 Random inspection of landings at Japanese ports

All Japanese tuna fishing vessels that land their catches at any Japanese port must report their landing plans in advance. The FAJ randomly inspects the landings of those Japanese longline vessels to enforce the catch quotas and the minimum size limit.

4.3 Management of transshipment at foreign ports

A permit issued by the FAJ is required for any Japanese tuna longline vessels to transship tuna or tuna products to reefers at foreign ports. The FAJ monitors the weight by species, the time and place for each transshipment, and conducts inspections of landings at Japanese ports when longline vessels or reefers return to Japanese ports.

5. Other activities

5.1. Annual catch statistics

Each longline vessel flying the Japanese flag and licensed to engage in tuna fisheries by the Minister for Agriculture, Forestry and Fisheries is legally required to submit a catch report to the Minister within 30 days after the end of cruise or when the vessel has entered a port. Submission of this report is established by a Ministerial order of January 22, 1963. The above-mentioned catch report includes daily information on the vessel's noon position, the number and weight of the catch by species, the quantities of gear used, surface water temperature, etc. The information on the catch report submitted is examined and compiled into the database by NRIFSF.

5.2 Collection of biological data collected on board longline vessels

The information necessary for stock analyses, such as length, weight and sex of fish caught, is collected by fishermen as a voluntary measure.

5.3 Collection of trade data

The Ministry of Finance collects trade data, such as quantity, value, export country, etc. of imported products. Japan improved its import statistics in 1993 responding to the 1992 ICCAT resolution to collect all data on the various types of bluefin tuna products, e.g., fillet, meat (round, dressed) etc., and the status of products e.g., frozen, fresh or chilled. Japan also improved its import statistics in 1997 and 1998 regarding swordfish, to

collect more accurate import data on this fish species.
In addition, Japan is considering an improvement of its import statistics to collect more accurate import data on farmed bluefin tuna product.

5.4 Effort limitation

The number of longline vessels that can operate in the western Atlantic North of 35ºN and the Mediterranean have been limited to 40 and 35, respectively, in the 2002 fishing year. Furthermore, the FAJ requires all longline vessels operating in the northern part of the East Atlantic Ocean to submit an advance notice of their planned operations to the FAJ, which enables the FAJ to instruct the relevant fishing vessels to shift fishing grounds, if necessary.

5.5 Restriction of re-flagging of vessels

No Japanese large-scale tuna longline vessel is authorized to operate on the high seas unless the Government of Japan issues a license. No Japanese vessel can escape from the FAJ's control even when a vessel is conducting fishing operations in waters far distant from Japan, since a Japanese port is designated as its operational base and all the products are brought into Japan. The export and lease of Japanese longliners and purse seiners are strictly and closely controlled by the FAJ to avoid their use for operations that may diminish the effectiveness of international conservation measures. The Federation of Japan Tuna Fisheries Co-operative Association resolved that the exporting of Japanese longline vessels be prohibited. In support of this industrial initiative, the Government partially financed the industry to scrap second-hand tuna longline vessels in order for them not to become a source of IUU fishing vessels through export.

5.6 Legislation for the enhancement of the conservation and management of tuna stocks

A new law was enacted in June 1996 with the objective of implementing measures necessary to enhance the conservation and management of tuna stocks and to develop international cooperation for the conservation and management of tuna stocks. This law establishes that the Government of Japan may restrict the imports of tuna and tuna products from a foreign country that is recognized by the relevant international organization not to rectify its fishermen's activity and thus is diminishing the effectiveness of the conservation and management measures adopted by the international organizations.

The objective of this law is to support and reinforce ICCAT activities, ensuring the strength of tuna resource conservation and the stability of tuna supply.

Since November 1999, the FAJ has implemented a mandatory reporting system, based on this law, to obtain more information on activities of IUU vessels whose products enter the Japanese market. All importers and persons in charge of transport vessels are required to report detailed information on the fishing vessels that caught and transport their tuna.

5.7 Non-purchase guidance

In accordance with the resolution calling for further actions against IUU fishing activities adopted in 1999, the FAJ has instructed importers, transporters and other concerned people to refrain from engaging in transaction and transshipment of tuna and tuna-like species caught by IUU fishing vessels, since December 1999. In addition, to ensure the effectiveness of the 1999 IUU resolution, since April 2001, vessels whose name and/or flags were changed but which had records of IUU fishing have also been subject to administrative guidance, unless they are proven not to be engaged in IUU fishing activities any more.

5.8 Scrapping of IUU vessels

To implement the Japan-Chinese Taipei Action Programs to eliminate IUU fishing vessels, the Government budgeted a total of about US$28 million (32.7 billion Japanese yen) to scrap IUU tuna longline vessels of Japanese origin. A total of 62 vessels will be scrapped by 2003. Forty-three (43) IUU vessels were scrapped by September 2003.

5.9 Legalization of IUU vessels

In accordance with the 2002 ICCAT resolution concerning cooperative actions to eliminate illegal, unreported and unregulated fishing activities by large-scale tuna longline vessels (LSTLVs), Japan consulted with Vanuatu and Seychelles, as well as Chinese Taipei, and established the following new measures in order to dispose the remaining IUU tuna longline fishing vessels, and 69 IUU LSTLVs have been committed to comply with the following cooperative management schemes.

- Cooperative management schemes to legalize these vessels have been concluded between the fisheries authorities of the Flag States (the Seychelles and Vanuatu) and Japan, and the vessels participating in the scheme were placed under proper management.

- Measures to have the fishing vessels in question obtain Japan's licenses for large-scale longline vessels and freeze those licenses, was taken for the purpose of reinforcing and complementing the cooperative management scheme mentioned above as well as preventing the increase of overall fishing capacity.

These 69 vessels will no longer not operate in the Atlantic.

5.10 Establishment of OPRT

The Organization for Promotion of Responsible Tuna Fisheries (OPRT) was established in December 2000 in Tokyo, Japan. The organization consists of representatives from fishermen, importers, distributors, processors and consumers. One of the main tasks of OPRT is to compile and analyze the import data of tunas and provide them to OPRT member flag states as feedback for their verification of reported catch data. The OPRT's other task is to inform Japanese retailers and consumers of the products caught by IUU fishing vessels. For this purpose, the OPRT is studying the possible introduction of labeling to differentiate the catches of duly licensed and controlled vessels from IUU fishing vessels in the Japanese market. Representatives from the fishermen of Japan and Chinese Taipei are the founding members of OPRT. The fishermen of Korea, Philippines, Indonesia and China have joined OPRT.

Table 1. Annual number of Japanese tuna boats that operated in the Atlantic and Mediterranean, 1981-2002

Year	*Longline*			*Purse seine*	*Pole-and-line*
	Number of boats	*Fishing days (sets in 100)*	*Fishing days per boat*	*Number of boats*	*Number of boats*
1981	320	297	93	-	10
1982	269	307	114	1	7
1983	182	175	96	1	4
1984	212	252	119	1	2
1985	205	279	136	2	-
1986	190	208	110	2	-
1987	146	172	118	2	-
1988	183	260	142	2	-
1989	239	345	144	1	-
1990	235	359	153	1	-
1991	242	339	140	2	-
1992	248	292	118	2	-
1993	307	399	130	-	-
1994	232	380	164	-	-
1995	253	385	152	-	-
1996	291	471	162	-	-
1997	276	414	150	-	-
1998	250	403	161	-	-
1999	229	339	149	-	-
2000	208	350	168	-	-
2001*	187	263	141	-	-
2002**	180	221	123	-	-

* Almost final.
** Preliminary.

Table 2. Japanese catches (t) of tuna and tuna-like fishes by type of fisheries, Atlantic and Mediterranean, 1981-2002. Discards are not included.

Year	*Longline*	*Purse seine*	*Pole-and-line*	*Total*
1981	37,636	-	16,178	53,814
1982	50,794	2,250	10,620	63,664
1983	25,596	2,733	5,577	33,906
1984	39,096	2,906	565	42,567
1985	48,497	5,226	-	53,723
1986	33,241	5,805	-	39,046
1987	29,300	5,171	-	34,471
1988	47,326	5,887	-	53,213
1989	58,514	4,453	-	62,967
1990	54,930	4,361	-	59,291
1991	46,883	7,516	-	54,399
1992	48,515	2,794	-	51,309
1993	52,917	-	-	52,917
1994	55,063	-	-	55,063
1995	52,498	-	-	52,498
1996	51,534	-	-	51,534
1997	39,319	-	-	39,319
1998	41,628	-	-	41,628
1999	34,101	-	-	34,101
2000	36,861	-	-	36,861
2001*	26,612	-	-	26,612
2002**	23,418	-	-	23,418

* Almost final.
** Preliminary.

Table 3. Catches (MT) of tuna and tuna-like fishes taken by the Japanese longline fishery, 1981-2002.

Year	*Bluefin*	*Southern bluefin*	*Albacore*	*Bigeye*	*Yellow-fin*	*Sword-fish*	*Blue marlin*[1]	*Black marlin*	*White marlin*	*Sail-fish*[2]	*Spear-fish*	*Others*	*Sub-total*	*Bluefin discards*	*Sword-fish discards*	*Sharks*	*Grand Total (including sharks)*
1981	4,386	2,506	2,298	21,044	4,145	2,233	468		143	94		319	37,636				
1982	3,826	1,135	1,350	32,867	6,062	3,728	1,132		111	173		410	50,794				
1983	3,997	505	1,318	15,141	2,069	1,899	440		44	69		114	25,596				
1984	3,246	1,636	800	24,310	3,967	3,789	833		76	97		342	39,096				
1985	2,523	1,468	1,467	31,602	5,308	4,323	1,090		126	122		468	48,497				
1986	1,664	389	1,209	22,801	3,404	2,660	508		129	99		378	33,241				
1987	2,140	1,120	851	18,575	3,364	2,294	438		134	43		341	29,300				
1988	2,536	548	1,128	31,664	5,982	4,055	823		144	79		366	47,325				
1989	2,523	625	1,214	39,419	6,971	5,593	1,555		146	78		390	58,514				
1990	2,186	1,202	1,324	35,024	5,919	7,307	1,216		126	88		538	54,930				
1991	3,754	1,331	1,346	29,489	4,718	4,688	905		121	88		443	46,883				
1992	3,985	525	1,048	34,128	3,715	3,541	1,017		248	43		265	48,515				
1993	3,858	1,688	951	35,053	3,096	6,386	928		82	60		815	52,917				
1994	3,038	595	1,157	38,502	4,782	4,763	1,524	6	92	53	38	513	55,063			3,221	58,284
1995	5,171	1,409	758	34,223	5,046	3,563	1,366	1	55	52	28	826	52,498			2,149	54,647
1996	4,542	1,219	901	33,171	5,251	3,795	1,679	2	112	50	29	783	51,534			1,364	52,898
1997	3,498	301	838	26,489	3,538	2,765	1,349	1	58	36	31	415	39,319	8		1,304	40,631
1998	4,276	926	884	25,601	5,413	2,518	1,067	2	50	50	40	801	41,628	-	-	1,524	43,152
1999	3,436	946	1,027	21,833	3,405	1,869	790	0	40	26	44	685	34,101	-	-	1,001	35,102
2000[3]	3,523	1,205	1,227	24,337	3,870	949	861	2	82	34	40	731	36,861	-	580	672	38,113
2001[4]	3,083	376	1,412	17,762	2,570	694	334	1	56	9	24	290	26,612	-	571	649	27,832
2002[4]	3,501	995	773	14,703	1,811	815	279	1	12	14	22	492	23,418	-	314	823	24,555

1 Blue marlin and black marlin was not separated until 1993.

2 Sailfish and spearfish were not separated until 1993.

3 Almost final figures.

4 Preliminary data.

Table 4. Area breakdown of Task I catches (t) taken by the Japanese longline fishery. ICCAT area definition is used for tunas and billfishes. For other species, north and south, and east and west are separated at 5ºN and 30ºW, respectively. The Mediterranean Sea is separated from both west-east and north-south area division.

2001*

SPECIES	*WEST*	*EAST*	*NORTH*	*SOUTH*	*MEDIT*	*TOTAL*
Bluefin	506	2,425	2,931	0	152	3,083
Southern bluefin	0	376	0	376	0	376
Albacore	997	414	1,090	322	0	1,412
Bigeye	6,231	11,532	10,148	7,614	0	17,762
Yellowfin	1,085	1,485	1,825	745	0	2,570
Swordfish **	84	610	0	694	0	694
White marlin	14	42	14	42	0	56
Blue marlin	91	243	153	181	0	334
Black marlin	0	1	0	1	0	1
Sailfish	3	6	3	6	0	9
Spearfish	3	20	6	18	0	24
Skipjack	0	1	0	1	0	1
Blue shark	222	297	351	167	0	518
Other sharks	67	64	92	39	0	131
Other fishes	36	253	55	235	0	290
Total	**9,339**	**17,769**	**16,668**	**10,441**	**152**	**27,261**

* Almost final.

** Discards of 571 t in the North Atlantic are not included.

2002*

SPECIES	*WEST*	*EAST*	*NORTH*	*SOUTH*	*MEDIT*	*TOTAL*
Bluefin	575	2,536	3,111	0	390	3,501
Southern bluefin	0	995	0	995	0	995
Albacore	497	276	582	191	0	773
Bigeye	4,650	10,053	7,099	7,604	0	14,703
Yellowfin	464	1,346	1,074	737	0	1811
Swordfish **	41	773	0	815	0	815
White marlin	4	8	8	4	0	12
Blue marlin	84	195	125	154	0	279
Black marlin	0	1	0	1	0	1
Sailfish	3	12	3	11	0	14
Spearfish	8	14	7	15	0	22
Skipjack	0	0	0	0	0	0
Blue shark	232	443	321	354	0	675
Other sharks	85	64	98	50	0	148
Other fishes	37	434	72	420	0	492
Total	**6,680**	**17,150**	**12,500**	**11,351**	**390**	**24,241**

* Preliminary.

** Discards of 314 t in the North Atlantic are not included.

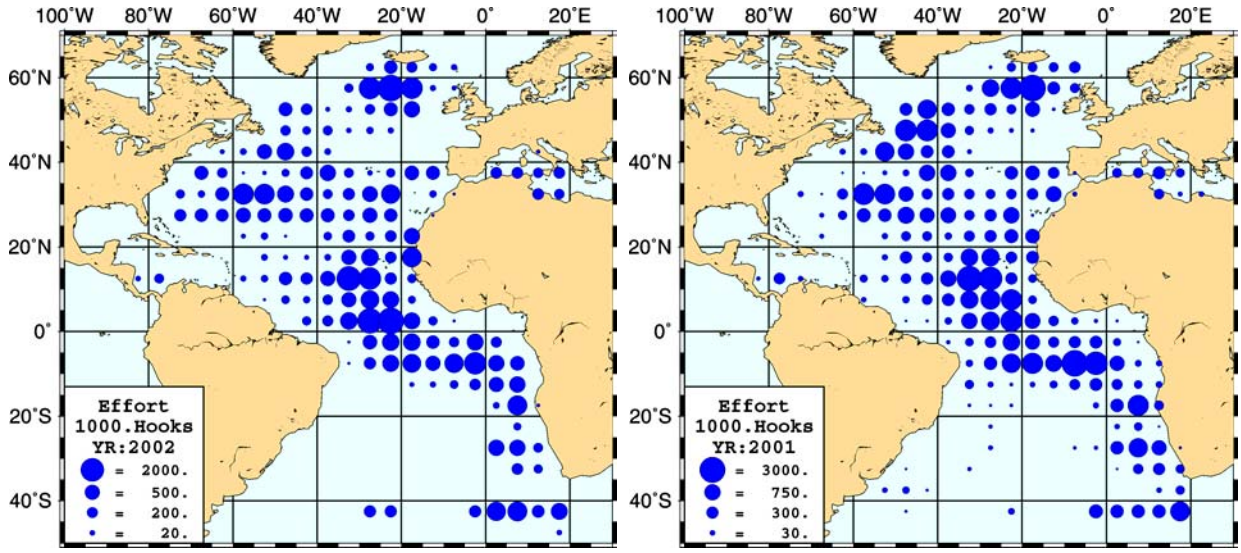

Fig. 1. Geographic distribution of Japanese longline effort (in number of hooks) in the Atlantic, for 2002 (left) and 2001 (right). Coverage for 2002 is much lower than for 2001, especially for the latter half of the year, so that the figure for 2002 should be viewed with caution.

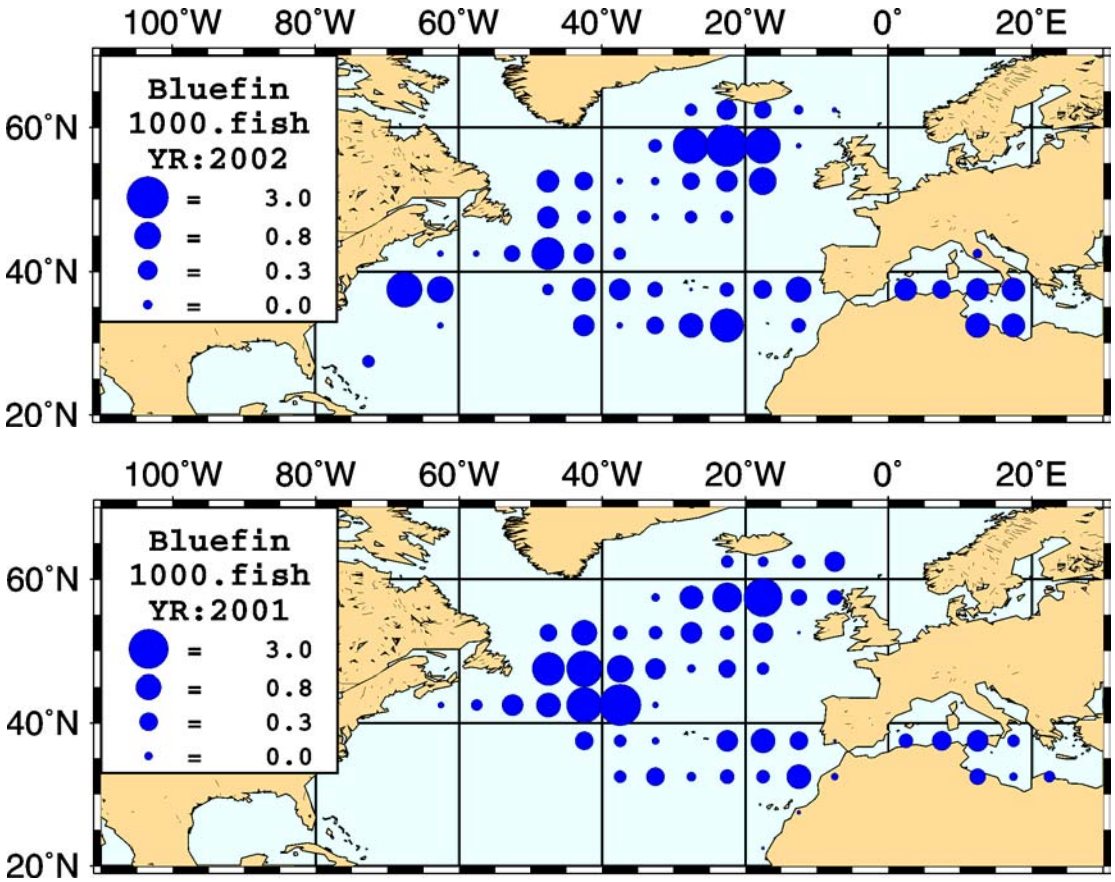

Fig. 2. Geographic distribution of the bluefin tuna catch (in number) in the Atlantic for 2002 (upper figure) and 2001 (lower figure). Coverage for 2002 is much lower than for 2001, especially for the latter half of the year, so that the figure for 2002 should be viewed with caution.

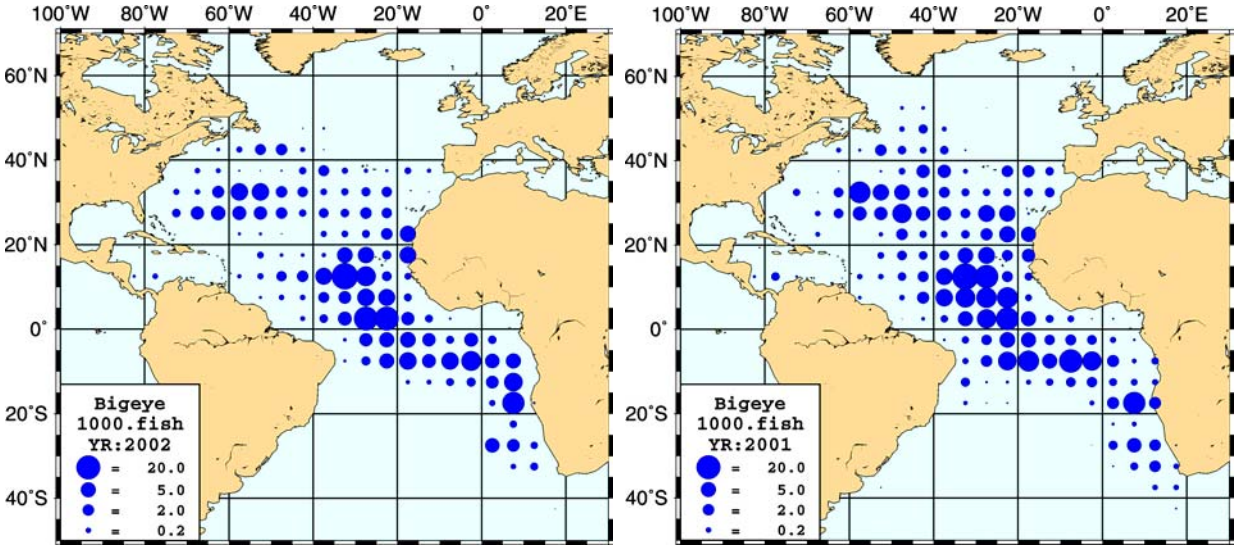

Fig. 3. Geographic distribution of the bigeye tuna catch (in number) in the Atlantic for 2002 (left) and 2001 (right). Coverage for 2002 is much lower than for 2001, especially for the latter half of the year, so that the figure for 2002 should be viewed with caution.

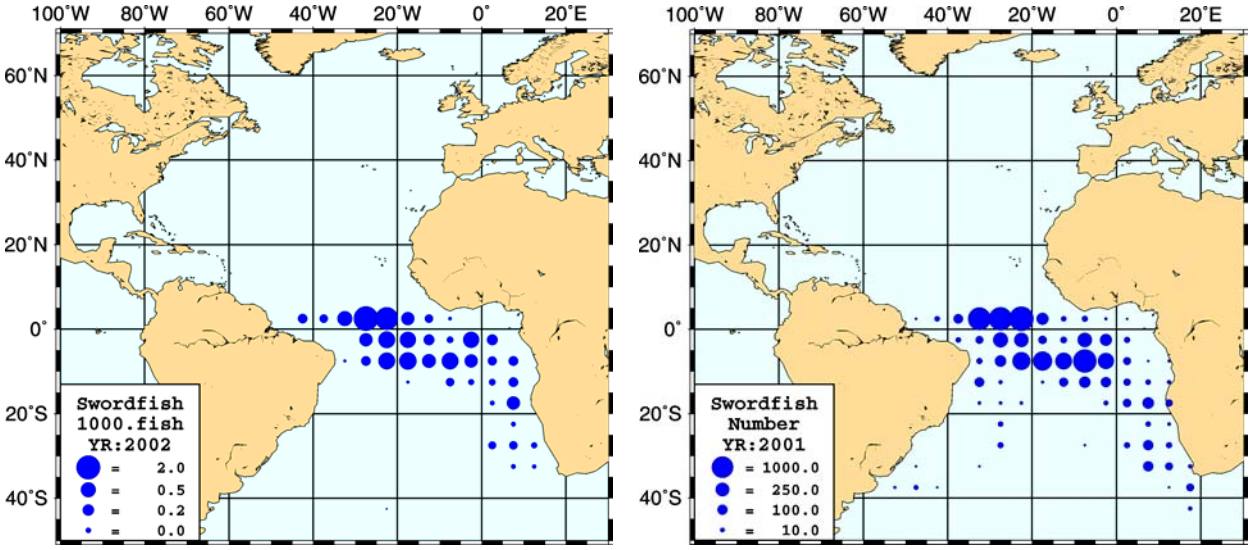

Fig. 4. Geographic distribution of the swordfish catch (number) in the Atlantic for 2002 (left) and 2001 (right). Coverage for 2002 is much lower than for 2001, especially for the latter half of the year, so that the figure for 2002 should be viewed with caution.

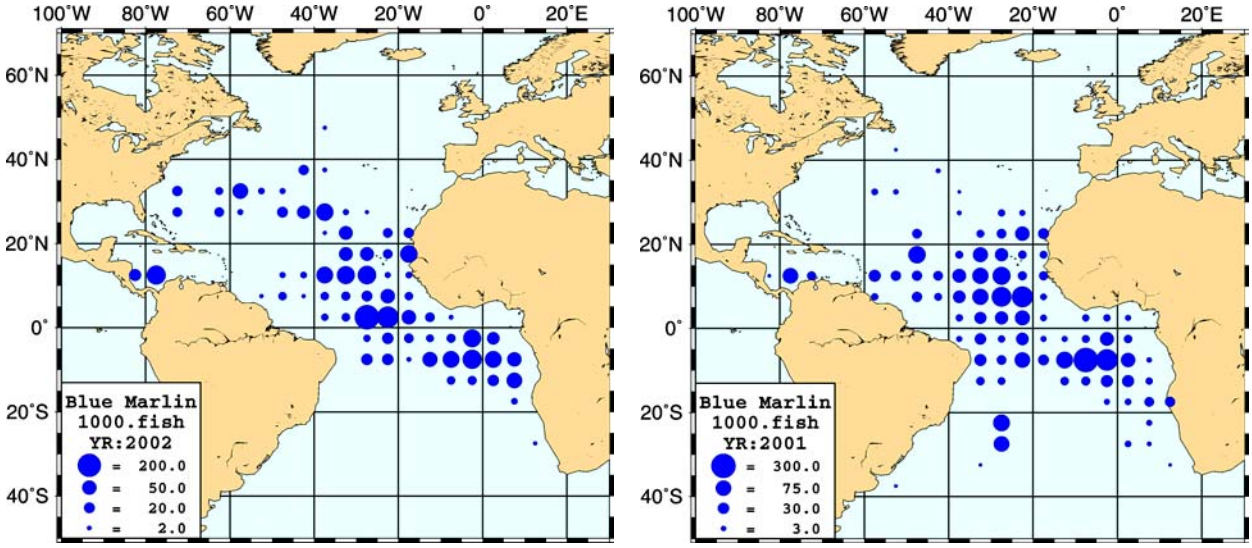

Fig. 5. Geographic distribution of the blue marlin catch (in number) in the Atlantic for 2002 (left) and 2001 (right). Coverage for 2002 is much lower than for 2001, especially for the latter half of the year, so that the figure for 2002 should be viewed with caution.

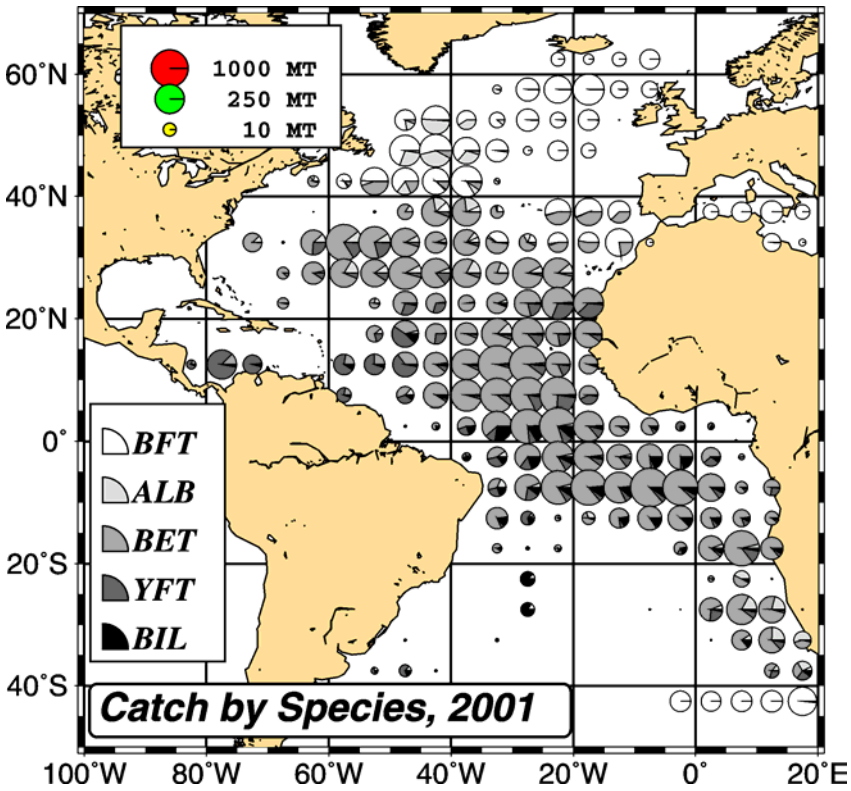

Fig. 6. Species composition of the Japanese longline catch (in weight) for 2001. Species are categorized into five groups: BFT (bluefin and southern bluefin), ALB (albacore), BET (bigeye), YFT (yellowfin) and BIL (swordfish and all billfishes).

NATIONAL REPORT OF KOREA[1]

Jeong-rack Koh, Dae-yeon Moon and Doo-hae An[2]

1. Fisheries information

The Korean longline fishery for Atlantic tunas and tuna-like species has shown a gradual decline year after year since 1985 not only in terms of the number of fishing vessels but also in its catches. During the 1990s, the average number of Korean tuna longliners active in the Atlantic was less than 10 each year with 1,700 t of annual catch, corresponding to about one-tenth of the annual catch of the early 1980s. A sudden decrease in the annual catches was observed from 1998 onwards **(Table 1)**. This decrease was mainly due to the shift of the fleet to the Indian Ocean to catch southern bluefin tuna. Accordingly, only seasonal fishing for southern bluefin tuna by Korean longliners in the southern Atlantic Ocean was reported.

In 2002, the annual catch of tunas and tuna-like fishes by the Korean fishery amounted to 96.5 t, representing a decrease of 50.1% from the previous year's figure. Until the recent year, Korean longliners from the Atlantic caught southern bluefin tuna as the dominate species among Korean catches of tuna species in this region, but bigeye and yellowfin tunas made up of a major component of the total Korean catch in 2002.

1.1 Southern bluefin tuna

Most of southern bluefin tuna catches by the Korean longline fishery were made in the southern Indian Ocean and some catch was taken by a few longliners in the Atlantic Ocean on a seasonal basis. However, two vessels were active in this region and their target species was bigeye tuna, while the catch of southern bluefin tuna was nil in 2002.

1.2 Bigeye tuna

Bigeye tuna remain the most important tuna species for the Korean tuna longline fishery not only in terms of production but also from an economic viewpoint since the beginning of the 1980s when the deep longline fishing technique was introduced. Due to the decreased number of longliners, the bigeye catch has continuously decreased and remained less than 1,000 t during the 1990s. In addition, recently due to the retreat of Korean longliners from this area, the catch of this species was only 1.3 t in 2001, but bigeye tuna was target the species in 2002 year and the catch was 87.3 t, an increase of 86 t from previous year’s catch.

1.3 Yellowfin tuna

Yellowfin tuna was the second most important target species for the Korean tuna longline fishery in this ocean. The 2002 catch of this species amounted to 7.8 t, an increase of 4.4 t as compared to 2001, which can still be considered as by-catch.

1.4 Other tunas and billfishes

The nominal catches of other tunas and billfishes from the Korean tuna longline fishery are not available for the respective fish species; albacore, swordfish, and other billfish species were also caught in small quantity by the Korean longline fishery. The swordfish catch was 1.5 t in 2002.

2. Research and statistics

Routine scientific monitoring work was carried out by the National Fisheries Research and Development Institute (NFRDI) as in past years. This monitoring covers the collection of catch and fishing effort statistics from Korean tuna longliners operating in the Atlantic Ocean. Task I and II data were provided to the ICCAT Secretariat.

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[1] Original report in English.

[2] National Fisheries Research and Development Institute (NFRDI), Busan, Korea.

The Korean Government initiated a fisheries observer program in 2002 to monitor its distant water fisheries, including those for tunas, and to meet the requirements of regional fisheries bodies. At the initial stage, the size of observer program will be fairly small, only covering the fisheries and will be urgently implemented. However, the program will be gradually developed on a larger scale to cover all required areas of the fisheries.

3. Implementation of ICCAT tuna management measures

To implement the recommendations adopted by ICCAT, Korea has introduced them in domestic regulations. Those include a minimum size limit for bigeye, yellowfin, bluefin tuna and swordfish. With a view to protecting the spawning stock of northern bluefin tuna in the Mediterranean Sea, a domestic regulation has been in effect since 1995.

Table 1. Nominal catch (t) of tuna and tuna-like fishes by the Korean longline fishery in the Atlantic Ocean, 1980-2002.

Year	*No. of vessels*	*BFT*	*YFT*	*ALB*	*BET*	*SBT*	*SKJ*	*SWO*	*BUM*	*WHM*	*SAI*	*Others*	*Total*
1980	54	-	5869	1487	8963	-	4	683	94	18	85	1749	18952
1981	56	-	6650	1620	11682	-	47	447	126	85	65	1584	22306
1982	52	-	5872	1889	10615	-	21	684	50	69	52	1781	21033
1983	53	3	3405	1077	9383	-	530	462	131	15	3	1215	16224
1984	51	-	2673	1315	8943	-	29	406	344	62	86	927	14785
1985	45	77	3239	901	10691	-	20	344	416	372	101	1293	17454
1986	28	(156)	1818	694	6084	-	11	82	96	71	16	1093	9965
1987	29	(1)	1457	401	4438	-	6	75	152	27	21	1048	7625
1988	29	(12)	1368	197	4919	-	3	123	375	19	15	782	7801
1989	33	(45)	2535	107	7896	-	6	162	689	135	33	944	12507
1990	17	(20)	808	53	2690	-	-	101	324	81	41	240	4338
1991	9	(229)	260	32	801	-	-	150	537	57	30	267	2134
1992	8	(101)	219	-	866	-	-	17	38	1	1	321	1463
1993	4	(573)	180	-	377	-	-	-	19	2	1	308	887
1994	4	684	436	-	386	-	-	-	-	91	1	27	1625
1995	4	663	453	-	423	-	-	-	61	1	-	114	1715
1996	16	683	381	-	1250	-	-	26	199	37	6	156	2738
1997	12	613	257	5	796	10	-	33	70	24	1	115	1924
1998	5	-	65	-	163	-	-	-	-	-	-	62	290
1999	9	-	94	-	124	28	-	-	-	-	-	31	277
2000	9	-	143	-	70	62	7	-	-	-	-	10	292
2001*	5	0.5	3.4	1.4	1.3	157.7	-	0.1	0.5	-	-	27.4	192.3
2002*	2	-	7.8	-	87.3	-	-	1.5	-	-	-	-	96.5

( ): estimated by ICCAT Secretariat (ICCAT Report, 1994. Vol. 2).
* NFRDI data.

NATIONAL REPORT OF MALTA[1]

1. National fisheries information

1.1 Bluefin tuna

The longline bluefin tuna fishery in 2002 involved 91 vessels that landed a total of 240 metric tons (t) over an 11-week period, starting in late April and ending in early July. Fishing trips ranged from three to five days and fishing operations were undertaken exclusively in the central Mediterranean. The average length of vessels licensed for this fishery was 13.62m (sd = 4.34) with only three vessels over 24 m in length.

1.2 Swordfish

The swordfish fishery took place throughout the year with landings peaking in the months of June to September and reaching a total of 257 t. The total number of registered vessels using surface longlines was 247 with an average length overall of 9.96 m (sd = 4.24). The average number of days at sea and the average catch per vessel during a typical fishing trip was nine days and 2,100 kg, respectively.

1.3 Albacore

Albacore were caught by the longline fleet as a by-catch between June and August and landings slightly exceeded 2 t.

2. Research and statistics

Data on landings of these species have been collected through a special scheme that is in place at the local central fish market. However, preparations are currently underway to launch a logbook scheme for the monitoring of catches, effort and landings of all vessels over 10 m in length overall. The catch and effort data of small-scale vessels (under 10 m in length overall) are being collected through a port sampling scheme and Malta will be in a position to report on the results in the very near future. Data related to the characteristics of vessels involved in the fisheries are derived from the electronic fishing fleet register which is updated on a daily basis.

Research on the population dynamics of bluefin tuna and swordfish has been maintained during 2002. In addition, Malta has continued with its participation in the 5th RTD Framework Program of the European Commission on Domestication of *Thunnus thynnus* and has set up research cages in its waters to conduct specific trials.

3. Implementation of ICCAT conservation and management measures

3.1 Catch limits and management

Malta has observed the 1994 ICCAT recommendation on the bluefin tuna catch limits based on the 1993 or 1994 reference period and has regulated the fishery through the local subsidiary legislation (SL 10.12), which lays down detailed licensing and operational regulations.

3.2 Trade restriction

Any ICCAT recommendations on trade restriction orders could also be enforced through other local subsidiary legislation (SL 138.02) which gives powers to the Director General to enforce any trade restriction orders.

3.3 Prohibition of aircraft

In May 2002 subsidiary legislation (SL 232.14) on the prohibition of aircraft as a support to fishing operations was published and such activities have been completely controlled since that date.

[1] Original report in English.

3.4 Effort control

The Fisheries Conservation and Control Division (FCCD) has not issued new fishing licenses for the bluefin tuna fishery in accordance with recommendations from ICCAT to restrict the increase in catches and effort.

3.5 Collection and submission of data

Scientific data and information on the fisheries of large pelagic species have regularly been submitted to ICCAT, along with documents related to the revision of the time series of landings data of both bluefin tuna and swordfish.

A trade monitoring scheme has been implemented whereby information is collected from purposely formulated declaration forms. With respect to the importation of bluefin tuna from foreign fleets intended for farming in Maltese waters, the FCCD has enforced the requirement for the buyer to submit an ICCAT statistical document from the flag state of the catching vessel.

4. Inspection schemes and activities

The FCCD has started a training program for fisheries protection officers in view of a recruitment process envisaged in the immediate future. In this way, fish market inspections will be boosted and port and on-board inspections could start to be implemented. A review of the fishing fleet regulations currently under review includes the legal basis for the institution of on-board observer programs.

5. Other activities

5.1 Tuna farming

Malta is involved in bluefin tuna farming with catches originating from fleets of neighboring countries. This activity is monitored closely for production quantity, the quality of the produce and environmental impacts.

5.2 Pilot fishery

A tuna purse seine pilot fishery has been launched and the FCCD will be carrying out a comparative exercise in view of a possible change over. A maximum of four vessels may participate in this initiative.

NATIONAL REPORT OF MEXICO[1]

1. Introduction

Since becoming a full member of ICCAT, Mexico has strengthened its participation in the various meetings and working groups that have been carried out within the framework of the Commission. Moreover, the structures of the country involved have intensified their cooperation to assure compliance with the conservation and management measures established by ICCAT.

In this sense, this year efforts have been made to divulge among the government sector Mexico's principles and commitments with the various Resolutions and Recommendations, as well as the subjects discussed on the Commission's agenda and which are of interest to Mexico. Likewise, the mechanisms established by ICCAT are slowly being incorporated in agreements, programs and national legislation. Within this frame, actions aimed at combating illegal, unreported and unregulated fishing, from an ICCAT perspective, by maintaining our databases up-to-date on vessels that have licenses to fish tunas in the Convention area, promote vessel monitoring systems on national vessels, and request the pertinent authorities to notify the sighting of non-contracting party vessels that are carrying out illegal fishing activities.

In order to comply with the Statistical Document Program, information is updated regularly on the Mexican officials authorized to issue the sales certificates and information concerning who authorized to issue these certificates in other ICCAT Contracting Parties is distributed among the customs authorities of Mexico.

In terms of time and format, and in accordance with availability, Mexico has complied with the statistical information required by ICCAT and has strictly complied with its financial commitments to the Commission.

With regard to research, efforts have continued to maintain the Observer Program on-board longline vessels in the Gulf of Mexico, so as to register all the information regarding the fishing operations. This information serves as a basis for the research work relative to the standardization of catch-per-unit-of-effort, assessment of the Mexican fishery, estimates of optimum fishing effort for the fishing area of the Mexican fleet, and evaluation of the fauna associated with longline fishing.

2. The Mexican fishery

Fishing effort of the fleet in the Gulf of Mexico is directed at yellowfin tuna (YFT) *(Thunnus albacares)*. In 2002, there were 33 active vessels, which carried out a total of 374 fishing trips, reporting a catch of 32,461 yellowfin tuna individuals, equivalent to 1,315 t. This catch represents 84% of the tuna species and other highly migratory species caught by Mexico during this year in the Gulf of Mexico, which signifies a 4% increase with respect to 2001. Yellowfin tuna comprise 98% of the total catch of tuna species in the Gulf of Mexico. The highest catch of this species was made during the last two quarters of the year. Other tuna species caught were as follows: bluefin tuna, *T. thynnus* (1.0% of the total catch); bigeye tuna, *T. obesus* (0.6% of the total catch); and skipjack tuna, *Katsuwonus pelamis* (0.4% of the total catch). Other tuna species that were caught incidentally are blackfin tuna *(T. atlanticus)* and Atlantic bonito *(Sarda sarda)*.

Billfish and similar species, also caught incidentally, represented close to 10% of the total tuna and billfish catches. The most abundant species in this type of catch were: blue marlin *(M. nigricans)* with 1,147 individuals, and white marlin *(Tetrapturus albidus)* with 848 individuals caught. In addition, sailfish *(Istiophorus albicans)* with 1,896 individuals, and swordfish *(Xiphias gladius)* with 1,130 individuals, were also caught.

With regard to the by-catches of sharks, there was a total reported catch of 40 oceanic whitetip sharks *(Carcharhinus longimanus)*, 171 blacktip sharks *(Carcharhinus limbatus)*, and 245 shortfin mako sharks *(Isurus oxyrhinchus)*. Hammerhead *(Sphyrna* spp.*)* and thresher sharks *(Alopias vulpinus)* comprised 8 and 17%, respectively, of the shark by-catches. Lastly, unidentified sharks represented 2% of this catch.

[1] Original report in Spanish.

3. Research and statistics

Through the National Observer Program, statistical information is collection on catch, size, fishing effort and environmental conditions, among others. In 2002, 100% of the fishing trips were covered, complying with the *Norma Oficial Mexicana* (Official Mexican Law) that regulates longline tuna fishing in the Gulf of Mexico (NOM-023-PESC-1993).

As concerns research defined by the establishment of databases, in 2002 the National Institute of Fishing organized working meetings with the Observer Program and the academic sector to coordinate activities that involve them in data processing.

Following the Relational Database Model, the development of a *Sistema de Información de Atún del Golfo de Mexico* (SIA) **(**Tuna Information Scheme in the Gulf of Mexico) was initiated. This tool contemplates the storage and management of information generated by the fishery and which is collected by different sources, such as the Observer Program and the Official Fishing Logbooks. The conceptual model of the SIA considers two groups of information with a total of 11 relationships.

An analysis was also started on the behavior of the by-catch of billfishes and sharks and the preliminary progress was presented at the 5th National Tuna Forum, held 4 to 6 December 2002 in Mazatlán, Sinaloa.

On the other hand, collaborative work was re-initiated between the United States and Mexico for the joint standardization of fishing effort in the Gulf of Mexico, utilizing information generated by the Observer Programs of both countries.

4. Implementation of ICCAT conservation and management measures

4.1 Catch limits and minimum sizes

With regard to compliance with ICCAT measures on minimum sizes of catch for bluefin tuna and swordfish, there is no need to apply these since these are incidental catches. Notwithstanding, an Official Mexican Law on yellowfin and bigeye tunas is currently being developed, aimed at reducing the incidental catch of juveniles and inducing the optimum utilization of these species.

4.2 Closed season

There are currently no closed seasons applied to the catch of yellowfin tuna in the Gulf of Mexico and Atlantic. Ocean.

4.3 Prohibitions on imports

Mexico does not maintain any fish trade of the species regulated by ICCAT with those countries that have trade restrictions, nor on the species pointed out in the corresponding resolutions of the Commission.

4.4 Observer program

In accordance with the Official Mexican Law NOM-023, in 2002 there were on-board observers on 100% of the tuna longline fishing trips in the Gulf of Mexico in order to collect scientific information on the catch per set of yellowfin tuna, by-catch, and fishing effort.

Furthermore, talks have been initiated with the Cuban Government on establishing a program of Mexican scientific observers on board the Cuban fleet that fishes in the Mexican Exclusive Economic Zone.

4.5 Vessel monitoring

In 2003 a project concluded on the evaluation of the satellite monitoring equipment on Mexican vessels. Due to the positive results of this project, in 2004 this type of equipment will be installed on tuna vessels, shrimp vessels, and shark fishing vessels in the Gulf of Mexico. Through this, Mexico will comply with the initiative being developed in ICCAT (still not adopted) for a system of this type for all vessels over 24 m draft fishing in the ICCAT Convention area.

4.6 Measures to guarantee the effectiveness of the conservation and management measures

Through Law NOM-023-PESC-1996, longline fishing for tuna species has been regulated since 1997 in the federal jurisdictional waters of the Gulf of Mexico and the Caribbean Sea.

This law affects yellowfin tuna *(Thunnus albacares)*, as well as species taken as by-catch: bluefin tuna *(Thunnus thynnus)*, swordfish *(Xiphias gladius)*, sailfish *(Istiophorus albicans)*, billfishes (*Makaira* and *Tetrapturus* genera) and sharks.

As concerns by-catches, Law NOM-023-PESC-1996 continued to be applied, which establishes that bluefin tuna *(Thunnus thynnus)* can only be retained if the fish weighs at least 30 kg or measure 115 cm fork length.

The purpose of the law is to establish a fishing regime that guarantees the optimum utilization of the yellowfin tuna *(Thunnus albacares)* resources, using vessels equipped with tuna longline, as well as the conservation of this resource and the species susceptible to being taken as by-catch.

For each vessel, the annual by-catch rate of bluefin tuna *(Thunnus thynnus)*, billfishes (*Makaira* and *Tetrapturus* genera), swordfish *(Xiphias gladius)*, sailfish *(Istiphorus albicans)* and sharks, overall, cannot comprise more than 20% of the nominal catch (total catch which includes fish released live) obtained during a calendar year.

With regard to the *Carta Nacional Pesquera*, a document that integrates the institutional and citizen participation in research for optimum management of the resources, the information corresponding to the yellowfin tuna fishery is currently being revised. Besides updating the figures, a list of the major shark and billfish species has been added to the list of the species that comprise the by-catches. The continuance of observer programs is encouraged in order to maintain the availability of reliable information that forms the basis for the administrative decisions concerning the fishery.

On the other hand, and in accordance with the ICCAT Statistical Document scheme and the aforementioned law, in 2002 all the vessels fishing for bluefin tuna destined for export were accompanied by the documents that certify their participation in the Bluefin Tuna Statistical Document Program. Furthermore, the seals, signatures and information on the Mexican civil servants authorized on behalf of ICCAT to issue the documents, were updated.

4.7 Sport fishing

The Official Mexican Law NOM-017-PESC-1994 regulates sport/recreational fishing in waters under the federal jurisdiction of the United States of Mexico. Its objective is to establish the terms and conditions for the adequate utilization and conservation of the species of aquatic fauna, through sport recreational fishing activities. The Law defines, among other aspects, the species susceptible to such fishing, the fishing methods, the maximum number of fish that may be caught per day, periods of the permits, etc.

Furthermore, a National Plan for Sport Fishing was established, to develop three aspects of this fishing activity:

- Management: Incorporate the sport fishery interests to the consultation for a on fishing policy and encourage investment projects and review of the legislation.

- Administration: Identification of the best systems for the distribution, sale and control of permits, development of an information scheme on sport fishing in Mexican waters, integration of proposals for the construction, replacement and maintenance of the infrastructure, generate an operative scheme of inspection and surveillance.

- Promotion: Promote a national industry of sport fishing goods and international projection of the sport fishery, based on the criteria of professionalism of the information.

With regard to the diagnosis of sport fishing in the Gulf of Mexico and Caribbean Sea, we can say that in 2002 this was carried out at 16 ports, that the major species were white marlin, blue marlin, sailfish, dolphin fish and shad, and that such fishing was carried out by 3,677 vessels, of 2,702 pertain to private citizens.

5. Inspection schemes

In 2002 the National Commission on Fishing and Aquaculture, through the General Directorate of Inspection and Control, in collaboration with the Secretariat-Navy of Mexico, intensified its operations in waters under national jurisdiction, by means of with its surface units. In addition, coordination was fortified with other authorities, state and municipal governments and regional fishery management organizations in which Mexico participates, to verify that the fishing operations of Mexican vessels are conducted in accordance with the current rules and laws.

For this, 164 Federal Fishing Officers and accredited personnel were appointed in 2002 to carry out inspections and surveillance in the Gulf of Mexico and the Caribbean Sea. Further, land and maritime vehicles were purchased to support this work.

NATIONAL REPORT OF MOROCCO[1]

A. Fahfouhi[2], T. El Ktiri[2] and A. Srour[3]

1. Introduction

Fishing for tunas and tuna-like species has always been an important activity of the maritime fishing sector and occupies an important place in the national economy of this sector.

In effect, due to Morocco's geographic position and its temperate climate, the Moroccan territorial waters constitute either the northern limit of distribution of a large number of tuna species or the area where large tunas must pass on their migrations between the Atlantic and the Mediterranean.

Tuna fishing is carried out seasonally, during the two passages of tunas along the coasts of Morocco, which take place from the Atlantic to the Mediterranean between April and June, and from the Mediterranean to the Atlantic between July and November.

2. Information on the fisheries

2.1 Tuna fishing

The major tuna species caught by Moroccan fishers are bluefin tuna, bigeye tuna, swordfish, yellowfin tuna and small tunas (skipjack, Atlantic bonito, frigate tuna, etc.) as well as other species.

In recent years, improvements in the procedures of statistical data collection has resulted in better identification of the species landed, particularly as concerns the large tuna species, which when they reach a certain size, have some morphological similarity, which makes their exact identification difficult.

In this way, during the course of 2002 it has been possible to identify the landings of albacore and yellowfin at some Moroccan ports. While these species are present in the catches of foreign vessels that operate or have operated before within the framework of fishing agreements in Moroccan waters, they have also been able to be identified and quantified in this manner by the competent services.

Furthermore, some foreign vessels that fish in the Moroccan EEZ, within the framework of bilateral fishing agreements, also target and catch bluefin tuna, bigeye tuna, albacore, yellowfin tuna, swordfish and small tunas.

2.2 Fishing areas

Bluefin tuna, bigeye tuna and small tunas (Atlantic bonito, frigate tuna, skipjack tuna) are usually fished off the Atlantic coast. Albacore and yellowfin tuna were also caught in the Atlantic.

The principal swordfish fishing areas are located in the Mediterranean.

The major landing ports of tuna species are Tanger, El Hoceima, M'diq, Nador and Ras kebdana in the Mediterranean, and Agadir, Boujdor, Casablanca, Dakhla, Safi, Mohamedia, El-Jadida, Mehdia, and Larache in the Atlantic.

2.3 Fishing methods

Tunas and tuna-like species are caught mainly by four (4) fishing methods:

[1] Original report in French.

[2] Ministère de la Pêche Maritime.

[3] Institut National de Recherche Halieutique.

2.3.1 Trap

This gear mainly targets bluefin tuna and small tunas. In 2002, seven (7) traps were set in national waters, one of them in the Mediterranean.

The active period of the traps is between the months of April and June in the Atlantic and between June and October in the Mediterranean.

2.3.2 Hand line

This gear is used mainly by an important community of artisanal fishers that have a fleet of a hundred artisanal vessels (length less than 5 m and GRT <2 t).

The fishing activity with this gear targets large-sized bluefin tuna. Fishing is carried out during the entire year, with a 2-3 month halt in the activity (April to June).

However, it has been noted during the course of the last two years that this technique is carried out by some artisanal fishers of the South of Morocco to catch bigeye tuna.

2.3.3 Purse seine

This fishing technique is utilized by about 250 purse seiners that only fish tunas occasionally and as by-catch. This activity is carried out mostly in the Atlantic and the species caught, mainly large tunas, show sizes and weights lower than species caught by the other fishing methods.

It should be noted that this method obtains important quantities of by-catches, comprised essentially of small tunas.

2.3.4 Driftnet

About 300 coastal vessels of the "coastal longline" type fish with this gear. About 65% of these are based at Tanger and fish in the Mediterranean.

These vessels also fish swordfish during their migrations along the Moroccan coasts during the period extending from April to November.

It should also be noted that these vessels incidentally catch bluefin tuna with longline.

It is important to recall that these vessels are small-sized vessels (14-16 m).

3. Production

The national fishing statistics on tunas and tuna-like species are shown in **Tables 1-4** and in **Figure 1**.

During 2002, the catches of tunas and tuna-like species amounted to 12,286,494 kg (12,286 t), which is an increase of 4.5% as compared to catches in 2001 **(Table 1)**.

This increase is mainly due to the increase in the catches of small tunas.

In terms of weight, bigeye tuna, bluefin tuna and swordfish represent, 7%, 24% and 29%, respectively, of the total weight.

Albacore and yellowfin tuna represent 0.44 and 0.64%, respectively, of the total weight.

As regards small tunas, these represent 37% of the total weight.

3.1 Bluefin tuna fishing

In 2002, bluefin tuna catches reached 2,986,046 kg, or 2,986 t **(Table 2, Figure 2)**.

The amounts caught in the Mediterranean dropped 17% this year as compared to the previous year **(Figure 3a)**.

Hand line fishing this year contributed about 407 t, which represents 13.6% of the total catches of bluefin tuna.

The traps contributed approximately 567% of the total bluefin tuna catches, whereas in 2001 they represented about 87% of the total catches of bluefin tuna in weight. Purse seine fishing contributed approximately 29% of these total catches, which represented an increase in the activity of these vessels (purse seiners) as compared to the previous year.

3.2 Swordfish fishing

This year, swordfish catches in the Mediterranean have reported a 1.7% decrease as compared to the average of the 1997-2000 period, with catches of 3,602,000 kg (3,602 t) **(Table 3, Figure 3b)**.

Swordfish catches made in the Atlantic amounted to 223 t **(Table 3, Figure 3c)**.

The catches made in the Mediterranean comprised 94% of the total swordfish catches by Morocco during the course of this year. The use of driftnets contributed with approximately 63% of the national catches.

Longline fishing (LL) represents about 36% of the total catches, whereas catches taken by hand line represent 1%.

3.3 Bigeye tuna fishing

Bigeye tuna catches this year showed an increase of approximately 6.5% as compared to 2001, from 857,443 kg to 913,000 kg, or 913 t.

This species is caught mainly by the coastal fleet vessels and the artisanal fleet vessels that fish in the Atlantic in the Moroccan EEZ.

3.4 Small tunas fishing

The catches of tunas showed an increase of approximately 27%, going from 3,573,950 kg to 4,543,448 kg, or 4,543 t.

Frigate tuna catches, generally made by the coastal fishing fleet, showed an increase of about 58% as compared to the level in 2001.

Atlantic bonito catches also showed an improvement in their catch levels of approximately 22%.

The catches of these species, by gear and by area, are summarized in **Table 4**.

3.5 Catches by foreign vessels (2002)

Within the framework of a Morocco-Japan fishing agreement, the only tuna fishing vessel that operated in the Moroccan EEZ in 2002 reported a catch of 129,600 kg, comprised mainly of bluefin tuna (2,300 kg), bigeye tuna (60,000 kg), yellowfin tuna (46,000 kg), sailfish (1,000 kg), and other species (20,300 kg).

4. Implementation of conservation and management measures adopted by ICCAT

4. 1 Minimum size limits

In accordance with the ICCAT Recommendations, the Ministry of Maritime Fishing prohibits the catch of under-sized fish, according to a ministerial decree that modifies and completes the Minister Decree of October 3, 1988, which establishes the minimum commercial size of species fished in Moroccan waters.

4.2 Limit on fishing effort

In application of Circular 3887 of August 18, 1992, investments in vessel construction were suspended since that date in order to guarantee compatibility between fishing effort and the level of the state of the stocks.

Furthermore, Circular No. 12361 of December 9, 1999, which establishes the conditions for granting and extending the authorizations for reconverting, reforming and replacement of fishing vessels, permits carrying out some technical changes to the active fishing vessels.

4.3 Monitoring of fishing activities

The major objectives of the monitoring of fishing activities are to oversee the strict application of the regulations in force, to sanction the offenders and, at the same time, to contribute to the management of the resource, supplementing instruments already in place, such as technical measures, and limits on catches and fishing effort.

Strict monitoring is applied to the overall fishing sector and mainly centers on fishing activities, transshipment, landing, commercialization, transport and storage of the fishing products, as well as on the reporting of the landings and sales.

At-sea monitoring centers on verifying the characteristics of the fishing gear (monitoring of the conformity of the gear and the mesh size in relation to the target species and the geographic area), on the inspection of fishing activities (logbooks, legality of the fishing activity with regard to the fishing period and the quota), and the cargo (minimum size, quantities by species).

The statistical information collected during these controls also permits monitoring of the catch levels.

The organization of this monitoring is carried out in the following manner:

4.3.1 At-sea monitoring

This is carried out by the maritime control authorities and by the members of the corps of scientific observers.

The means available to the monitors are: surveillance vessels, planes and satellite monitoring (GPS).

Monitoring is carried out on board the vessels and at the time of the catch. The entries reported in the fishing logbooks are monitored as well as compliance with the technical measures (size, species, gears, fishing areas and quotas).

As concerns the traps, it should be noted that a scientific observer is constantly present, whose mission is to monitor the sizes, species and catch amounts, and to collect biological data.

At the end of the fishing season, generally after the lifting of the trap, the observer presents a detailed report on this trap activity.

4.3.2 Land-based monitoring

These are carried out by the delegates from the Ministry of Maritime Fishing, delegates from the National Office of Fishing and by representatives of the corps of Scientific Observers who make up the Monitoring Commissions.

These inspections can be directed or random. They are carried out at landing, during transport of the product, during processing and during commercialization.

The documents that can be used for the monitoring are: landings reports, transport documents that are also subject to verification by the authorities that monitor highway traffic, and sales records.

4.4 Sighting scheme and satellite monitoring of fishing vessels (DRS/GPS)

Within the framework of the rational management of the fisheries resources and with an aim towards assuring better monitoring of the fleet activity over a large geographic area, the Ministry of Maritime Fishing has created a structure for the utilization of data transmission systems by satellite, by GPS as well as by other systems.

Likewise, and with an aim to contribute effectively to the fight against illegal, unreported and unregulated fishing (IUU) in the ICCAT Convention area, supplemental monitoring tools are being finalized and implemented to complete the electronic systems already in place by the authorities in charge of monitoring fishing activities.

Finally, it should be noted that the Ministry of Maritime Fishing is the headquarters of the National Monitoring Center for Fisheries.

4.5 Trade data

With regard to exports, crosschecking is carried out in collaboration with the services of the exchange office and the customs administration, which are under the Ministry of Economy and Finance, to verify the amounts exported for export.

5. Research activities

The *Institut National de Recherche Halieutique*, INRH (National Institute for Fisheries Research), is in charge of fisheries research. Besides the Regional Center of Nador, the INRH created a second Mediterranean center this year, based in Tanger.

In 2002, regular activities continued, particularly those carried out in coordination with the COPEMED Project, which are based on the study of the biology and exploitation of tunas. These studies centered mainly on the biological aspects of swordfish and bluefin tuna (abundance indices, estimation of fishing effort, population study, etc.).

Morocco's active participation in all the scientific and technical activities organized by ICCAT should also be noted.

Table 1. General fishery statistics (in kilograms, kg)

Species	*Atlantic*	*Mediterranean*	*Atl. + Med*
Bluefin tuna	2,565,430	420,616	2,986,046
Bigeye tuna	913,000	0	913,000
Swordfish	223,000	3,379,000	3,602,000
Albacore	55,000	0	55,000
Yellowfin tuna	79,000	0	79,000
Small tunas	3,848,448	695,000	4,543,448
Others	68,000	40,000	108,000
Total	**7,751,878**	**4,534,616**	**12,286,494**

Table 2. State of bluefin tuna (BFT) catches, by area and by gear, for the 1993-2002 period (in metric tons, t).

BFT	*Gear*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Atl	Trap	387	494	210	699	1,240	1,615	852	1,540	2,330	1,670
Atl	PS	24	213	458	323	828	692	709	660	150	884
Atl	LL	0	0	0	0	0	0	0	0	0	0
Atl	Gill	4	13	10	13	0	34	30	28	17	11
Med	Hand	0	373	816	541	455	634	600	650	195	407
Med	Gill	6	16	92	30	17	18	6	6	9	14
Med	PS	0	0	0	0	0	0	0	0	0	0
Med	LL	0	0	0	0	0	0	0	0	0	0
Med	Trap	73	703	127	15	63	35	30	39	307	0
Tot-Atl		416	720	678	1,035	2,068	2,341	1,591	2,228	2,497	2,565
Tot-Med		79	1,092	1,035	586	535	687	636	695	511	421
Total		**495**	**1,812**	**1,713**	**1,621**	**2,603**	**3,028**	**2,825**	**2,923**	**3,008**	**2,986**

Table 3. Swordfish (SWO) catches, by area and by gear, for the period 1993-2002.

SWO	*Gear*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000**	*2001*	*2002*
Atl	Trap	2	11	12	7	5	2	13	3	7	4
Atl	PS	8	5	7	98	10	10	11	22	9	1
Atl	Gill	2	13	32	322	13	179	60	51	243	64
Atl	LL	27	7	28	35	239	0	35	38	264	154
Med	LL	517	527	169	273	245	323	259	205	754	1,149
Med	Gill	2,068	2,109	1,518	2461	4,653	2,905	2,979	2,503	2,266	2,230
Med	PS	0	0	0	0	0	0	0	0	4	0
Med	Hand	0	0	0	0	0	0	0	0	0	0
Med	Trap	4	18	9	0	2	0	0	0	2	0
Tot-Atl		39	36	79	462	267	191	119	114	523	223
Tot-Med		2,589	2,654	1,696	2,734	4,900	3,228	3,238	2,708	3,026	3,379
Total		**2,628**	**2,690**	**1,775**	**3,196**	**5,167**	**3,419**	**3,357**	**2,822**	**3,550**	**3,602**

Table 4. Catch statistics on small tunas, by gear, for 2002 (in t).

Species		*Atl. black skipjack (LTA)*	*Atlantic bonito (BON)*	*Skipjack (SKJ)*	*Frigate tuna (FRI)*	*Plain bonito (BOP)*	*Total*
Atl	Trap	0	2	1	188	0	191
Atl	Hand	0	0	0	0	0	0
Atl	Gill	55	81	154	56	4	350
Atl	LL	0	0	0	0	0	0
Atl	PS	253	1,936	125	197	776	3,287
Med	Trap	0	0	0	0	0	0
Med	Hand	0	0	0	0	0	0
Med	Gill	0	0	0	621	9	630
Med	LL	0	0	0	0	0	0
Med	PS	3	61	1	0	0	65
		308	2,019	280	441	800	3,848
Tot-Med		3	61	1	621	9	695
Total		**311**	**2,080**	**281**	**1,062**	**809**	**4,543**

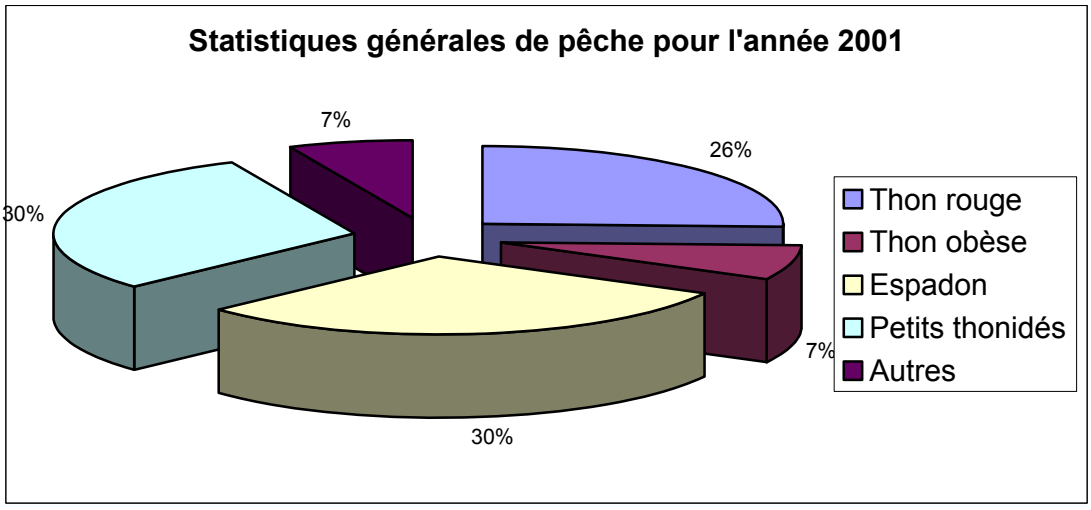


Fig. 1. General statistics on fishing (bluefin tuna, bigeye tuna, swordfish, small tunas and others), 2001.

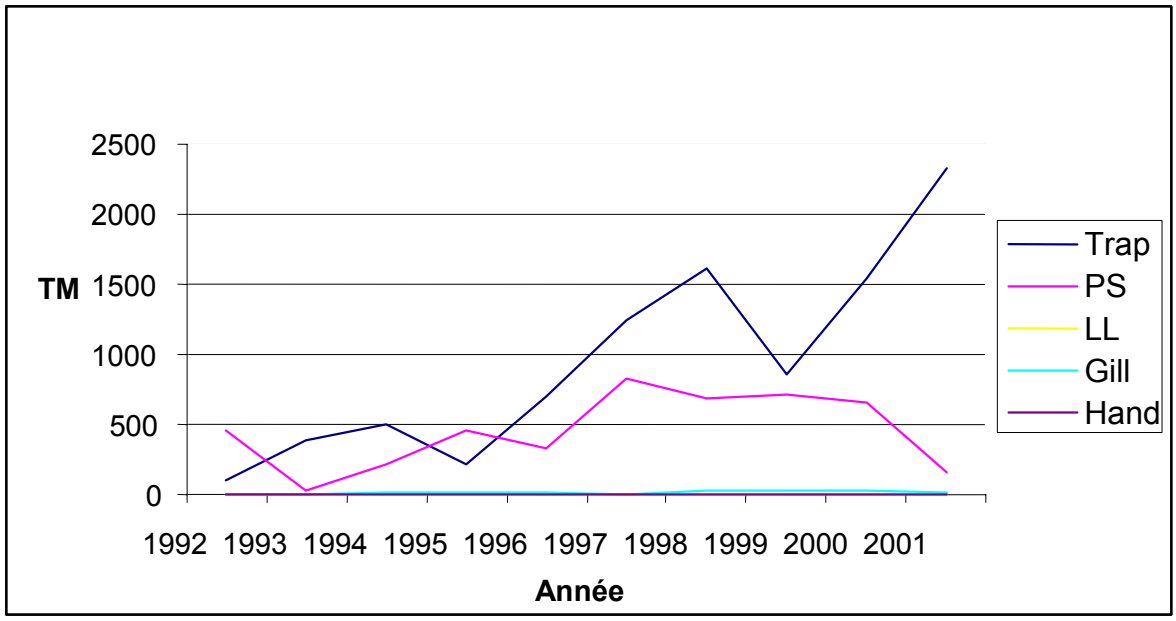


Fig. 2. Bluefin tuna (BFT) catches, by gear, in the Atlantic, 1992-2001.

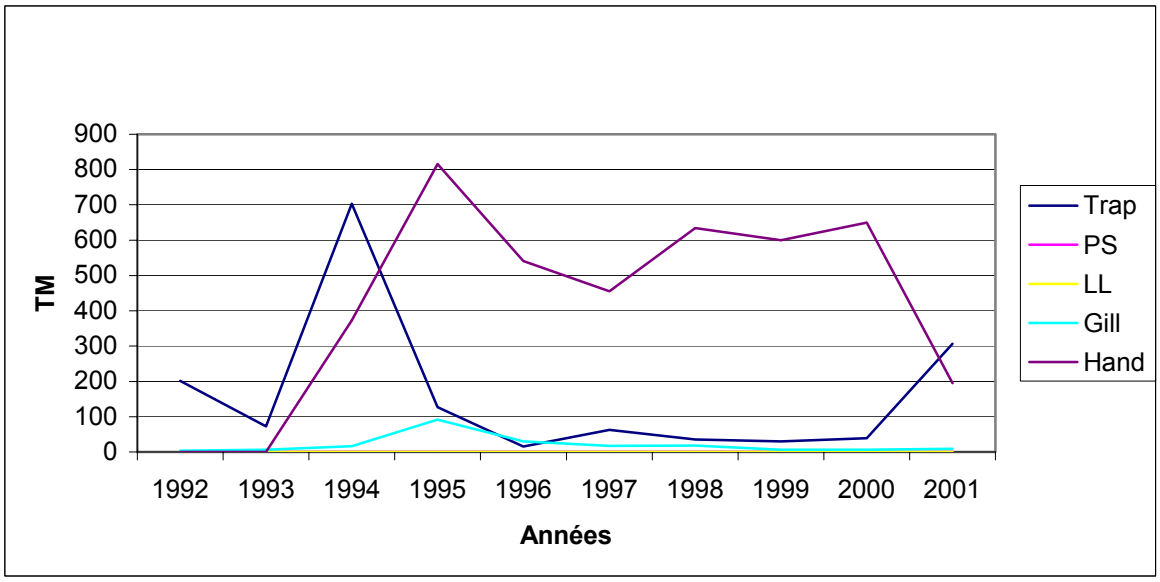


Fig. 3a. Development of bluefin tuna (BFT) catches, by gear, in the Mediterranean.

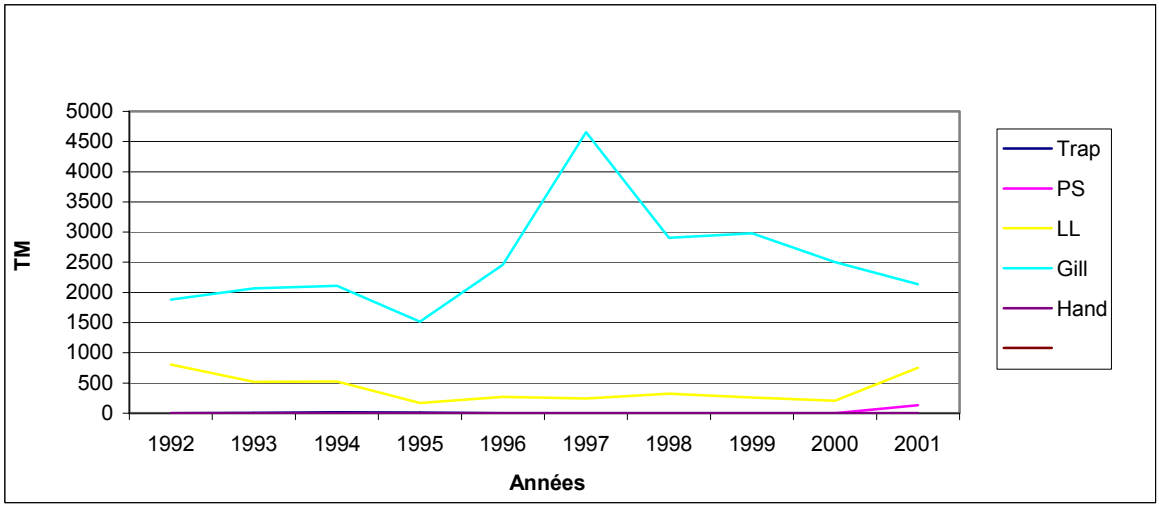


Fig. 3b. Development of swordfish catches (SWO), by gear, in the Mediterranean.

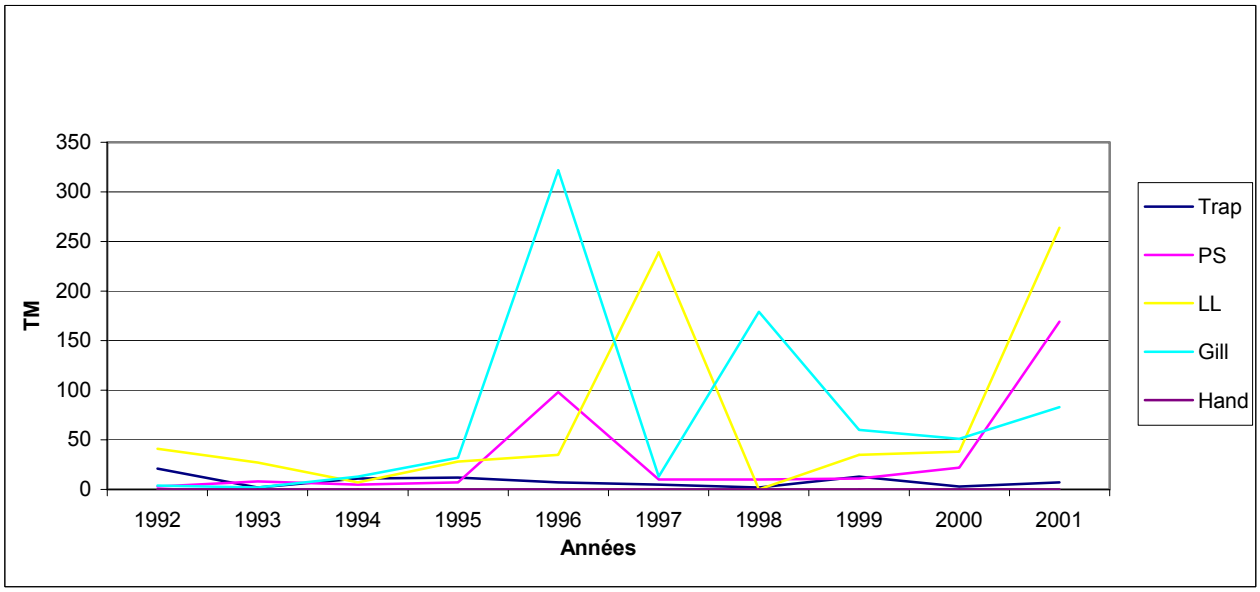


Fig. 3c. Development of swordfish catches (SWO), by gear, in the North Atlantic.

NATIONAL REPORT OF RUSSIA[1]

1. Introduction

In Russia, work relevant to the research of tunas and tuna-like species is carried out in the Atlantic Scientific Research Institute of Marine Fisheries and Oceanography (AtlantNIRO), Kaliningrad, and the Russian Federal Research Institute of Fisheries and Oceanography (VNIRO), Moscow. These organizations collect catch and biological statistics and analyze these data, provide operative fishery monitoring, prepare proposals and recommendations required for tuna-catch vessels operation. Statistical data in this report are presented on a calendar year basis.

2. The fishery in 2002-2003

No specialized tuna fishery was carried out in view of purse seiner repairs. The vessels of the trawl fishery caught, as by-catch, 842 t of tunas (468 t of bullet tuna, *Auxis rochei*; 300 t of frigate tuna, *Auxis thazard*; 74 t of Atlantic black skipjack, *Euthynnus alletteratus*) including 834 t in the central East Atlantic and 8 t in the southeastern Atlantic Ocean. The catch of Atlantic bonito (*Sarda sarda)* amounted to 1,441 t (1,431 t in the central East Atlantic and 10 t in the southeastern Atlantic Ocean).

During the first half of 2003 no tuna-catching seiners carried out fishing. According to preliminary data, the trawl fishery caught 163 t of tunas (97 t of bullet tuna, 66 t of frigate tuna) and 287 t of Atlantic bonito during the first half of 2003. In the central East Atlantic 151 t of tunas and 256 t of Atlantic bonito were caught, while in the southeastern Atlantic Ocean catches ere 12 and 31 t, respectively.

3. Research and statistics

To study the early stages of development of tuna and tuna-like species, ichthyoplankton samples collected by AtlantNIRO from the Atlantic Ocean off the western cost of Africa from 3°00′N to 36°00′N for the period 1963-2001 were processed and summarized. The cards of 2,986 ichthyoplankton stations carried out in 72 cruises were processed. Larvae of tuna and tuna-like species were found at 234 stations.

Larvae of Atlantic black skipjack were the most abundant and commonly occurred in depths of 19-1000 m. Three areas of the highest larvae occurrence were distinguished:

- the northern Gulf of Guinea (3°00′N to 5°00′N) in November-January;
- the grounds between Cape Palmas and Cape Verde (7°00′N to 13°00′N) in July-November;
- the grounds between Cape Verde and Cape Blanc (16°00′N to 20°00′N) in July-August.

The occurrence of pre-larvae (larvae of 1.8 mm in length with a yolk-sack) and larvae up to 7.5 mm in length in each ground indicates the ubiquitous spawning of this species in the whole area of “Senegalese” grouping. The peak abundance of Atlantic black skipjack larvae was found from 7°00′N to 13°00′N at the shelf and slope. The catches approached 190 individuals per 10 sq.m. Northwards of 13°00′N only single individuals were recorded. In 81.2% of cases Atlantic black skipjack larvae were observed at a sea surface temperature (SST) of 27-29°C and salinity of 26.4-36.0 ‰.

In the area between 3°00′N-13°00′N frigate tuna larvae were caught at an SST of 28.1-28.8°C and salinity of 30.7-32.6‰ in two grounds at depths of 24-205 m:

- the northern Gulf of Guinea (3°00′N to 5°00′N) in May-June and January;
- the grounds between Cape Palmas and Cape Verde (7°00′N to 13°00′N) in August-October.

A large abundance of Atlantic bonito eggs (up to 300 individuals per 10 sq.m.) and larvae (up to 25 individuals per 10 sq.m.) were found at 26°00′N-18°30′N (between Cape Bojador and Cape Timiris) in June-August. Eggs were recorded at depths of 20-100 m, larvae over 100-300 m. Atlantic bonito eggs were caught at a SST of 17.0-23.0°C and salinity of 35.75-36.65‰ northwards of Cape Blanc (21°00′N) and at a SST of 19.0-29.0°C southwards of Cape Blanc.

[1] Original report in English.

4. Implementation of ICCAT conservation and management measures

Sampling, processing and analysis of tuna species and the quantitative composition in the trawl catches of Russian vessels in the central East Atlantic Ocean during 1982-2002 were carried out. Data collection at sea was made by AtlantNIRO observers at research, scouting and fishing vessels of the trawl fishery during various seasons. The results of 25 expeditions into the fishery zones of Morocco, Mauritania and outside these States' economic zones, as well as in the open Gulf of Guinea, were processed. The following tuna species were found in by-catches: frigate tuna, bullet tuna, Atlantic black skipjack, oceanic skipjack (*Katsuwonus pelamis)*, and Atlantic bonito. Depending on the area and fishing season, the mean by-catch of tunas and tuna-like species varied from 0.1 to 2.0%. In numbers, frigate tuna, bullet tuna and Atlantic bonito prevailed in the trawl catches.

In the trawl fishery within the areas where tunas and tuna-like species occurred in catches, ICCAT requirements and recommendations concerning the ban on species under fishing quota and the restriction of young yellowfin tuna and bigeye tuna catches were applied.

NATIONAL REPORT OF SOUTH AFRICA [1]

1. National fisheries information

1.1 Poling and sport fishery

The use of pole and line has been employed commercially since the 1970s to target tuna. In 1979 commercial tuna fishing effort increased after a record run of yellowfin tuna in the region. Subsequent to this, the South African tuna fishery has essentially been a surface pole and line fishery that targets mainly juvenile (3-4 year old) albacore in near-shore waters off the west coasts of South Africa and Namibia. Annual albacore landings have fluctuated around 6,000 t whole weight and is strongly influenced by the availability of albacore in the inshore waters, which in turn is affected by large scale environmental factors. Since 1990, low annual landings have been recorded twice, namely in 1991 and 2000 **(Table 1)**. The declaration of Namibian independence in 1990 was responsible for excluding South African poling vessels from Tripp Seamount, resulting in a sharp decline in annual albacore landings in 1991. The second recent decline in annual landings was attributed to the low availability of albacore in near-shore waters in 2000. There have been approximately 100-200 commercial vessels active in this fishery since 1978. In addition, numerous small sports craft (5-8m) fish for albacore and other tunas with rod and reel off the Cape Peninsula.

Although 6,507 t of albacore was exported from South Africa in 2002 only 3,263 t of albacore was reported by the poling fleet and a further 323 t by the sport fleet. Reported landings by the poling fleet have declined by more than 2,300 t in comparison to 2001 figures **(Table 2)**. This is largely a result of under-reporting. Similarly, reported sea days also declined from 6,137 to 3,733 in 2002. Despite the high level of under-reporting for 2002 the nominal CPUE was similar to that of 2001. The average size of albacore landed by the poling fleet in 2002 was 79.2 cm FL, and was similar to that of 2001. However, the size distribution of albacore measured in 2002 was bimodal compared to a normal distribution in 2001 **(Figure 1)**. This difference may be an artefact of reduced sampling effort in 2002 which did not span the entire year.

The poling fleet also reported 77 t of yellowfin tuna and 22 t bigeye tuna, with the sport fleet reporting an additional 10 t yellowfin tuna **(Table 2)**. Due to the high level of under-reporting these figures are considered to be underestimates of the actual landings.

Towards the end of 2002, 150 intermediate term (4 year) fishing rights were allocated by South African authorities (Marine and Coastal Management) in the tuna pole sector.

1.2 Tunas/swordfish longline fishery

Commercial longlining for tunas started in the early 1960s, but ceased beyond the mid1960s in favor of other more lucrative developing fisheries. In 1997, 30 experimental longline permits were allocated in response to applications to re-develop a domestic longline fishery. Although this fishery was intended to be a tuna directed fishery the bulk of the catch comprised of swordfish (>60% dressed weight in 1998), possibly due to the shallow nature of the fishing method used and vessels being equipped with American monofilament gear and light sticks. In 1999 and 2000, reported swordfish catches declined in response to more stringent measures imposed by South African authorities on swordfish catches. During the same time period some vessels fished in Namibian waters, where swordfish catch restrictions were more lenient. Consequently, catches made by those vessels were reported to ICCAT as Namibian catch. It is noted, however, that international import figures reflect both Namibian and South African catches for 1999 as South African. During 2000, South Africa raised the swordfish by-catch limit and declared a country catch limit of 1,000 t dressed weight. Subsequently, swordfish reported catches have been steadily increasing.

In 2002, the tuna longline vessels were still fishing under experimental permits. Twenty-three vessels were active in South African waters in 2002 compared to 22 in 2001. Fishing effort decreased by 6.4% in the ICCAT region. The decline in fishing effort in this region is due to a shift in fishing effort into the IOTC region **(Figure 2)**, which was made possible by the development of ice and processing facilities in Richard's Bay, situated on the east coast of South Africa. As in 2001, fishing effort in the Atlantic Ocean in 2002 was mainly concentrated along the western edge of the Agulhas Bank, the Cape Basin and Walvis Ridge, with limited expansion onto the Mid-Atlantic Ridge **(Figure 2)**.

[1] Original report in English; management standard information is available from the Secretariat.

The total reported landings per species for tuna longline vessels in 2002 were as follows: albacore (127 t), swordfish (500 t with a further 591 t caught east of 20E), yellowfin tuna (57 t), bigeye tuna (282 t) blue shark (59 t) and mako (18 t) **(Table 2)**. In addition, 14.5 t of bluefin tuna were also landed. In comparison to 2001, the nominal CPUE for swordfish and bigeye tuna in 2002 increased by more than 0.1 kg/hook. The increase in swordfish catch and CPUE is likely due to fishers being more experienced in targeting this species and, secondly, the expansion of fishing effort onto new fishing grounds in the vicinity of the Mid-Atlantic Ridge. It was also a record year for bigeye tuna in terms of catch and CPUE. This may indicate that fishers are for the first time since the inception of the experimental fishery learning to target this species. The nominal CPUE of albacore, yellowfin tuna, blue shark and mako shark in 2002 was similar to that of 2001.

Size frequency distributions are presented for swordfish **(Figure 3)**, bigeye **(Figure 4)** and yellowfin tuna **(Figure 5)**. The mean LJFL recorded for the swordfish catch in 2002 (170.1 cm) was similar to that recorded in 2001 (168.7 cm), but less than that for 1998 (184.5 cm). The mean length of bigeye tuna in 2002 (139 cm) was also similar to that recorded in 2001 (133.3 cm). The mean length of yellowfin decreased by 20 cm, but could possibly be attributed to a small sample size.

1.3 Shark longline fishery

The shark longline fishery comprises two distinct components, namely the demersal shark longline and the pelagic shark longline. The demersal shark longline component mainly targets soupfin and hound sharks in shallow coastal waters, whereas the pelagic shark longline component mainly targets blue and mako sharks offshore in the open ocean.

In 2002, only two vessels were active in the pelagic shark fishery, compared to 12 in 2001. Consequently, fishing effort decreased from 120,213 hooks in 2001 to 35,308 hooks in 2002 **(Table 2)**. This is attributed to many right holders having been awarded multiple fishing rights and therefore fish more lucrative species first before turning their attention to sharks.

The total reported landings per species for pelagic shark longline vessels in 2002 were as follows: albacore (0.4 t), swordfish (0.4 t), bigeye tuna (1 t) blue shark (4 t) and shortfin mako (1 t) **(Table 2)**.

1.4 Foreign fongline fishery

During 2001, South Africa issued permits to foreign longline vessels from Japan (69) and Chinese Taipei (28) to fish for tunas (and associated species) within the South African EEZ, in terms of bi-lateral fisheries agreements. In order to phase out foreign vessels fishing in South Africa's EEZ the number of permits issued in 2002 was reduced to 24 for Japan and 5 for Chinese Taipei. From reported catch statistics it is assumed that only three Japanese vessels and five Chinese Taipei vessels were actively fishing in South Africa's EEZ. No foreign catches were reported from the ICCAT region in 2002.

2. Research and statistics

Although a logbook system to monitor line fishing vessels (including the poling fleet) was implemented in 1985, reported catches proved to be unreliable with substantial under-reporting in some years. Consequently dealer returns were used to monitor total albacore catch levels, and to validate catch statistics reported to ICCAT. However, in 1998 it was shown that even with the dealer returns, the estimated annual albacore catch was lower than the Customs and Excise records of the amount of South African caught albacore exported each year for the period 1993 to 1996. Customs and Excise records are probably the most reliable estimate of annual total albacore catch because: (a) almost all of the albacore catch is exported, and; (b) the amounts of fish exported are precisely known. Therefore, the estimated total albacore catch for the South African poling and sport fleet reported to ICCAT from 1993 onwards are based on Customs and Excise data **(Table 1)**.

As most of South Africa's swordfish is exported to the United States of America the US trade statistics provides a useful means of estimating reporting levels of the domestic longline fleet **(Table 3)**. In 1999 strict swordfish by-catch measures were imposed by South African authorities, which resulted in many vessels fishing either under Namibian permit and/ or not reporting their catches to South African authorities. Consequently, under-reporting of longline catches was a problem between 1999 and 2000. During this period more reliable estimates of total South African swordfish landings were provided by U.S. trade statistics. However, since South Africa

raised the swordfish by-catch limits in 2000 reporting levels improved in 2001, with 2002 reporting levels being the most reliable since the inception of the experimental fishery in 1998 **(Table 3)**.

Research in South Africa is mainly focused on swordfish for the following reasons:

- It is the most important species caught by the longline fleet.
- Stock delineation is uncertain.
- There is concern about localized depletion.
- To provide better management measures for swordfish

Genetic samples were collected from swordfish caught along the west, south and east coast of South Africa. Preliminary analysis indicate that both Indian and Atlantic swordfish stocks are caught along the south coast of South Africa. As there is uncertainty regarding the stock delineation of swordfish caught in South African waters a proportion of the catches made along the South and East coast of South Africa may also be derived from Atlantic stock. If this were true then Atlantic swordfish catches made by the South African fleet could be as high as 1,000 t when taking into consideration that 500 t were caught west of 20°E and 591 t caught east of 20°E. Biological samples have been collected since the inception of the experimental fishery with the aim of elucidating the life history patterns of swordfish from this region. To validate the genetic analysis, tissue samples will be collected for heavy metal analysis and a tagging program will be implemented in 2004.

3. Implementation of ICCAT conservation and management measures

3.1 Recommendations and Resolutions adopted by ICCAT in 2001

Recommendation by ICCAT on the 2002 Bigeye Tuna Conservation Measures [Ref. 01-01]

As South Africa's reported bigeye tuna catch was less than 2 100 t in 1999 it is exempted from this resolution.

Recommendation by ICCAT on South Atlantic Swordfish [Ref. 01-02]

South Africa was excluded from the sharing arrangement for South Atlantic swordfish and has not been granted a swordfish allocation for the ICCAT convention area in 2002. However, as a developing Nation and coastal state with swordfish in her waters, South Africa has lodged an objection to the sharing arrangement. In addition, only part of the South African EEZ falls within the ICCAT convention area, and there is some evidence to suggest that swordfish caught in the South African EEZ originate from both Indian and Atlantic stocks. South Africa has therefore implemented a self-imposed 1,500 t catch limit for swordfish in 2002, and has a developing swordfish fishery.

Recommendation by ICCAT on Revision and Sharing of the Southern Albacore Catch Limit [Ref. 01-06]

Southern Albacore catches are estimated from South African customs and excise data, which in turn are submitted to the Secretariat on a bi-monthly basis. As this data does not originate from fishing logbooks it is impossible to submit this data within two months of the actual catches been made. In 2002, data have been submitted between three to four months after the catches were made. Due to the delayed nature of South Africa's reporting (and possibly that of other fishing entities as well), this management measure is unlikely to prevent catches from exceeding the estimated replacement yield of the stock, and South Africa once again urges the Commission to devise an alternative management arrangement.

Recommendation by ICCAT to Amend the Plan to Rebuild Blue Marlin and White Marlin Populations [Ref. 01-10]

In the tuna and swordfish longline fishery marlins and sharks are designated as by-catch species. According to permit conditions the total catch of by-catch species may not exceed 5% (by dressed weight) of the total catch (dressed weight) of the targeted species per trip. Marlin catches contributed to 1.8% of total catch by weight in 2002.

Resolution by ICCAT on Atlantic Sharks [Ref. 01-11]

In the tuna and swordfish longline fishery marlins and sharks are designated as by-catch species. According to permit conditions:

- The total catch of by-catch species may not exceed 5% (by dressed weight) of the total catch (dressed weight) of the targeted species per trip.
- All shark fins must be landed together with corresponding trunks.
- No discarding of excess by-catch at sea shall be permitted, and only live fish may be returned to sea.

Excess by-catch must be handed over to the fisheries control officer upon return of vessel to port.

Shark catches contributed to 7.6% of the total catch by weight in 2002.

Resolution by ICCAT on the Deadlines and Procedures for Data Submission [Ref. 01-16]

Since South Africa has become a Contracting Party of ICCAT it has always strived to submit annual Task Data and National Reports to the Secretariat by the stipulated deadlines.

Resolution by ICCAT Concerning a Management Standard for the Large-scale Tuna Longline Fishery [Ref. 01-20]

All 23 vessels active in the South African tuna and swordfish longline fishery in 2002 are classified as large-scale tuna longline vessels and have been issued a South African fishing permit. All the vessels are also subject to taking onboard observers and are required to be fitted with a functional VMS. All catches made from these vessels are monitored and controlled by South Africa. The particulars of these vessels have been submitted to ICCAT[1].

3.2 Regulatory measures

- Catch limits, minimum sizes and protection of juvenile fish
  All fishing sectors targeting large pelagic species, except for the sport sector, is managed by a TAE (with TAE = no of vessels) as determined by the Minister of Environmental Affairs and Tourism. The Regulations in terms of the Marine Living Resources Act (1998) also specify minimum mass limits for bigeye tuna (3.2 kg), bluefin tuna (6.4 kg), swordfish (25 kg whole weight) and yellowfin tuna (3.2 kg).

- Closed seasons
  No closed seasons are applicable

- Ban on imports
  South Africa mainly exports tuna and swordfish with no official ban on imports.

- Observer Program
  An onboard observer program has been developed for the tuna longline fishery since 1998. Permit holders are required, by permit conditions, to take an observer onboard on every fifth trip.

- Vessel Monitoring Systems
  All tuna vessels, irrespective of size, are required by law to have a functional VMS (as approved by South African authorities) in place before the vessel is permitted to embark on a fishing trip.

- Measures against IUU fisheries
  No IUU vessels or black listed vessels are permitted to discharge or transship tuna and tuna-like species in South African ports.

- Recreational fisheries
  The tuna sports sector is an open access fishery, and is restricted by a bag limit of 10 tuna per person per day as stipulated in the Regulations in terms of the Marine Living Resources Act (1998). The minimum size limits as stipulated by the Regulations in terms of the Marine Living Resources Act (1998) also applies to the sport sector.

4. Inspection schemes and activities

South Africa has a full Port Inspection Scheme in place in accordance with ICCAT recommendations. This includes foreign vessels requiring a permit to discharge in South African ports. Discharge permits are only issued to vessels authorized by ICCAT to fish in the Atlantic Ocean. No IUU or black listed vessels are allowed to discharge in South African Ports. In applying for a discharge permit, skippers have to provide South African authorities with the necessary flag State authorization documents, quantity of fish and species onboard to be discharged as well as the gear type used. A letter of authorization from the flag State is required if South African authorities are uncertain about the application for a discharge permit. Transshipments are only allowed in port under a transshipment permit. In applying for a permit the skipper has to provide South African authorities with the vessel details, quantity of fish and species to be transshipped, and where it was caught. Spot checks are made on foreign discharges and transshipments to ensure that catches meet ICCAT's minimum size limits. Vessels participating in the experimental tuna longline fishery are required to notify the inspectors prior to landing. All domestic discharges are required to be monitored and inspected by South African authorities.

5. Other activities

A total of 2,123 albacore were measured during 12 port-sampling trips undertaken in 2001. In 2002, only 854 albacore were measured during six port-sampling trips.

An onboard observer program was launched in 1998, with the first observer placed on a local longline vessel in November. The program is primarily aimed at: (1) verifying retained catches of target and by-catch species, and of discarded catches; (2) providing measures of large pelagic species caught, and; (3) to obtain biological samples of swordfish. Each permit holder is required, by permit conditions, to take an observer onboard on every fifth trip. In 2001, observer coverage of 17.5% of 160 domestic tuna longline fishing trips was attained. In 2002, only 9.5% observer coverage of 221domestic tuna longline fishing trips was attained.

South Africa received monthly, summarized catch returns from Japan and six-monthly summarized catch returns from Chinese Taipei with regard to foreign vessels fishing within the EEZ of South Africa. However, neither validation of these catch returns, nor independent evaluation of catches was conducted.

Surveillance of coastal waters is provided by *ad hoc* spotter plane and navy patrols.

Table 1. Annual albacore landings (t) estimated from logbooks for 1985-1996 and custom and excise data 1993-2002.

Year	*Logbooks*	*Exported*
1985	6,697	
1986	5,930	
1987	7,275	
1988	6,570	
1989	6,890	
1990	5,280	
1991	3,410	
1992	6,360	
1993	6,743	6,881
1994	5,268	6,931
1995	4,246	5,213
1996	2,856	5,635
1997		6,708
1998		8,412
1999		5,101
2000		3,610
2001		7,236
2002		6,507

Table 2. Catch and effort data for the most important species landed by large pelagic fisheries in 2001 and 2002.

Fishing Sector	*Total Reported Effort 2001*	*Total Reported Effort 2002*	*Reported catch by species per year, in t*											
			ALB 01	*ALB 02*	*SWO 01*	*SWO 02*	*YFT 01*	*YFT 02*	*BET 01*	*BET 02*	*BSH 01*	*BSH 02*	*SMA 01*	*SMA 02*
Poling	6137 sea days	3733 sea days	5587	3262	0	0	230	77	104	22	1	0	2	0
Sport	Unavailable	Unavailable	377	323	0	0	18	10	0	0	0	0	0	0
Tuna Longline	1255830 hooks	1175384 hooks	138	127	393	500	62	57	100	282	85	59	30	18
Shark Longline	120213 hooks	35308 hooks	6	0.4	4	0.4	12	0	4	1	42	4	61	1
		TOTAL	**6108**	**3712.4**	**397**	**500.4**	**322**	**144**	**208**	**305**	**128**	**63**	**93**	**19**

Table 3. Comparison of reported South African swordfish catches vs imported SA swordfish by the United States (as reflected by U.S. trade statistics), in t.

Year	*Reported catch*	*U.S. trade statistics*
1998	394.7	401.7
1999	114.7	1041.5
2000	252.1	909.9
2001	621.7	791.6
2002	1091.1	993.7

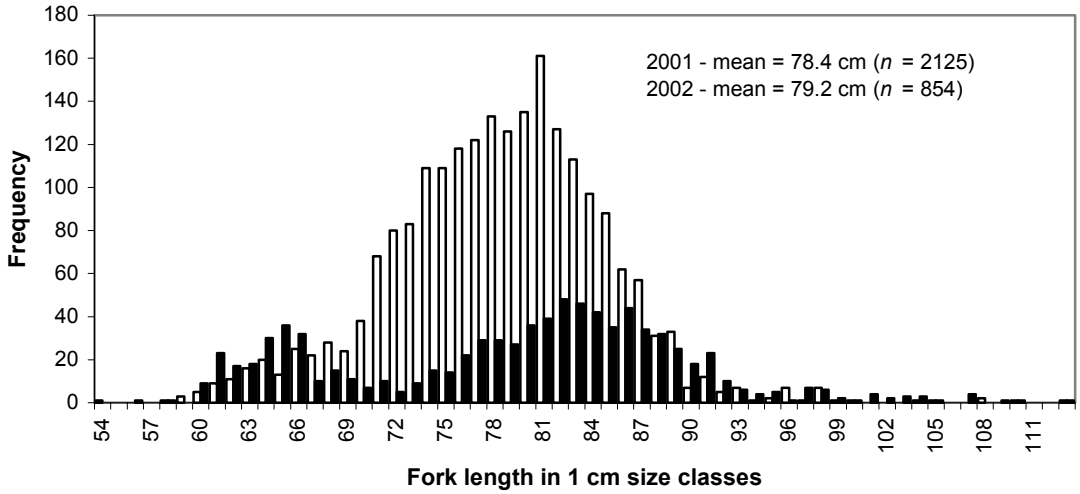


Figure 1. Length frequency distribution of albacore catches made by South African poling fleet in ICCAT region for 2001 (light bars) and 2002 (dark bars) as measured by port samplers.

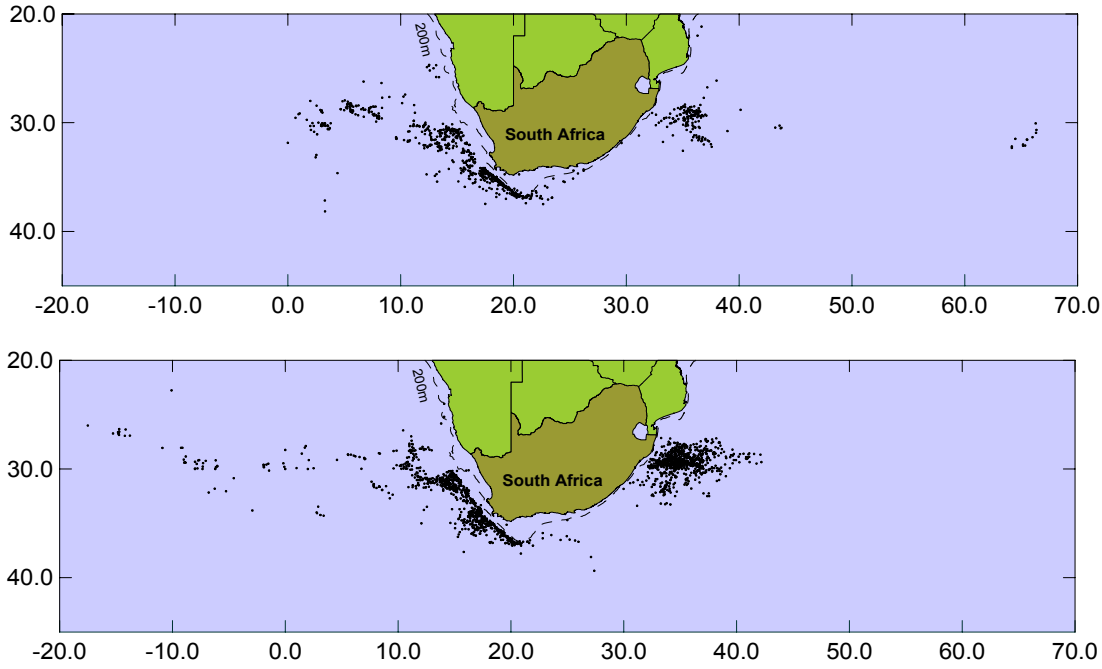
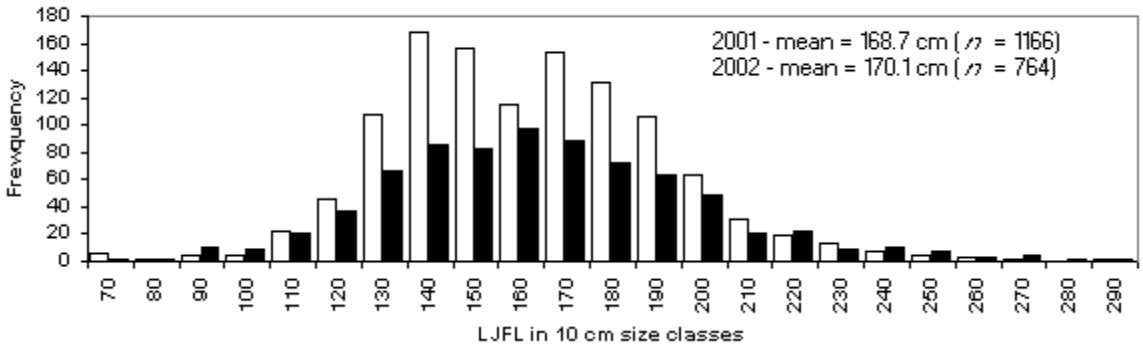


Figure 2. Longline set positions of the South African fleet in 2001 (above) and 2002 (below).



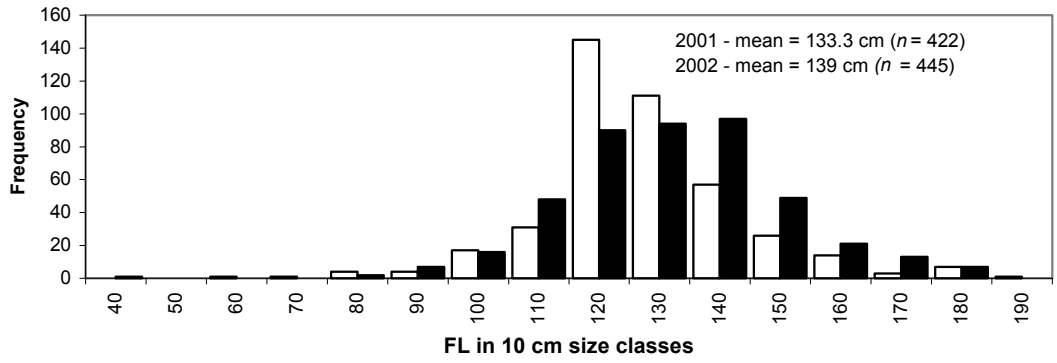


Figure 4. Length frequency distribution of bigeye tuna catches made by the South African longline fleet in the ICCAT region for 2001 (light bars) and 2002 (dark bars) as measured by on¡board observers.

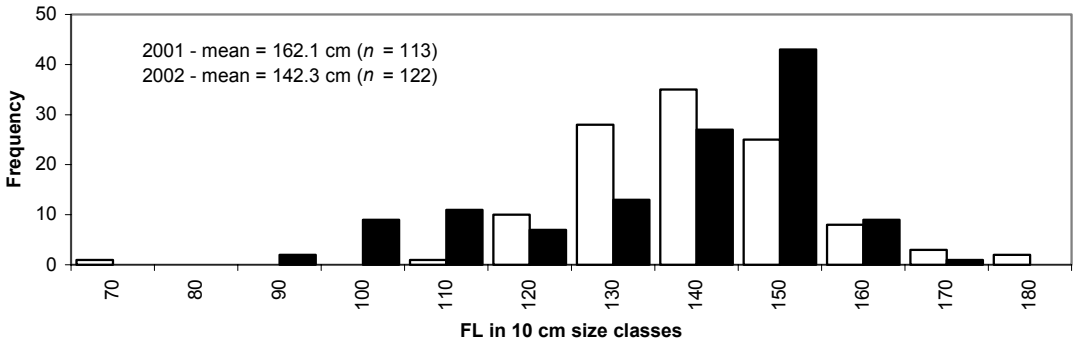


Figure 5. Length frequency distribution of yellowfin tuna catches made by the South African longline fleet in the ICCAT region for 2001 (light bars) and 2002 (dark bars) as measured by on-board observers.

NATIONAL REPORT OF TRINIDAD & TOBAGO[1, 2]

1. National fisheries information

In 2002, as in 2001, approximately 20 semi-industrial vessels and 1,305 artisanal vessels harvested tuna and tuna-like species. In addition, six sport fishing tournaments targeting such species were held, at which approximately 49 vessels participated. There are an estimated 307 recreational vessels operating out of Trinidad (Mike, 1993).

The landings of yellowfin tuna, albacore, bigeye tuna, broadbill swordfish, Atlantic bonito, oceanic skipjack, wahoo, Atlantic bonito, Atlantic blue marlin, Atlantic white marlin, Atlantic sailfish, king mackerel and serra Spanish mackerel were estimated at 5,156 t. An estimated 999 t of shark comprising both coastal and oceanic pelagic species (blacktip shark, tiger shark, smoothhounds and hammerheads, blue shark, makos and threshers) and including unclassified species were landed. These landing statistics are revised 2002 Task 1 statistics, incorporating recorded landings in Tobago (Appendix 1).

2. Research and statistics

2.1 Landings and effort data

Approximately 25% of the landing areas and the four major sport fishing tournaments were covered by the data collection systems. Two minor tournaments were not covered. All sport fishing tournaments at which billfishes are targeted involve tag and release components. More points are allocated for release of these species than for presentation at the scales. In 2002 the average minimum eligible sizes for blue marlin, white marlin and sailfish at fishing tournaments were 126 kg, 22 kg and 22 kg, respectively. A total of 34 marlins and 12 sailfish were released and one blue marlin weighing 120 kg landed at the 2002 tournaments. Presently, the data collection systems do not systematically capture data from the recreational fishery.

With respect to data previously reported to ICCAT, Trinidad & Tobago submits that the statistics for frigate tuna (*A. thazard*), blue marlin (*M. nigricans*) and mixed species of tunas for the year 2000 are erroneous and requests that the statistics be changed according to the following:

- The 2000 frigate tuna landings statistic was erroneously omitted from the 2001 National Report (and thus the figure reported by ICCAT appears to be extrapolated from the 1999 value). The year 2000 value for frigate tuna (FRI) landings is 245 t. These landings are all from the artisanal multi-gear fleet.

- The 2000 landings statistics for the category "mixed species of tunas" (MIX) (caught by the artisanal multi-gear fleet) was erroneously reported in the 2001 National Report as 1,380.2 t. The correct figure is 138.02 t.

3. Implementation of ICCAT conservation and management measures

3.1 Reporting (Compliance) Tables

Regarding the catches of swordfish, the government and the longline sector came to an agreement on the quantity of swordfish that would be harvested in 2003 and catches were discontinued during August 2003. Similar agreements would be sought in future to ensure Trinidad and Tobago's full compliance with ICCAT´s catch limit for this species. Estimates of the percentages of undersized bigeye tuna, yellowfin tuna and swordfish are presented. These are calculated based on the proportion of by-catch (from the longline fleet) to total landings. Generally for these three species, undersized fish that will not be accepted at international markets are sold locally and considered as by-catch. With respect to swordfish, for which the minimum size tolerance level has been exceeded by 3%, Trinidad and Tobago intends to investigate the possible impacts of gear and fishing areas

[1] Original report in English; the appendix is available from the Secretariat.
[2] Fisheries Division. Ministry of Agriculture, Land and Marine Resources.

on the capture of undersized fish, and to take the appropriate management measures to reduce the associated quantities.

3.2 Observer program

Implementation of the observer program to cover the Trinidad semi-industrial longline fleet planned for 2002 was postponed to the last quarter of 2004 due to administrative and logistical problems. The program remains a priority for implementation; training materials are prepared. However, further consultation is required to address several issues, e.g., accommodation on board the existing fleet of longline vessels and conditions of employment.

Table 1. Trinidad & Tobago preliminary landings statistics of Atlantic tuna and tuna-like species for 2002

	Landings (t)	
	Tuna and tuna-like species	*Sharks*
Trinidad (raised landings)		
Semi-industrial longline fleet	290	61
Artisanal fleet	4,857	938
Sport fishing tournaments	4	0
Tobago (nominal landings) Semi-industrial and artisanal fleets combined	5	0.4
Totals	**5,156**	**999**

NATIONAL REPORT OF TUNISIA[1]

Abdallah Hattour[2]

1. Introduction

The fish commonly grouped under the category of large pelagic species have an import place in the Tunisian economy since they constitute a preferential product for the export market. In effect, these products are in large part exported to Japan and to some European countries. Among these, particular note is made of bluefin tuna (*Thunnus thynnus*) and Atlantic black skipjack (*Euthynnus alletteratus*) that continue to supply a local industry, since a large part of these fish are canned.

The fishing gears used in Tunisia to catch these species are quite varied. Particular note is made of the purse seiners that were very active throughout the year, the longliners that mainly target swordfish, and the traps. Lastly, the artisanal fishery with lights and, in an incidental manner, the hand lines used by the trawlers contribute to the catch.

2. Information on the fisheries

The large pelagic fish exploited by the Tunisian fishers are bluefin tuna (*Thunnus thynnus*), Atlantic black skipjack (*Euthynnus alletteratus*), Atlantic bonito (*Sarda sarda)*, bullet tuna (*Auxis rochei*) and swordfish (*Xiphias gladius*).

2.1 Fishing areas

Bluefin tuna are mainly caught by purse seiners off the northern coast of the country up to the area bordering on Libya where, in recent years, they have been competing with French, Spanish and Italian fishers during the months of April to June. In effect, since the early 1980s a particular rhythm has been established affecting the tuna activities of the purse seiners. Due to an ever-increasing demand for their fishing products (bluefin tuna), these vessels annually frequent fishing areas that have become traditional. They fish from October to March in the Gulf of Gabès and close to the Tunisian-Libyan border. They target average size fish from 25 to 70 kg, destined exclusively for export. They then fish from April until the end of June, following the drift of the spawners that take them from North of the country to the extreme South. A part of these catches are exported, while the remainder are for local consumption and for processing. The weights of these fish vary between 50 kg to more than 250 kg.

As regards swordfish, and since 1988 this activity has extended to the entire Tunisian coast. In fact, in 2000 and also in 2001, the southeast area contributed more than 80% of the national catches of this species.

Small tunas are caught all along the Tunisian coast.

The ports of Tabarka, Bizerte, Kélibia, Mahdia and Sfax comprise the major landing ports for these species.

2.2 Fishing techniques

2.2.1 Purse seiners

Up to 1998, close to 70 tuna purse seiners engaged in tuna fishing along the Tunisian coast. (DGPA, 1998). These purse seiners mostly have wooden hulls, measure between 15 and 38 meters in length, have a registered tonnage between 17.98 to 298 tons; diesel engines whose horsepower varies from 110 to 999 Hp. However, the number of these vessels, which has continually increased since 1977, has started to decline due to the conversion of more and more of these vessels (of small or average size) to trawlers **(Table 1)**. In 2001, a slight increase was registered due to the return of 7 vessels to their original activity **(Figure 1)**. The purse seine landings of bluefin tuna currently comprise 97% of the national catches.

[1] Original report in French.

[2] Institut National des Sciences et Technologies de la Mer (INSTM); abdallah.hattour@instm.rnrt.tn

2.2.2 Traps

There are three traps set in the North of Tunisia, precisely in the Gulf of Tunis, comprised of the Sidi Doud trap and the Ras Lahmar trap and, in 2002, a third trap has been is set at El Haouaria. All the traps are managed by private companies.

These gears are based on an ancient principle, which is to catch the fish that are going towards the eastern Mediterranean to spawn in the waters that have a specific temperature and salinity. During their migration, the tunas have to go through the Strait of Sicily, generally close to the northern coast of Tunisia.

The fishers know that the tunas are present after the third week of May in the Gulf of Tunis, where the traps are set. This presence extends until early June. The variations in the dates of the presence of these fish in recent years are most likely attributed to environmental influences. Currently, bluefin tuna are caught from early April until the end of May.

These gears target bluefin tuna and some small tunas, mainly Atlantic black skipjack and Atlantic bonito. Other species are also caught as by-catch, such as swordfish or some shark species.

This fishery is constantly affected by the effects of any type that are produced by current international fishing conditions on bluefin tuna and other similar species, in international waters of the Mediterranean and the Atlantic.

The Mediterranean trap catches are close to 2.5% of the regional production of bluefin tuna and cannot be even remotely compared with the catches by purse seiners, which are close to 50% of the Mediterranean production of this species.

On the other hand, in the countries where this gear is still in use (Italy and Spain), efforts have been made to maintain this tradition (for example, the touristy aspect of this gear has been exploited to increase income for their owners).

This awareness comes from the fact that the international fishing conditions for bluefin tuna and other large pelagics (Mediterranean and Atlantic high seas) has, in light of the catches, made the use of this gear become random and unable to continue, but what is certain is that if this activity is not is fortified, it could disappear in the very near future.

The traps are undergoing a spectacular decline in catches. We believe, given the current situation, any measures aimed at avoiding the disappearance of this gear, without harming in any way other neighboring activities, should be encouraged, such that that it can harmonize the world of the traps between tradition and production or profitability.

2.2.3 Hand line

Since some years ago, trawl vessels have been also carrying out hand line fishing, but as a supplemental activity. This activity is carried out almost continuously during the entire year. Its total catches, all accessory, are on the order of 50 t.

2.2.4 Longline fleet

Currently, about 90 vessels are fishing in Tunisian waters **(Table 2)**. The four major ports known for swordfish landings are: Tabarka, Bizerte, Teboulba and Mahdia.

2.3 Catches

The estimated national catches of large pelagics amounted to about 6,674 tons in 2002, a decrease of 28.3% as compared to 2001, or 1,886 t.

2.3.1 Bluefin tuna

During the course of 2002, the landings of bluefin tuna amounted to 2,528 t, an increase of only 35 t **(Table 3, Figure 2)**. This increase affected particularly the purse seine catches, whereas the trap and hand line catches decreased markedly **(Table 4)**.

The monthly catches for all gears combined show that maximum catches are attained during the months of May to June of each year and, secondly during the months of April and July. It is noted that the national catch of bluefin tuna does not seem to have undergone important variations in recent years **(Table 3)**.

Bluefin tuna catches by purse seine are very important, making up the majority of the national catches (97%) **(Table 4, Figure 3**). The traps, which were the main source of the catches of this species, have diminished to the point that in 2002 they represented only 0.1% of the national catch **(Table 4)**, with a catch of 3 t for the three traps.

2.3.2 Small tunas

In 2002, small tuna catches amounted to 3,008 t, showing a substantial decrease of 2,497 t (55% of the total catch of small tunas). The catch reports show that during 2002 small tunas are almost equally represented. In effect Atlantic bonito represented 37% of the catches, followed by Atlantic black skipjack and frigate tuna, representing 32% and 31% of the landings of this group of species. The remainder of the catches are comprised of other unidentified small tunas **(Table 5)**.

We continue to view these figures with considerable reservation, since intra-species confusion has been detected. Since a few years ago, we have started to make the services concerned with statistics more aware of the importance that should be accorded to species identification. Some illustrated fishing logbooks have been distributed through the fishermen's union and the administration.

An important part of this catch corresponds to the purse seiners, lamparos and other coastal gears. Small tunas currently comprise more than 95% of the trap catches.

2.3.3 Swordfish

Swordfish fishing in Tunisian waters is gaining more and more importance. This is an activity that has generalized all along the coast. Only as far back as 1992, this fishing was restricted to the northern coast of the country.

The increase in effort and the expansion of the fishing area of the longliners that target this species have resulted in an increase in the catches, which amounted to 1,138 t in 2002, an increase of 571 t as compared to the previous year **(Table 6, Figure 4)**.

2.4. Marketing and export

Since 2000, bluefin tuna fishing is carried out by a group of tuna purse seiners. After fishing, the product is discharged to cages specifically designed to unload the product at the port. However, in 2001, the strategy changed since the fish caught are placed live in cages specifically designed for their towing to the farming sites located in Spain where they are fattened before their export to Japan. Close to 1,400 t of bluefin tuna were exported in this manner to Spain. In 2002, services concerned have informed us that 2,000 t of bluefin tuna whose weight varied between 40 and 50 kg were exported to Spain. In 2003, six bluefin tuna farms were created aimed a total capacity of 2,400 t. The national catches only amounted to 575 t, a situation that has obliged the various companies to import bluefin tuna elsewhere. Thus, were also 745 t of live bluefin tuna were imported for fattening in Tunisian cages. According to the report from the services concerned with this activity, there are currently 1,320 t in these cages.

3. Implementation of the conservation and management measures adopted by ICCAT

In accordance with the ICCAT recommendation, the General Directorate of Fisheries, assisted by the Ministry on which it depends (Agriculture) and research and professional organizations, periodically organize sessions with the boat owners, vessel captains, regional authorities, fish traders, etc., for information and awareness of the measures adopted by ICCAT and which concern the fishing of large pelagics.

The objective of these sessions is to explain to all those concerned the measures related to the activities of the sector.

In this way, for example, they were informed of the prohibition on the landing of under-size fish, establishing a minimum commercial size of bluefin tuna, the purse seine closed season from July 16 to August 15, and the prohibition on the use of spotter planes during the month of June, etc.

Needless to say, there is a fisheries control mechanism in Tunisia that continually monitors the implementation of current regulations as concerns the use of the fishing gears, the geographic areas where fishing takes place, as well as the legality of this activity in relation to the period authorized. It also monitors the landings and compliance with minimum size regulations for all the aquatic resources fished.

Furthermore, there is a statistical data collection network in place that covers all the landing points, that was created so that the competent authorities can know and monitor the level of the catches of the species or groups of species that are under some type of restriction.

4. Research activities on large pelagics

As concerns research activities, Tunisia continues to participate, through the *Institut National des Sciences et Technologie de le Mer* (INSTM), in COPEMED research activities. The objective of this regional cooperative research program between some countries in the COPEMED area is to study the fishing, ecology and biology of bluefin tuna and swordfish to improve the current state of our knowledge on these species.

The terms of reference of these studies are as follows:

- Establish and develop a sampling program and monitor the fisheries for large pelagics and collect basic data on the fisheries (catches, catch composition, geographic breakdown, catch rates, effort, etc.);
- Carry out studies aimed at obtaining biological parameters such as migration, growth, spawning season, age-at-first-sexual maturity, fecundity, etc.;
- Carry out studies aimed at the structure of the stocks (analysis of DNA sequences of bluefin tuna and swordfish).

Thus, various scientific documents were presented at the ICCAT SCRS working group and the GFCM/ICCAT working group. Following herewith is a list of scientific documents submitted to the groups as a contribution of the INSTM:

- SCRS/2002/050 La pêche du thon rouge à la senne tournante en Tunisie au cours de 2001.Hattour, A.
- SCRS/2002/051 Relation taille-poids de captures de thon rouge *(Thunnus thynnus)* en Tunisie. Hattour, A.
- SCRS/2002/052 Analyse de l'indice gonado-somatique du thon rouge *(Thunnus thynnus)* capturé par les senneurs tunisiens. Hattour, A.
- SCRS/2002/053 Analyse du sexe ratio par classe de taille du thon rouge *(Thunnus thynnus)* capturés par les senneurs tunisiens. Hattour, A.
- SCRS/2002/108 Standardized catch rates for bluefin tuna *(Thunnus thynnus)* from the trap fishery in Tunisia. Hattour, A., J. M. de la Serna and J. M. Ortiz de Urbina.

Table 1. Development of the number of tuna purse seiners in Tunisia, 1977-2002.

Year	*No. of vessels*	*Year*	*No. of vessels*	*Year*	*No. of vessels*
1977	2	1986	43	1995	67
1978	3	1987	37	1996	66
1979	7	1988	45	1997	72
1980	16	1989	41	1998	69
1981	22	1990	45	1999	60
1982	37	1991	55	2000	45
1983	41	1992	62	2001	52
1984	42	1993	65	2002	53
1985	43	1994	65		

Table 2. Characteristics of Tunisian longliners that target swordfish.

Characteristics	*Vessels*	*Length (m)*	*Gauge (t)*	*Horsepower (Hp)*
Total	90	10-16,.	7-20.3	45-115

Table 3. Monthly catches of bluefin tuna in recent years (all gears).

Month	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
January	132	39	24	77	4	21	32	1
February	51	8	105	13	12	41	0	19
March	129	290	125	418	40	140	205	132
April	237	506	112	28	413	152	5	93
May	417	205	78	110	173	138	650	423
June	363	965	1503	926	1542	1201	1148	1641
July	284	315	146	142	99	404	401	219
August	10	28	5	3	2	11	0	0
September	9	7	3	6	2	26	0	0
October	101	2	34	10	9	17	23	0
November	17	2	14	5	36	6	17	0
December	147	25	50	8	19	26	12	0
Annual total	**1,897**	**2,392**	**2,199**	**1,746**	**2,351**	**2,184**	**2,493**	**2,528**

Table 4. Bluefin tuna catches, by type of fishery, 1990-2002.

Year	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Type of fishery:													
Purse seine	114	1,073	975	1,997	2,523	1,617	2,147	1,992	1,662	2,263	2,134	2,432	2,510
Trap	249	243	175	92	169	223	154	95	35	46	13	3	3
Hand line	43	50	45	43	81	57	92	113	48	43	37	58	15
Total	**461**	**1,366**	**1,195**	**2,132**	**2,503**	**1,897**	**2,393**	**2,200**	**1,745**	**2,352**	**2,184**	**2,493**	**2,528**

Table 5. National catches of small tunas, 1990-2002.

Year	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Species:													
E.alletteratus	2,113	1,343	664	242	204	696	824	333	1,113	752	1,453	1,036	960
Sarda	488	305	643	792	305	413	560	611	855	1,350	1,528	1,183	1112
Auxis	985	985	35	20	13	14	13	26	87	38	7	2,292	932
Unidentified			20	309	105	115	215	657	6	814	905	989	4
Total	**3,586**	**2,633**	**1,363**	**1,363**	**627**	**1,238**	**1,612**	**1,630**	**2,061**	**2,954**	**3,893**	**5,628**	**3,008**

Table 6. National catches of swordfish, 1990-2002.

Year	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
Swordfish	176	181	178	354	298	378	352	346	414	468	483	567	1,138

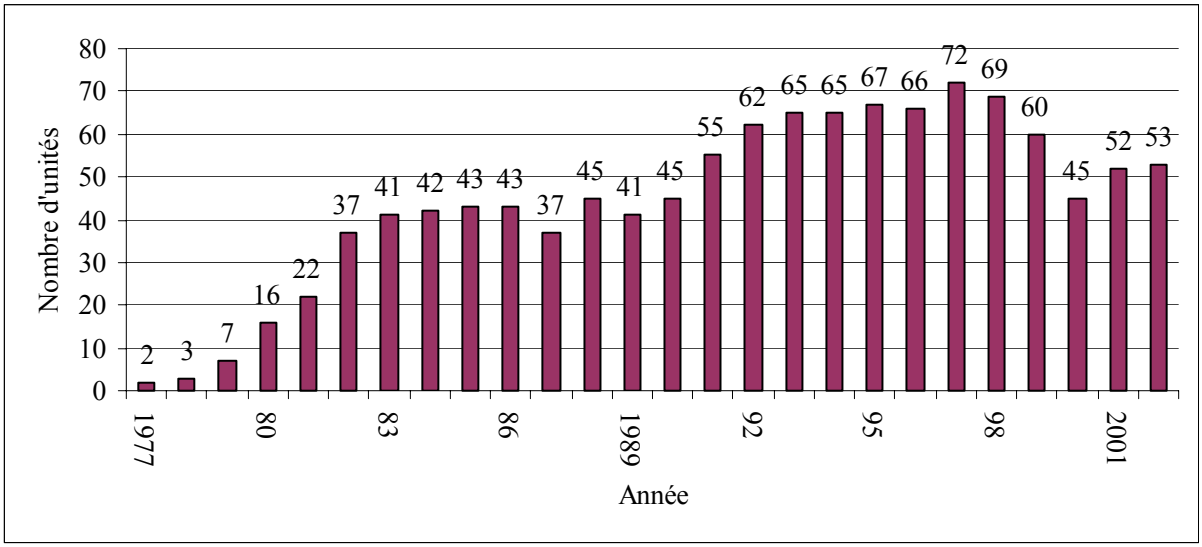


Fig 1. Development of the number of tuna purse seiners in Tunisia, 1977-2002.

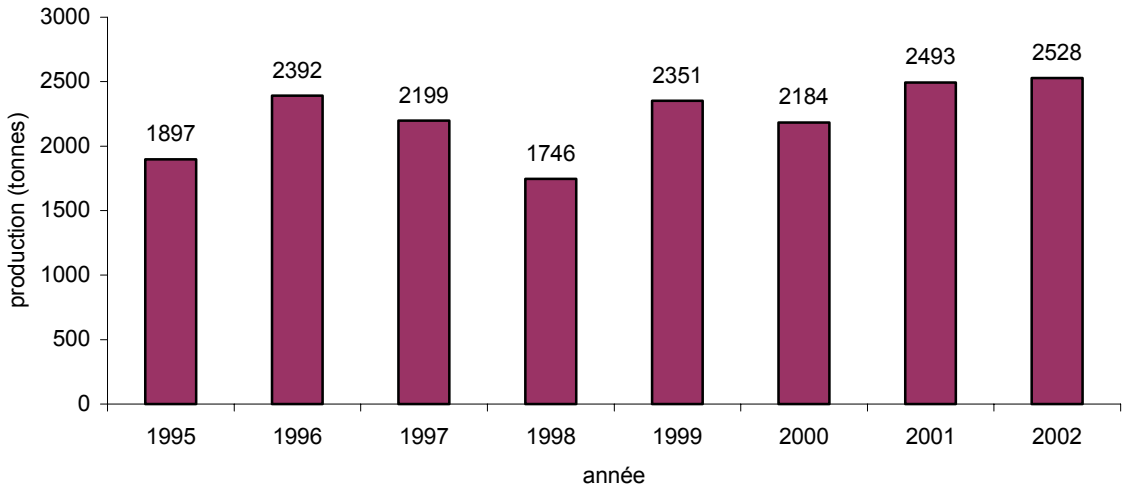


Fig. 2. Variation in annual bluefin tuna catches (for all gears) during the years 1995-2002.

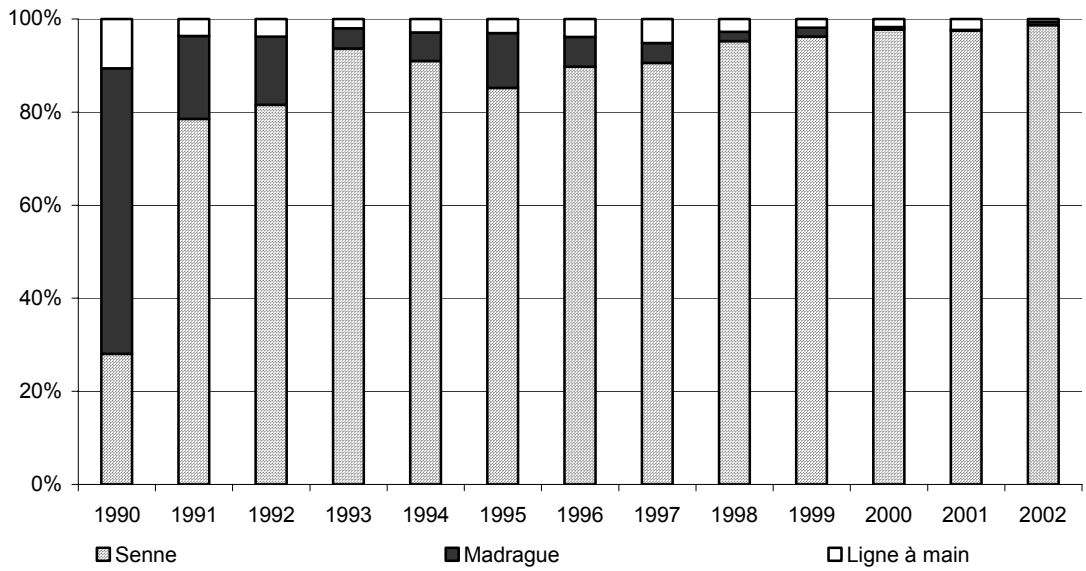


Fig. 3. Relative proportions of annual landings of bluefin tuna, by fishing type, 1990-2002.

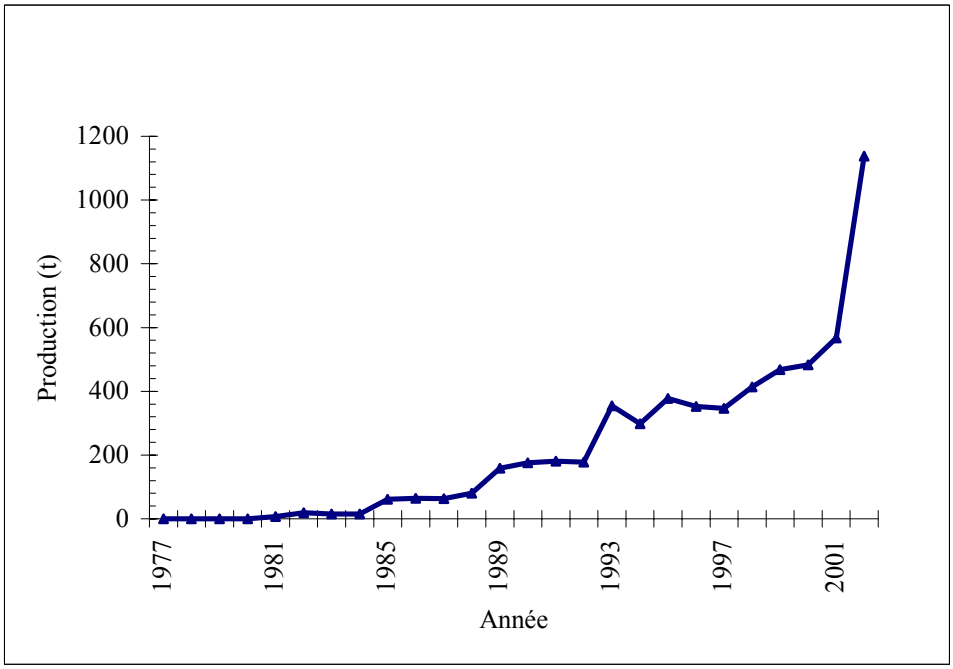


Fig. 4. Development of Tunisian landings of swordfish, 1977-2002.

NATIONAL REPORT OF TURKEY[1]

1. Introduction

In 2002, about 2,300 t of bluefin tuna were caught in Turkish waters by purse seiners in the Sea of Marmara, the Aegean Sea, and the eastern Mediterranean Sea. Albacore is not counted statistically, but is included under the bluefin tuna catch.

In 2001, catches of small tunas in Turkish waters amounted to 14,416 t, and were comprised mainly of bonito *(Sarda sarda)* 13,460 t, Atlantic black skipjack *(Euthynnus alletteratus)* 750 t, *Auxis* spp., 316 t, and swordfish 516 t .

In 2002, Turkish bluefin tuna farms began to operate in the Aegean and eastern Mediterranean Sea. The bluefin tuna fishing season for Turkish purse seiners was voluntarily closed in June 2003, 36 days before the actual catch restriction in the Mediterranean Sea (16 July-15 August 2003).

In May-June 2003, bluefin tuna fishing was conducted in national and international waters in the eastern Mediterranean Sea.

2. Research and statistics

In a joint Turkish-Italian research project in 2003, initial information on the reproductive biology of bluefin tuna in the eastern Mediterranean is given. The presence of spawning bluefin tuna in the Mediterranean Sea during late-early June 2003 is reported. This is the first evidence that bluefin tuna spawn in the eastern Mediterranean Sea. These first findings indicate that bluefin tuna can spawn one month earlier than reported for other Mediterranean spawning areas.

In an on-going joint Turkish-Italian research project, conducted in collaboration with U.S. scientists in the eastern Mediterranean Sea, 34 bluefin tuna were tagged with pop-up satellite tags. Almost all the tags were located close to the places of deployment in the eastern Mediterranean Sea. Three tags were located in the Aegean Sea.

In 2003, sampling was conducted with ICCAT on bluefin tuna for stock structure, reproduction and growth in Turkish waters.

3. Implementation of ICCAT conservation and management measures

Turkey is complying with ICCAT regulations, implementing rules to regulate the Turkish tuna fisheries. The bluefin tuna fishing season for Turkish purse seiners was closed 36 days before the actual catch restriction in the Mediterranean Sea (16 July-15 August 2003). Turkey is complying fully with ICCAT´s management and conservation measures.

[1] Original report in English.

NATIONAL REPORT OF UNITED KINGDOM (OVERSEAS TERRITORIES)[1]

BERMUDA

1. Introduction

The Bermuda commercial fishing fleet for tuna and tuna-like species consisted of 212 vessels during the year 2002 with approximately one-third of the vessels actively fishing for these species. Most of the fishing effort is carried out in the inner 50 km of the Bermuda Exclusive Economic Zone while longline operations work further offshore.

The Bermuda domestic fleet is made up largely of fiberglass commercial fishing vessels although there are some purpose-built steel longline vessels. All Bermuda-based longliners arc equipped with an Andronics satellite-based vessel monitoring system (VMS).

For the year 2002, the total catch of tuna and tuna-like species was 108 metric tons. Details of the catch composition are presented in **Table 1**.

2. Research and statistics

Bermuda continues to be involved in the ICCAT Enhanced Research Program for Billfish. A study on the post-release survival of blue marlin caught on recreational fishing vessels utilizing pop-up satellite tags continued this year. In addition, tournament sampling of blue marlin provided important data on reproductive seasonality at Bermuda's northerly latitude (32°N). The Bermuda Marine Resources Division (formerly Fisheries) continues to be engaged in a number of regional research programs directed at various pelagic species including wahoo and yellowfin tuna.

3. Implementation of ICCAT conservation and management measures

The Regulations that were passed in 2001 which introduced minimum sizes of retention for blue marlin (250 lbs/114 kg) and white marlin (50 lbs/23 kg) were evaluated this year on the basis of their first full year in effect.

4. Enforcement

Scientists act as observers on fishing vessels when sampling pelagic species as well as conducting tagging programs. The collection of scientific data on billfish and other species is ongoing. Data collection provides material for research programs and helps ensure compliance with management measures. In addition, recreational fishing for tuna and tuna-like species is monitored, thus ensuring compliance with all ICCAT recommendations.

Table 1. Summary table of catch of tuna and tuna-like species by Bermuda, 2002.

Species	*Weight (t)*
Yellowfin tuna	37
Bluefin tuna	1
Bigeye tuna	<1
Blackfin tuna	4
Albacore	2
False albacore	1
Skipjack tuna	<1
Wahoo	56
Blue marlin	2
White marlin	<1
Swordfish (North Atlantic)	2
Total	**108**

[1] Original report in English.

ST HELENA

1. National fisheries information

Although there is an established 200 mile limit around St. Helena, the full potential of the resource is unknown as only the inshore waters of between 8 and 12 miles around the island are fished. The main commercially exploited resources are yellowfin tuna, bigeye tuna, albacore and skipjack tuna, which are seasonal, and in abundance between February and June each year. Wahoo, mackerel and various species of groundfish make up the bulk of catch throughout the remainder of the year.

All fish from the commercial fleet are landed daily and delivered to the Fisheries Corporation within 12 hours after being caught. All fishing is done by longline for the licensed foreign fishing vessels or reel & rod/pole and line and longline for the local fishermen. The types of bait used are live, dead and artificial. The use or carriage of nets is not allowed within the fishery limits of St. Helena and its Dependencies. A maximum of 12 boats fished full-time complementing a crew of 18 persons. This fishing fleet consisted of 5 catamarans, 4 monohulls with wheelhouse and the rest adaptations of the old open whalers, all powered by inboard diesel engines.

The St. Helena Fisheries Corporation maintains a high quality standard, which complies with EEC Regulations (EC Directive 493). Fish are stored on ice immediately after capture and held on ice and/or chilled storage on shore before processing for daily local sales or export. Products for the local market are fresh, frozen, smoked or secondary. Secondary products consist of fishfingers, fishburgers, fishcakes, sausages etc. Exports are in frozen form only.

Keeping within the objectives of the Fisheries Ordinance, fish are marketed in various forms around the island six days a week. The rural areas are serviced by a sales van with four fixed outlets in Jamestown. Supplies for the export market are met from surplus to local requirements. Exports in various frozen forms are sent either to the EU or South Africa.

Fish landings into the Fisheries Corporation over the period January 2002 to December 2002 totaled some 223.5 metric tons of fish at a value of £86,612.27. Of this amount, some 43% of the species consisted of tuna, 11% of wahoo, 28% of skipjack, 6% of grouper and the rest consisted of various other species including swordfish, shark, mackerel, conger, cavalley, bullseye, soldier, yellowtail, dorado and filefish.

The main ICCAT species caught in 2002 were as follows:

- By pole and line:
  89.8 t of yellowfin tuna
  1.67 t of albacore
  5.1 t of bigeye tuna
  62.50 t of skipjack tuna

  Number of fishing days = 1,726

- By longline:
  0.23 t yellowfin tuna
  3.91 t of swordfish
  1,96 t of shark

  Number of fishing days = 56

2. Research and statistics

In November 2000, Argos Helena Limited was issued a license for their fishing vessel "Argos Helena" to carry out exploratory fishing trials within the EEZs of St. Helena and Ascension Islands. The purpose of the trials was to investigate the potential of the fish resource within the area. From this trial it was established that commercial species of swordfish, tuna, shark and crab were found in the area but not in sufficient quantity to sustain a viable operation of a vessel of the size of the "Argos Helena". It was considered that a vessel of up to 40 meters, capable of diversifying its operations to other fisheries might however be operated successfully.

In October 2001, the "Argos Helena" was again issued a license for a three-month period for the catching of swordfish by longline in the EEZs of St. Helena and Ascension Islands. However, the operation was abandoned after just five weeks because of the level of catches being deemed not sufficient to justify continuing.

3. Implementation of ICCAT conservation and management measures

During 2001, the sum of $99,151 was made available from UNDP funding for the establishment of a Vessel Monitoring System (VMS) within the office of the Directorate of Fisheries. The purpose of such system is to monitor fishing activities of foreign vessels licensed to fish within EEZs and ensure compliance with international fisheries management schemes (e.g. ICCAT and SEAFO) on marine conservation issues for flag States. The system is now set-up in the office of the Fisheries Directorate after being customized to suit our needs.

There were no catches of yellowfin or bigeye tuna less that the minimum weight of 3.2 kg.

NATIONAL REPORT OF THE UNITED STATES[1, 2]

1. National fisheries information

Total (preliminary) reported U.S. catch of tuna and tuna-like fishes (including swordfish, but excluding other billfishes) in 2002 was 17,793 t, a decrease of about 28% from 26,384 t in 2001. However, reported U.S. catches of king mackerel and spanish mackerel include only estimates for the period January-April and January-May, 2002, respectively. Estimated swordfish catch (including estimated dead discards) increased 39 t to 2,715 t, and provisional landings from the U.S. fishery for yellowfin in the Gulf of Mexico increased in 2002 to 2,333 t from 2,045 t in 2001. The estimated 2002 Gulf of Mexico landings of yellowfin tuna accounted for about 40% of the estimated total U.S. yellowfin landings in 2002. U.S. vessels fishing in the northwest Atlantic landed an estimated 1,913 t of bluefin, an increase of 299 t compared to 2001. Provisional skipjack landings increased by 21 t to 90 t from 2001 to 2002, estimated bigeye landings decreased by 529 t compared to 2001 to an estimated 575 t in 2002, and estimated albacore landings increased from 2001 to 2002 by 175 t to 499 t.

2. Statistics and research

In addition to monitoring landings and size of swordfish, bluefin tuna, yellowfin tuna, billfish, and other large pelagic species through continued port and tournament sampling, logbook and dealer reporting procedures, and scientific observer sampling of the U.S. fleet, major research activities in 2002 and 2003 focused on several items. Research on development of methodologies to identify genetically discrete populations of large pelagic fishes in the Atlantic was continued as were larval surveys for bluefin tuna and other large pelagics in the Gulf of Mexico. Research on development of robust estimation techniques for population analyses and on approaches for characterization of uncertainty in assessments and methods for translating that uncertainty into risk levels associated with alternative management approaches was further conducted. U.S. scientists also continued to coordinate efforts for the ICCAT Enhanced Research Program for Billfish and for the Bluefin Year Program. Participants in the Southeast Fisheries Science Center's Cooperative Tagging Center (CTC) and the Billfish Foundation tagging program tagged and released 8,489 billfishes (swordfish, marlins, sailfish, and spearfish) and 664 tunas in 2002. This represents an increase of 9% for billfish and a 34% increase for tunas from 2001 levels. Electronic tagging studies of bluefin tuna and of marlins were substantially enhanced. Cooperative research was conducted with scientists from other nations on development of assessment methodologies, on biological investigations and on development of indices of abundance for species of concern to ICCAT.

2.1 Fisheries statistics

2.1.1 Tropical tuna fishery statistics

Yellowfin tuna. Yellowfin is the principal species of tropical tuna landed by U.S. fisheries in the western North Atlantic. Total estimated landings decreased to 5,845 t in 2002, from the 2001 landings estimate of 6,703 t (Appendix Table 2.1-YFT). The 2002 estimate is considered provisional and may change owing to incorporation of late reports of commercial catches as they become available and to possible revisions in estimates of rod & reel catches made by recreational anglers. A high proportion of the landings were due to estimated rod & reel catches of recreational anglers in the northwest Atlantic (2,878 t). Estimates of U.S. recreational harvests for tuna and tuna-like species continue to be reviewed. Therefore future revisions of these estimates may be necessary. Nominal catch rate information from logbook reports (longline catch per 1,000 hooks) for yellowfin by general fishing areas is shown in Appendix Figure 2.1-YFT.

Skipjack tuna. Skipjack tuna are also caught by U.S. vessels in the western North Atlantic. Total reported skipjack landings (preliminary) increased from 69 t in 2001 to 90 t in 2002 (Appendix Table 2.1-SKJ). The largest increase in catch was in the estimates for the recreational fishery in the Caribbean (Area 93). Estimates of recreational harvests of skipjack continue to be reviewed and could be revised again in the future. Appendix Figure 2.1-SKJ presents nominal catch rate information (longline catch per 1,000 hooks) based on fishing logbook reports.

[1] Original report in English; the appendices are available from the Secretariat.

[2] U.S. Department of Commerce, NOAA-Fisheries.

Bigeye tuna. The other large tropical tuna reported in catches by U.S. vessels in the western North Atlantic is bigeye tuna. Total reported catches and landings (preliminary) for 2002 decreased by 52% from 1104 t in 2001 to 575 t (Appendix Table 2.1-BET). Note that like yellowfin, the estimates of the rod & reel catch are considered provisional and may be revised based on results of a future review of recreational harvest estimates. Appendix Figure 2.1-BET presents nominal catch rate information (longline catch per 1,000 hooks) based on fishing logbook reports.

2.1.2 Temperate tuna fishery statistics

Bluefin tuna. The U.S. bluefin fishery continues to be regulated by quotas, seasons, gear restrictions, limits on catches per trip, and size limits. To varying degrees, these regulations are designed to restrict total U.S. landings and to conform to ICCAT recommendations. U.S. vessels fishing in the northwest Atlantic (including the Gulf of Mexico) in 2002 landed an estimated 1,875 t of bluefin tuna. Those estimated landings represent an increase of 292 t from the 2001 landings. The 2002 landings, by gear, were: 208 t by purse seine, 55 t by harpoon, 4 t by handline, 50 t by longline (of which 20.33 t were from the Gulf of Mexico), 1,557 t by rod & reel (of which, 548 t was the preliminary estimate for bluefin less than 145 cm SFL from off the northeastern United States).

Regulations limit the allowable catch of small fish by U.S. fishermen in conformity with ICCAT recommendations. The preliminary landing estimates for the 2002 rod & reel fishery off the northeastern United States (including the North Carolina winter fishery) for fish < 66 cm were 559 fish totaling 2 t; estimates for fish between 66-114 cm were 13,245 fish totaling 168 t. Regulations also prohibit the sale of fish less than 178 cm; an estimated 1926 fish 145-177 cm (122 t) were primarily landed by recreational anglers using rod & reel. For longline gear, logbook tallies of dead discarded bluefin for 2002 amount to 301 fish, which were estimated to weigh 38 t.

Albacore. Albacore are landed by U.S. vessels; however, historically, albacore have not been a main focus of the U.S. commercial tuna fisheries operating in the North Atlantic. Reported commercial catches were relatively low prior to 1986. However, these catches increased substantially and have remained at higher levels throughout the 1990s, with nearly all of the production coming from the northeastern U.S. coast. Caribbean landings increased in 1995 to make up over 14% of the total, but U.S. landings from the Caribbean have remained below 4% of the total each year during 1996-2002. Nominal catch rate information from U.S. longline logbook reports is shown in Appendix Figure 2.1-ALB. Estimated total catches of albacore were 499 t in 2002, an increase of 175 t from 2001, which was primarily due to an increase in estimated rod & reel catches from 122 t in 2001 to 342 t in 2002 (Appendix Table 2.2-ALB).

2.1.3 Swordfish fishery statistics

For 2002 the provisional estimate of U.S. vessel landings and longline dead discards of swordfish was 2,709 t (Appendix Table 2.3-SWO). This estimate is larger than the estimate of 2,656 t for 2001. The provisional landings, excluding discard estimates, by ICCAT area for 2002 (compared to 2001) were: 556 t (426 t) from the Gulf of Mexico (Area 91); 1,187 t (1,040 t) from the northwest Atlantic (Area 92); 325 t (347 t) from the Caribbean Sea (Area 93); and 593 t (402 t) from the North Central Atlantic (Area 94A), and 54 t (149 t) from the Southwest Atlantic (Area 96).

U.S. swordfish landings are monitored in-season from reports submitted by dealers, vessel owners and captains, NMFS port agents, and mandatory daily logbook reports submitted by U.S. vessels permitted to fish for swordfish. This fishery is also being monitored via a scientific observer sampling program, instituted in 1992. Approximately 5% of the longline fleet-wide fishing effort is randomly selected for observation during the fishing year. The observer sampling data, in combination with logbook reported effort levels, support estimates of approximately 24,800 fish discarded dead in 2002. For the North Atlantic, the estimated tonnage discarded dead in 2002 is 261 t, of which 240 is estimated due to longline gear. Overall, the estimates of dead discarded catch declined by 15% (45 t) compared to the 2001 level. These are thought, in large part, to be due to the effects of time-area closures and other domestic management actions in place during 2002 (see Appendix).

Total weight of swordfish sampled for sizing U.S. landings by longline, harpoon, otter trawl, and handline were 2,286 t, 3 t, 0.4 t, and 7 t in 2002, respectively. The weight of sampled swordfish landings in 2002 represented substantial percentages of the total landings: longline 98%, harpoon 100%, otter trawl 10%, and handline 69%. Again, incorporation of late reports into the estimated 2002 landings figure will likely result in changes in the

sampled fraction of the catch. Recent estimates of rod & reel landings of swordfish based on statistical surveys of recreational anglers, range from about 5-48 t per year for the period 1996-2002.

2.1.4 Marlins and sailfish fishery statistics

Blue marlin, white marlin, and sailfish are landed by U.S. recreational rod & reel fishermen and are a discarded by-catch of the U.S. commercial tuna and swordfish longline fisheries. The U.S. Fisheries Management Plan for Atlantic Billfishes was implemented in October 1988. The Plan allows billfish that are caught by recreational gear (rod and reel) to be landed only if the fish is larger than the minimum size specified for each species covered by the Plan. Recreational landings of each billfish species can be estimated using: (a) the SEFSC Recreational Billfish Survey (RBS) which provides the number of billfish caught during tournaments held along the southeastern U.S. coast (south of 35^0 N latitude), in the Gulf of Mexico, and U.S. Caribbean Sea regions (i.e., U.S. Virgin Islands and Puerto Rico); (b) the Large Pelagics Recreational Survey (LPS) conducted by the National Marine Fisheries Service which provides estimates of recreational billfish harvest from waters along the northeastern U.S. (north of 35^oN latitude); (c) Marine Recreational Fishery Statistics Survey (MRFSS); (d) a Headboat survey (large multi-party charter boats); and/or (e) a coastal sport fishing survey of the Texas recreational fishery (TPW). Studies conducted indicate that use of a time-series running average from the U.S. general marine recreational fishing survey (MRFSS) in combination with data from the RBS or other surveys may provide the most reliable estimates of overall recreational catch and landings for marlins. These methods have been applied for white marline and sailfish.

Two recent ICCAT papers (i.e., SCRS/2000/057 and SCRS/2002/074) report the U.S. recreational harvest of Atlantic blue marlin and white marlin as well as the methodologies used to arrive at these estimates. Annual white marlin and blue marlin recreational harvest estimates for the years 1960 through 1999 are presented in SCRS/2000/057. Estimates for white marlin (only) were then updated through 2001 in SCRS/2002/074. From the year 1981 forward, a ratio-based estimation process is employed using data from the RBS and the MRFSS. The RBS is assumed to be accurate, but limited in scope because it covers only tournament landings. Conversely, the MRFSS covers most of the entire U.S. Atlantic fishery, but is low in precision with highly variable landings from one year to the next. Best estimates of Atlantic marlin harvests, therefore, are derived through integration of both surveys in a way that adjusts for their respective weaknesses. It is important to note that application of both the "scalar expansion" and the "dual regression" techniques used in the above papers necessarily results in changes to the historical time series of harvests of each species. This transpires because performing both techniques as described in SCRS/2000/057 involves: (1) incorporating the most recent year's survey data in calculations (or regressions) that span the entire post-1981 time-series; and (2) applying the new relationships that emerge in (1) to the last 20+ years in the data set. Here, we provide estimates for 2002 that resulted after applying the scalar expansion technique on RBS/MRFSS ratios data pertaining to white marlin. Further methodological development is needed for blue marlin catch estimation. Several possible steps could be taken to limit revision of post-1981 landings with each new year of data, but discussion of these is beyond the scope of this report. Sailfish harvest estimates were revised in 2001 (SCRS/2001/138). Confirmed landings from the three surveys (MRFSS, Headboat and TPW) were used to estimate average catch per trip for each stratum. The variability in estimated retention rates was reduced by applying the annual fraction of fish retained to estimates of the annual harvest. These estimates are considerably higher than the number of sailfish landings counted through the RBS since tournaments monitored by the RBS are known to represent only a small component of the recreational fleet that catches sailfish; therefore these estimates are thought to better reflect the magnitude of the total U.S. Atlantic recreational sailfish harvest.

Given the considerations above, the preliminary estimates of 2002 U.S. recreational catches for these billfish species, combining the geographical areas of the Gulf of Mexico (Area 91), the northwestern Atlantic Ocean West of the 60^oW longitude (Area 92), and the Caribbean Sea (Area 93) are: 17.1 t for blue marlin, 5.6 t for white marlin, and 103 t for sailfish. The estimates for 2001 were 16.4 t, 3.4 t, and 61.7 t, respectively, for the three species. The estimates of the U.S. recreational catch (landings) do not include any estimates of mortality of released (or tagged and released) fish. Appendix Table 2.4-BIL provides estimates of white marlin and sailfish landings using the estimation methods noted above. For blue marlin the estimates in Appendix Table 2.4-BIL represent RBS results and have not yet been adjusted for non-tournament fishing since the most appropriate estimation methodology is still under evaluation.

In addition to restrictions on U.S. recreational harvest, the Management Plan also imposed regulations on commercial fisheries by prohibiting retention and sale of the three species at U.S. ports. For this reason, no U.S. commercial landings were reported for any of the three Atlantic species. However, estimates of by-catch

mortality in the U.S. longline fleet are made using the data from mandatory pelagic logbooks and scientific observer data collected on this fleet. The procedure for estimating the historical by-catch of blue marlin, white marlin, and sailfish was detailed in SCRS/96/97-Revised. This procedure was implemented for estimating by-catch mortalities from the U.S. longline fleet. Revisions to historical landings of billfish previously reported to ICCAT were based on review of the estimates conducted at the 1996 ICCAT Billfish Workshop held in Miami. Estimates of the billfish by-catch discarded dead in the U.S. commercial longline and other commercial fisheries for 2001 were 22.4 t for blue marlin, 16.9 t for white marlin, and 10.8 t for sailfish. The estimated 2002 U.S. discarded dead by-catch was 49 t, 33 t, and 7 t, respectively for the three species. These estimates for 1999-2002 are also presented in Appendix Table 2.4-BIL.

2.1.5 Mackerels fishery statistics

Significant catches of king and Spanish mackerels by U.S. fishermen have occurred since the 1850s for Spanish mackerel and since the 1880s for king mackerel. The major gears currently exploiting these species are handlines and gillnets. Purse seines were also used to harvest king mackerel during the 1980s. Gillnets have historically been the main commercial gear for Spanish mackerel; however in recent years, recreational removals have become an important component in total catches for both species. The majority of king mackerel catches are taken off North Carolina and Florida and it is believed that a major production area off Louisiana is recovering. The primary Spanish mackerel catch areas include the Chesapeake Bay and Florida. Current fisheries are co-managed under the Coastal Migratory Pelagic Resources FMP enacted in 1983 and regulations adopted by the South Atlantic and Gulf of Mexico Fishery Management Council and implemented by NMFS. Annual catches are monitored closely by NMFS and within season management measures include commercial trip limits, size limits, seasonal and area quotas, and recreational per person daily bag limits. Because these species occur in both federal and state territorial zones of the United States, successful management has required participation by both federal and state management agencies. At present, none of the king or Spanish mackerel stocks are considered over-fished.

Annual yields of king mackerel have ranged from 4,365 t to 8,772 t between 1983 and 2001, with an average production of about 7,000 t since 1995. Annual catches of Spanish mackerel have ranged from 2,784 t to 5,957 t from 1983 to 2001, with the average catch of about 4,500 t since 1995. Reported 2002 U.S. catches of king mackerel and Spanish mackerel are preliminary and only include estimates for the period January-April and January-May 2002, respectively. The reported landings of king mackerel and Spanish mackerel were 2,344 t and 1,061 t, respectively.

Harvest of both species has stabilized in recent years although large fluctuations in estimates of recreational catches in some years have occurred, and commercial and recreational landings have exceeded quotas in some years. The stabilization in yields is thought to be the direct impact of regulations that have been implemented in an effort to sustain future production. The primary management factors contributing to fluctuations in annual recreational harvests include difficulties of enforcement of differential bag limits imposed in individual states, large inter-annual variances in recreational harvest estimates, and regulations that permit the sale of king mackerel from recreational charter boats after the closure of commercial fisheries.

2.1.6 Shark fishery statistics

The U.S. Federal Fisheries Management Plan (FMP) for Atlantic sharks implemented in 1993 identified three management groups: large coastal sharks, small coastal sharks, and pelagic sharks. The pelagic complex included ten species: shortfin mako (*Isurus oxyrinchus*), longfin mako *(Isurus paucus*), porbeagle (*Lamna nasus*), thresher (*Alopias vulpinus*), bigeye thresher (*Alopias superciliosus*), blue (*Prionace glauca*), oceanic whitetip (*Carcharhinus longimanus*), sevengill (*Heptranchias perlo*), sixgill (*Hexanchus griseus*), and bigeye sixgill (*Hexanchus vitulus*). The 1993 FMP classified the status of pelagic sharks as unknown because no stock assessment had been conducted for this complex. The Maximum Sustainable Yield (MSY) for pelagic sharks was set at 1,560 t dressed weight (dw), which was the 1986-1991 commercial landings average for this group. In 1997, as a result of indications that the abundance of Atlantic sharks had declined, commercial quotas for large coastal, small coastal, and pelagic sharks were reduced and the quota for pelagic sharks was set at 580 t. In 1999, the U.S. FMP for Atlantic Tunas, Swordfish, and Sharks (NMFS 1999) proposed the following measures affecting pelagic sharks: (A) a reduction in the recreational bag limit to one Atlantic shark per vessel per trip, with a minimum size of 137 cm fork length for all sharks; (B) an increase in the annual commercial quota for pelagic sharks to 853 t dw, apportioned between porbeagle (92 t), blue sharks (273 t dw), and other pelagic sharks (488 t dw), with the pelagic shark quota being reduced by any over-harvest in the blue shark quota; and

(C) making the bigeye sixgill, sixgill, sevengill, bigeye thresher, and longfin mako sharks prohibited species that cannot be retained. All these regulations were implemented in 1999 and have been in effect since then.

The U.S. shark statistics reported to ICCAT (Task I) only include: (1) landings by U.S. longline fishermen with Atlantic swordfish and tuna permits; and (2) estimates of dead discards of sharks from the U.S. tuna and swordfish longline fishery. Additional catches and landings of Atlantic pelagic sharks are made by U.S. fleets, including recreational fisheries. These total catches reported in Appendix Tables 2.6.a-2.6.c include all U.S. catches (although some of the data for 2002 are preliminary and subject to change) in anticipation of an assessment of pelagic sharks by ICCAT in 2004. Commercial landings (t) of pelagic sharks steadily increased from the early 1980s, peaked in 1995, and have shown a declining trend since that year (Appendix Table 2.6a-SHK). Recreational landings in numbers estimated from the MRFSS survey during 1981-2002 peaked to a maximum of 93,000 fish in 1985, and showed a declining trend since that year, fluctuating between about 42,600 fish in 1986 to about 4,700 fish in 2002 (Appendix Table 2.6a-SHK). Pelagic longline dead discards also fluctuated between 1987 and 2002, with a minimum of about 3,500 fish in 1999 and a maximum of about 30,500 fish in 1993, but show a declining trend overall. Total catches ranged from about 12,500 fish in 1981 (no commercial landings or discard estimates were available for that year) to about 95,000 fish in 1985, as a result of the peak in recreational landings that year.

Blue shark (*Prionace glauca*) commercial landings were generally very low (Appendix Table 2.6b-SHK). Recreational landings in numbers ranged from about 500 fish in 1994 and 1995 to over 20,000 fish in 1987. Pelagic longline discards reached 29,000 fish in 1993, but otherwise oscillated between a minimum of about 2,800 fish in 1999 to a maximum of about 19,000 fish in 1996 (Appendix Table 2.6b-SHK). The trends in recreational landings and dead discards were very similar from 1992 to 1997. Total catches ranged from 0 fish in 1982 (a year in which no commercial or recreational landings were reported) to about 43,500 fish in 1993, the year in which dead discard estimates peaked (Appendix Table 2.6b-SHK).

Shortfin mako (*Isurus oxyrinchus*) commercial landings never exceeded 5,000 fish according to available estimates (Appendix Table 2.6c-SHK). Commercial landings from 1995 to 2002 in the quota monitoring and general canvass data collection programs are also assigned to an unclassified "mako" category, in addition to the "shortfin mako" category. Adding these landings of unclassified makos, which are likely to be shortfin makos, would increase commercial landings for this species, but would not significantly affect total catches. Most of the landings were attributable to the recreational fishery, whose landings in numbers peaked in 1985 to about 80,000 fish, and ranged from less than 1,400 fish to over 31,000 fish in the remaining years. Pelagic longline discards of shortfin makos were negligible. Total catches ranged from about 3,500 fish in 1999 to almost 82,000 fish in 1985, when recreational catches peaked (Appendix Table 2.6c-SHK).

Catches of other pelagic species, such as longfin mako (*Isurus paucus*), oceanic whitetip shark (*Carcharhinus longimanus*), porbeagle (*Lamna nasus*), bigeye thresher (*Alopias superciliosus*), and thresher shark (*Alopias vulpinus*) were very small. Only for thresher shark, did total landings exceed 1,000 fish for more than one year in a row.

2.2 Research activities

Research continued on genetic identity of large pelagic fishes in the Atlantic, larval surveys for bluefin tuna and other large pelagics in the Gulf of Mexico, new methods for estimating and indexing abundance, robust estimation techniques for sequential population analyses, and estimating discards based on direct observations by scientific fishery observers. Research was also conducted on approaches for characterization of uncertainty in assessments and methods for translating that uncertainty into risk levels associated with alternative approaches. U.S. scientists also continued to coordinate efforts for the ICCAT Enhanced Research Program for Billfish and for the Bluefin Year Program. Collaborative research with scientists from ICCAT member nations and cooperating parties continues.

2.2.1 Bluefin tuna research

As part of its commitment to the Bluefin Program, research supported by the U.S. has concentrated on ichthyoplankton sampling, reproductive biology, methods to evaluate hypotheses about movement patterns, spawning area fidelity and stock structure investigations.

Ichthyoplankton surveys in the Gulf of Mexico during the bluefin spawning season were continued in 2002 and 2003. Data resulting from these surveys which began in 1977 are used to develop a fishery-independent abundance index of spawning West Atlantic bluefin tuna. This index has continued to provide one measure of bluefin abundance that is used in SCRS assessments of the status of the resource (SCRS/2002/91). U.S. scientists participated in both the 2002 and 2003 Spanish TUNIBAL experiments to coordinate research approaches. W. J. Richards, J.T. Lamkin and D. Johnson are reviewing the distribution and abundance of larval bluefin tuna from the 20+ years of plankton tows (bongo and neuston) in the Gulf of Mexico in relation to oceanographic features. A report is planned for 2004.

Since 1998, researchers from Texas A & M University and the University of Maryland with assistance of researchers from Canada, Europe, and Japan have initiated studies on the feasibility of using otolith microconstituents to distinguish bluefin stocks. To date juveniles from both nursery areas (West Atlantic or Mediterranean) were separated with moderate success with classification rates ranging between 60 to 80% (see Appendix) using microconstituents. More recently research has focused on the use of ^{13}C and of ^{18}O isotopes in otoliths to distinguish nursery habitats. For juveniles collected in 1999 and 2000, ^{18}O of Atlantic bluefin tuna collected in the West Atlantic and Mediterranean were markedly different with no overlap between nurseries, and this difference was stable across the two years. Further, stable isotope values of otolith cores from medium and giant Atlantic tuna caught in the United States tended to delineate into either high or low ^{18}O levels, indicative of origin in either the West Atlantic or the Mediterranean. (see Appendix and SCRS/2003/105).

Scientists at Virginia Institute of Marine Science and Texas A&M University continue to search for heterogeneous micro-satellite loci. In addition they have begun screening adult bluefin from the eastern and western management areas for micro-satellite frequencies. Regional and temporal heterogeneity of allele frequencies have been found for several loci, but consistent differences between adults captured in the East and West Atlantic have not been found.

Bluefin larvae have been identified for possible use in genetic analyses. During the ichthyoplankton surveys in the Gulf of Mexico during the bluefin spawning season, two neuston nets have been fished for at least a decade. Samples from one net have been preserved in ethanol so that the resulting specimens might be used for a variety of biological studies including genetic analyses and ageing. Most of those samples have now been sorted and are available for research on stock structure.

Research on bluefin tuna movement patterns using electronic tags, and on the associated methodology, was continued in 2002 and 2003. Scientists from (1) New England Aquarium, University of New Hampshire, NMFS - Northeast Fisheries Science Center and D.F.O. from Canada and (2) Stanford University and the Monterey Bay Aquarium conducted these studies.

Scientists from the New England Aquarium and the University of New Hampshire conducted studies on a variety of topics related to bluefin tuna in addition to the tagging activities and the exploratory research in the central Atlantic in 2002. Data from pop-up satellite tags are being studied to determine the reliability of the geographic information for understanding bluefin tuna movement and behavior. Studies of the relationship between bluefin schools and surface water temperatures have been conducted. Additionally, research on the bluefin movement patterns and their relationship to the environment have been investigated with respect to the utility of spotter aircraft observations as indicators of abundance. Research is also continuing on bluefin energetics, reproduction and predator-prey relations (see Appendix).

Scientists from Stanford University and Monterey Bay Aquarium tagged eight bluefin tuna in the Gulf of Mexico in 2002 and continued tagging activities off North Carolina (releasing 123 with electronic tags in 2003). Double tagging experiments were conducted to estimate error rates in light based position estimates (see Appendix).

Several documents presented to the SCRS in 2002 considered the implications of mixing between eastern and western stocks. SCRS/2002/093 examined recapture rates of tagged fish in three areas: (1) West Atlantic, (2) Northeast Central Atlantic, and (3) East Atlantic and Mediterranean. The use of the ICCAT tagging data for identifying stock mixing in the Northeast Central area was discussed, as was the possibility of differing reporting rates between areas. SCRS/2002/087 assumed a six strata spatial structure (as identified at the September 2001 ICCAT Workshop on Bluefin Mixing) and applied a simple age-aggregated (production) model approach with inter-stratum mixing. The results suggested that, with or without mixing, the 1997 catch levels of bluefin in the West Atlantic are sustainable; however, those in the East for 1997 are well above sustainable levels and need substantial reduction. Across a wide range of model input parameter values, even at relatively modest levels of

mixing, the fishery in the West was predicted to be adversely impacted unless reduction in the East takes place. In SCRS/2002/088, a multi-area, fleet-disaggregated, age-structured population dynamics model was used to evaluate the effectiveness of existing and alternative management measures under different mixing scenarios. The model simulated the dynamics of the two bluefin tuna stocks in the North Atlantic and of the fisheries that target them. Results indicated that assessment estimates can be affected considerably by the level of mixing, age-specific movement patterns, and gear selectivities.

SCRS/2002/086 identified some improvements for the ADAPT VPA assessment and projection computations carried out at the 2000 assessment, related to plus-group mass and how this was taken into account in MSY computations. Abundance indices were developed using Canadian fishery data (SCRS/2002/081), U.S. longline data (SCRS/2002/090) and U.S. rod and reel data (SCRS/2002/089) for a range of size classes of bluefin tuna.

In response to the ICCAT Commission's request for options for alternative approaches for managing mixed populations of Atlantic bluefin tuna, several papers have been submitted to the SCRS. In 2002 SCRS/2002/087 and SCRS/2002/088 presented population models that examined the implications of detailed movement and assessment models on the perception of the status of the Atlantic management units. SCRS/2002/087 used lumped biomass production model approaches while SCRS/2002/088 used age-structured approaches. SCRS/2003/105 proposed the extension of the work described in SCRS/2002/088 to further simulate bluefin population patterns and to evaluate possible assessment and management scenarios; the proposed new models would incorporate Bayesian approaches to more fully model data inputs than is currently done by the SCRS with its conventional VPA analyses and to characterize the possible range of population estimates. SCRS/2003/106 further examined the age structured model used in SCRS/2002/088, particularly with respect to its ability to replicate conventional one stock VPA estimates of resource status estimated by the 2002 SCRS and concluded that the western patterns could be replicated but the increasing recruitment pattern for the eastern management unit could not be replicated (also see Appendix). SCRS/2003/108 also examined approaches to developing more complex models of bluefin population dynamics including detailed spatial information and methods for assessing the resources and examining management procedures.

Most sampling of tissues from bluefin tuna during 2002 and 2003 has been conducted by scientists associated with the University of Maryland, Texas A&M University, the University of New Hampshire, and the New England Aquarium. Scientists from the University of Maryland and Texas A&M University collected samples from 51 bluefin of about 100-150 cm from the West Atlantic in 2002 as well as samples of juveniles from the Mediterranean Sea, in cooperation with European colleagues. Scientists from the University of New Hampshire/New England Aquarium obtained samples from 30 bluefin tuna during 2003. The National Oceanographic and Atmospheric Administration laboratory in Charleston, South Carolina is acting as a sample archive center and in 2003 received extensive sub-samples of muscle, blood and gonads from the Icelandic sampling of the Japanese longline catches in Icelandic waters in 1996-2002. The National Marine Fisheries Service observers obtained muscle, blood and gonad samples from seven mature bluefin from the Gulf of Mexico in 2002 and one mature bluefin in 2003. Tables of the numbers of fish samples available at the western bluefin tuna archive through mid-2002 are available in the 2002 National Report.

2.2.2 Swordfish research

Data from observer samples were compared against self-reported information from the U.S. large pelagic mandatory logbook reporting system and estimates of discard mortality of swordfish, billfish, sharks and other species from the U.S. fleet were developed from that analysis for the 2003 SCRS. Estimates of small swordfish by-catch for 2002 were compared to the average levels estimated for the late 1990s and were found to be substantially lower (see Appendix).

Fisher reported and observed swordfish catch, size and catch rate patterns through 2002 were examined in support of monitoring the recovery of North Atlantic swordfish. Standardized indices of abundance were updated for the western North Atlantic using data from the U.S. pelagic longline fleet (SCRS/2003/109).

Collaborative research with Venezuelan scientists continues on estimating the age-structure of the catch of swordfish. Results of this research will be available for the next assessment of North Atlantic swordfish.

Samples of more than 40 male swordfish gonads have been collected for European scientists.

Research on measures to mitigate the interactions between pelagic longline and by-catch of marine turtles continued in 2002-2003 under a cooperative research program involving the U.S. Atlantic pelagic longline fishery. Thus far, testing of five potential by-catch reduction techniques during 687 research sets on the Grand Banks has indicated that longline fishermen can avoid unintentional catches of loggerhead sea turtles by reducing the time their hooks are in the water during daylight hours. The results also indicate important sea turtle by-catch reduction can be achieved by using circle hooks instead of the J hook historically used in the fishery, and by using mackerel for bait rather than squid, the primary bait used in the fishery. The vessels participating in the experimental fishing effort reduced loggerhead sea turtle interaction by 92 percent using circle hooks with mackerel bait while actually increasing swordfish catch rates over J hooks with squid bait used as control effort. The gear and techniques developed by this program are being tested in research programs in several countries, and results of this research are being used in other fisheries and countries that operate longline gear. A report on the research progress for this program can be found at http://www.mslabs.noaa.gov/mslabs/docs/watson2.pdf.

2.2.3 Yellowfin tuna research

Several collaborative studies were conducted by U.S. scientists in cooperation with scientists from other countries. Cooperative research by the U.S. NMFS and the INP in Mexico continued and resulted in a joint analysis of U.S. and Mexican longline CPUE of yellowfin tuna in the Gulf of Mexico (SCRS/2003/061). Cooperative research plans include further development of abundance indices for sharks and other tunas, as well as the refinement of the yellowfin tuna indices as additional data become available. Cooperative research on yellowfin tuna abundance indices, catch at age, and life-history studies is also continuing with Venezuelan scientists. One document on Venezuelan longline catch rate patterns resulted from this collaboration in 2003 (SCRS/2003/054) and additional working papers based on this collaboration are expected in future years.

Several other working papers were provided in support of the 2003 stock assessment of yellowfin tuna (Merida, Mexico, July). Two relative abundance patterns (one for the Gulf of Mexico and another for the Atlantic regions fished by U.S. longline vessels) based on U.S. pelagic longline data from 1981 to 2002 were presented in SCRS/2003/060. Additionally, a relative abundance index based on data collected through the Large Pelagic Survey from the Virginia-Massachusetts rod & reel fishery (1986-2002) was presented in SCRS/2003/062.

New information from a genetic study was presented in SCRS/2003/063. The phylogenetic analysis conducted on samples from the Gulf of Mexico and Gulf of Guinea by researchers at Texas A&M, Galveston, revealed the presence of siblings in several sampling tows for juvenile tuna. Given the high level of genetic diversity at both the mitochondrial and micro-satellite loci, the probability of such sampling is extremely low and can best be explained by the unequal reproductive output of certain females. Increases in vulnerability of juvenile yellowfin tuna could be of concern in terms of genetic integrity of the population if levels of reproductive variance are confirmed to be large.

2.2.4 Albacore research

In 2003, an analysis of U.S. longline CPUE (SCRS/2003/086) was prepared in support of the ICCAT assessment of North and South Atlantic albacore.

2.2.5 Mackerels and small tunas research

U.S. small tuna research is directed mainly on king and Spanish mackerel stocks as the amount landed of other small tunas such as cero makerels by U.S. fishermen is very low. The focus of research is collection of primary fishery catch statistics, and biostatistical sample data, fishery age samples, and abundance indices. Critical research areas regarding mackerels relate to the adequacy of sampling of the age structure of the stocks, the amount of mixing between management units, and increasing the precision associated with the mackerel assessment abundance indices. Because assessment and management are by necessity by geographical units, continued research on migration of king mackerel in particular is important.

2.2.6 Shark research

Research on Atlantic pelagic sharks continued to be conducted in support of the Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks, and ICCAT. Two NMFS scientists were invited to attend a North Atlantic blue shark Discussion Meeting organized by the Irish Marine Institute in Dublin, Ireland, in January 24-25, 2002. The objectives of the meeting were to further cooperation between ICES (International Council for the Exploration of the Seas) and ICCAT, on the assessment of pelagic sharks in the North Atlantic, as well as

enhancing the links between researchers and institutes involved in pelagic shark assessment in the region. The meeting was a result of the EC-funded initiative DELASS (Developing Elasmobranch Assessments), an international research project aimed at improving the scientific basis for the management of fisheries taking elasmobranchs in Europe. Items reviewed and discussed at the meeting included information on the biology of Atlantic pelagic sharks, with emphasis on the blue shark, existing analyses and further work on blue shark stock status, cooperation between ICES and ICCAT on future assessment work of pelagic sharks, data availability, a possible assessment of blue shark by ICES in 2002, and future research directions and collaborative work.

After the meeting, a spreadsheet for calculating population parameters of blue sharks under uncertainty using a life-table approach was made available by NMFS scientists for use in the ensuing ICES Study Group on Elasmobranch Fishes stock assessment meeting held in Copenhagen, Denmark, in May 24-25, 2002. ICCAT is planning an assessment of pelagic sharks in 2004.

2.2.7 Billfish research

Sampling of recreational billfish tournaments continued in 2002 along the U.S. East Coast, Gulf of Mexico, Bahamas, and U.S. territories in the Caribbean. A total of 175 billfish tournaments were sampled in 2002, compared to 177 tournaments in 2001. This represented 134,525 hours of fishing effort, an increase of about 7,058 hours from the 2001 level. In 2002, tournament sampling accounted for 137 billfish boated (83 blue marlin, 33 white marlin, 14 sailfish, 0 spearfish and 7 swordfish) and 6,171 released. In comparison, in 2001, there were 108 billfish boated (75 blue marlin, 22 white marlin, 11 sailfish, and 0 spearfish) and 5,563 released.

A number of working papers on various aspects of marlin research were submitted to ICCAT. Document SCRS/2003/030 addresses modeling biases and contradictions among catch rate indices of abundance for Atlantic white marlin (*Tetrapturus albidus*). The paper presents a Bayesian surplus production model (with sensitivity analyses) in which q is adjusted through the latter part of the time series for some commercial fisheries, including the Japanese longline fishery. Document SCRS/2003/031 presents a computer simulation model designed to simulate many forms of fisheries data routinely collected from real fisheries. Up to 10 simultaneous fisheries on the population may be modeled, and each may have minimum and maximum vulnerable sizes and discard mortality rates. The program suite includes modules to compute equilibrium production, maximum sustainable yield, and yield per recruit for the overall selectivity pattern in any simulated year. Document SCRS/2003/032 describes a computer simulation model, SEEPA (Simulator for Evaluating the use of Environmental constraints for standardizing Population Abundance indices), designed to simulate longline catch-effort data. It allows an examination of the consequences of making wrong assumptions about the actual distributions of the fish and the gear in the habitat-standardization process. Document SCRS/2003/033 describes habitat preferences and diving behavior (as determined using electronic tags) of white marlin (*Tetrapturus albidus*) released from the commercial longline and recreational troll fisheries in the western North Atlantic Ocean. Implications for habitat-based stock assessment models are also discussed. Document SCRS/2003/104 describes modifications made to the computer simulation model, SEEPA. Differences between the distributions resulting from the current simulations and previous analyses with SEEPA are briefly discussed. Document SCRS/2003/025 summarizes research activities of the ICCAT Enhanced Research Program for Billfish in the West Atlantic Ocean during 2003 by location and research objective.

The NMFS SEFSC again played a substantial role in the ICCAT Enhanced Research Program for Billfish in 2002, with SEFSC scientists acting as General Coordinator and Coordinator for the West Atlantic Ocean. Major accomplishments in 2002 were documented in SCRS/2002/127. Highlights include 19 at-sea sampling trips with observers on Venezuelan industrial longline vessels in through September 2002. Of the trips accomplished to date, four observer trips were on Korean type vessels fishing under the Venezuelan flag. Most of these vessels are based out of Cumaná targeting tuna, swordfish, or both at the same time. Biological sampling of swordfish, Istiophorids, and yellowfin tuna for reproductive and age determination studies, as well as genetics research were continued during the 2002 sampling season. Shore-based sampling of billfish landings for size frequency data, as well as tournament sampling, were obtained from Venezuela, Grenada, U.S. Virgin Islands, Bermuda, Barbados, and Turks and Caicos Islands. Program participants in Venezuela, Grenada, and Barbados continued to assist in obtaining information on tag-recaptured billfish, as well as numerous sharks, in the West Atlantic Ocean during 2002--a total of 35 tag recovered billfish and sharks were submitted to the Program Coordinator in 2002 and 16 were submitted during the last quarter of 2001. Age, growth, and reproductive samples from several very large billfish were obtained during 2002.

In 2002, further investigations of biological habitat requirements and post-release survival of blue marlin and white marlin were conducted using pop-up satellite archival tags (PSAT) facilitated through cooperative research with the U.S. pelagic longline vessels and with the U.S. for-hire fleets operating in areas of high concentrations of billfish. To date, 25 blue marlin have been released with PSATs programmed for 30 and 40 day deployments from recreational vessels in the Caribbean and six from commercial platforms in the South Atlantic off Florida. In addition, 22 white marlin were tagged with short-term deployment (5-10 days) PSATs from recreational vessels near the southeastern tip of the Dominican Republic, and along the U.S. Mid-Atlantic coast and off Venezuela to evaluate post-release survival. In addition, six white marlin were tagged with short-term PSAT deployments from commercial longline platforms off South Florida. This research is critical for evaluation of post-release survival and essential fish habitat since for pelagic species in general, and for marlins in particular the information base is almost non-existent. Data from these fish are currently being compiled and analyzed.

2.2.8 Tagging

Participants in the Southeast Fisheries Science Center's Cooperative Tagging Center (CTC) and the Billfish Foundation Tagging Program (TBF) tagged and released 8,489 billfishes (including swordfish) and 664 tunas in 2002. This represents an increase of about 9% for billfish and an increase of 33.9% for tunas from 2001 levels. A number of electronic tagging studies involving bluefin tuna and billfish were also carried out in 2002. These are discussed in the bluefin and billfish research sections above.

There were 118 billfish recaptures from the CTC and TBF reported in 2002, representing a decrease of 11.9% from 2001. Among the 2002 CTC billfish recaptures there were 39 blue marlin, 25 white marlin, 50 sailfish, and 4 swordfish. For the CTC and TBF, a total of 37 tunas were recorded recaptured in 2001; these were 28 bluefin and 9 yellowfin tuna. These recaptures represent a 37% decrease with respect to 2001 values. The ICCAT Enhanced Research Program for Billfish in the West Atlantic Ocean has continued to assist in reporting tag recaptures to improve the quantity and quality of tag recapture reports, particularly from Venezuela, Barbados and Grenada.

2.2.9 Fishery observer deployments

Domestic Longline Observer Coverage. In accordance with ICCAT recommendations, randomized observer sampling of the U.S. large pelagic longline fleet was continued into 2002 (see Appendix Figure 2.2-Observers). Representative scientific observer sampling of this fleet has been underway since 1992. The data collected through this program have been used to quantify the composition, disposition, and quantity of the total catch (both retained and discarded at sea) by this fleet which fishes in waters of the northwest Atlantic Ocean, Gulf of Mexico, and the Caribbean Sea. Selection of the vessels is based on a random, 5% sampling of the number of sets reported by the longline fleet. A total of 5,232 sets (3,698,265 hooks) were recorded observed by personnel from the SEFSC and NEFSC programs from May 1992 to December 2002. Observers recorded over 301,343 fish (primarily swordfish, tunas, and sharks), marine mammals, turtles, and seabirds during this time period. Observer coverage successfully recorded effort from 329 observed sets during 1992, 817 during 1993, 648 during 1994, 699 during 1995, 361 during 1996, 455 during 1997, 287 during 1998, 430 during 1999, 465 during 2000, 395 during 2001, and 346 during 2002 corresponding to nominal sampling fractions of about 2.5%, 6%, 5.2%, 5.2%, 2.5%, 3.1%, 2.9%, 4%, 4%, 4%, and 4%, respectively. Starting in 2002, the sampling fraction was increased to about 8% of the longline fleet. Document SCRS/2002/126 provides a more detailed summary of the data resulting from observer sampling between 1992 and 2000.

Southeast U.S. Shark Drift Gillnet Fishery Observer Coverage. The directed shark drift gillnet Observer Program operated by the SEFSC at the Panama City (FL) Laboratory began in 1993 to meet the mandates of the Atlantic Large Whale Take Reduction Plan. Observer coverage varied from 3.2 to 26.8% yr^{-1} from 1993-1995. No coverage was provided in 1996 and 1997, but in 1998 an observer program was partially funded to meet requirements of a NMFS Biological Opinion relating to right whales and sea turtles. Continued coverage ranging from 100%, required during the Right Whale Calving season (15 Nov-1 Apr), to 30-53% has been established since 1999. A total of 322 sets of the shark drift gillnet fishery were observed during 1999-2002. Effort took place in waters off South Georgia, as well as central and South Florida.

Foreign Fishery Observers. There was no foreign fishing directed at large pelagic species in the U.S. Exclusive Economic Zone (EEZ) off the East coast during 2002.

3. U.S. Implementation of ICCAT conservation and management measures

3.1 Catch limits and minimum sizes

3.1.1Rebuilding Program for West Atlantic Bluefin Tuna [*Ref. 98-7; Ref. 02-07]*

The 1998 rebuilding program for West Atlantic bluefin tuna established an annual landings quota for the United States of 1387 t. This quota is applied to the 2002 fishing year of June 1, 2002-May 31, 2003. During the 2001 fishing year, the United States landed 1589 t dw bluefin tuna, including 82.99 t dw of bluefin tuna less than 115 cm and 41.43 t of dead discards. The under-harvest of 249 t from 2001 was carried over to adjust the 2002 fishing year quota. In 2002, the United States landed an estimated 1874 t dw (all 2002 fishing year estimates were calculated using 2001 fishing year data for the second half of the 2002 fishing year), including 169.66 t of bluefin tuna less than 115 cm and 38 t of dead discards (see Appendix, page 1).

Recommendation [Ref. 02-07] revised the annual landings quota for the United States to 1489.6 t and allocated 25 t to pelagic longline catches within the vicinity of the management boundary area. This quota is applied to the 2003 fishing year of June 1, 2003-May 31, 2004.

3.1.2 Recommendation to Establish a Plan to Rebuild Blue Marlin and White Marlin Populations [Ref. 00-13; Ref. 02-13]

Phase I requires that countries capturing marlins commercially reduce white marlin landings from pelagic longline and purse seine fisheries by 67 percent and blue marlin landings by 50 percent from 1999 levels; the United States has prohibited all commercial retention of billfish since 1988. For its part of the rebuilding program, the United States agreed to maintain regulations that prohibit all landings of marlins by U.S. pelagic longline fishermen, and to continue monitoring billfish tournaments through scientific observer coverage of at least 5 percent initially, with an objective of 10 percent coverage by 2002. The United States now exceeds these observer requirements. The United States also agreed to limit annual landings by U.S. recreational fishermen to 250 Atlantic blue marlin and white marlin, combined, per year, through 2005. Recommendation [Ref. 02-13] extended the blue marlin and white marlin rebuilding plan through 2005 and the time frames of the next stock assessments. Catch and release rates are estimated to be very high (90-95%) based on tournament data, and minimum sizes have been established at 168 cm (66 inches) for white marlin and 251 cm (99 inches) for blue marlin. While data indicate that the United States' landings have been under the 250 marlin limit, the United States is in rulemaking to codify the limit as well as implement compliance mechanisms to ensure that the limit is not exceeded.

3.1.3 Recommendation to Establish a Rebuilding Program for North Atlantic Swordfish [Ref. 99-7; Ref. 02-02]

The 1999 recommendation established an annual landings quota of 2951 t ww for the United States. Recommendation [Ref. 02-02] established new quotas for the United States for 2003-2005, a dead discard allowance of 80 t for 2003, a provision allowing up to 200 t of North Atlantic swordfish to be caught between 5 degrees North latitude and 5 degrees South latitude, and a provision to transfer 25 t to Canada. The landings quota and discard allowance are applied to a fishing year of June 1-May 31. During the 2001 fishing year, there was an under-harvest of 1437 t ww. This under-harvest was added to the landings quota for the 2002 fishing year. Landings and discard estimates for the 2002 fishing year are provided in the U.S. compliance tables (see Appendix, page 4). The United States has a minimum size of 33 lb (15 kg) dressed weight, which is designed to correspond to 119 cm, with zero tolerance. Information on compliance with the minimum size is provided in the U.S. compliance tables. The United States is in rulemaking to establish the provisions from Recommendation [Ref. 02-02].

3.1.4 Recommendation Concerning Swordfish Catches by the Tuna Longline Fishery [Ref. 00-03]

The United States established a 400 t ww reserve from the 2001 fishing year quota for North Atlantic swordfish to account for higher than anticipated discards by Japan. At the 2002 meeting, Japan indicated that a total of 215 t ww were discarded and the United States transferred that amount of quota to Japan in the 2002 fishing season year management period.

3.1.5 Recommendation on South Atlantic Swordfish [Ref. 02-03]

This recommendation establishes catch limits for the United States for 2003-2006 at 100 t for 2003 through 2005 and 120 t for 2006 and allowed that under-harvests in 2000 may be carried over to 2003. The United States is in the final stages of rulemaking to establish these provisions. The United States landed 69.86 t dw in fishing year 2001 and an estimated 53.17 t dw in fishing year 2002.

3.1.6 Recommendation on Revision and Sharing of the Southern Albacore Catch Limit [Ref. 02-06]

The United States is subject to a catch limit of 100 t in 2003, but does not have a directed fishery for southern albacore. The United States landed 2 t dw in calendar year 2001.

3.1.7 Recommendation on North Atlantic Albacore Catch Limits [Ref. 02-05]

The United States was allocated a landings quota of 607 t ww for 2003, which is a level consistent with average landings for the United States over the past ten years. This recommendation applies for one year only. Given the minor share of U.S. mortality in this fishery (< 2%), and given that the ICCAT recommendation provides for the adjustment of next year's catch level in the case of over-harvest or under-harvest, no new regulations have been proposed for this fishery in the United States. The recommendation provides that overages/underages of this annual catch limit should be deducted from or added to the catch limit established for the year 2004 and/or 2005. The United States landed 453 t dw in fishing year 2001 and an estimated 498 t dw in fishing year 2002.

In addition, pursuant to ICCAT's recommendation concerning the limitation of fishing capacity on North Atlantic albacore (1998), the United States submits annually the required reports providing a list of U.S. vessels operating in the fishery.

3.1.8 Recommendation on Bigeye Tuna Conservation Measures [Ref. 02-01]

No catch limits apply to the United States, since the 1999 catch was less than 2100 t. The United States has implemented a higher minimum size than that required by ICCAT, which provides additional protection for juvenile bigeye. This minimum size of 27 inches (approximately 6.8 kg) applies to all U.S. fisheries landing bigeye tuna, both commercial and recreational. The United States landed 1363 t dw in fishing year 2001 and an estimated 507 t dw in fishing year 2002, with no landings of bigeye tuna less than 3.2 kg for both years.

3.1.9 Resolution on Atlantic Sharks [Ref. 01-11]

This resolution calls for the submission of catch and effort data for porbeagle, shortfin mako, and blue sharks; encourages the release of live sharks to the extent possible; encourages the minimization of waste and discards in accordance with the Code of Conduct for Responsible Fisheries; and calls for voluntary agreements not to increase fishing targeting Atlantic porbeagle, shortfin mako, and blue sharks until an assessment can be conducted. The United States already submits catch and effort data for sharks and has catch limits in place for Atlantic porbeagle, shortfin mako, and blue sharks. In 2002, pursuant to the 2000 Shark Finning Prohibition Act, the United States banned the practice of finning nationwide (67 FR 6194, February 11, 2002), which will reduce waste associated with finning. Additionally, the United States adopted a National Plan of Action for the Conservation and Management of Sharks in February 2001, consistent with the International Plan of Action for Sharks, which calls for management measures to reduce waste to the extent practicable and to protect vulnerable life history stages, such as juveniles. The United States is in rulemaking to revise Atlantic shark management measures consistent with new stock assessments.

3.2 Closed seasons

3.2.1 Recommendation on the Establishment of a Closed Area/Season for the Use of Fish-Aggregation Devices [Ref. 99-01]

No U.S. action is necessary for this measure. The United States does not have any surface fleets fishing in the area covered by this recommendation.

3.2.2 Domestic Time/Area Closures for ICCAT Species

At present, the Atlantic pelagic longline fishery of the United States is subject to several discrete time/area closures that are designed to reduce by-catch in the pelagic longline fishery by prohibiting pelagic longline fishing for ICCAT species in those areas during specified times. These closures affect offshore fishing areas up to 200 nautical miles (nm) from shore (see **Figure 1**). Those closures are as follows: (1) Florida East coast: 50,720 nm^2 year-round; (2) Charleston Bump: 49,090 nm^2 from February through April each year; (3) DeSoto Canyon: 32,860 nm^2 year-round; (4) the northeastern United States: 21,600 nm^2 during the month of June each year; and (5) Northeast Distant Statistical Sampling Area (NED): 2,631,000 nm^2 year-round. 50 CFR 635.21(c)(2).

NMFS is conducting a three-year experimental fishery in the NED closed area to develop sea turtle by-catch reduction measures with the intention of reopening the NED closed area and exporting the measures to international fishing fleets. The third year of the experiment is underway.

3.3 Ban on imports

3.3.1 Trade restrictive Recommendations adopted in 2002

In 2002, ICCAT recommended bigeye tuna trade restrictions against Bolivia and bigeye tuna, swordfish, and bluefin tuna trade restrictions against Sierra Leone pursuant to its 1998 unregulated and unreported catches resolution. ICCAT also recommended import prohibitions on bigeye tuna against St. Vincent and the Grenadines to take effect on 1 January 2004, unless ICCAT decides at its 2003 meeting that this measure would be unnecessary based on documentary evidence. Furthermore, ICCAT recommended lifting import prohibitions on bluefin tuna, swordfish, and bigeye from Belize, to be effective 1 January 2004, unless ICCAT decides at its 2003 meeting that Belize has not completed necessary actions to bring its fishing practices for those species into conformity with ICCAT conservation and management measures on the basis of documentary evidence. ICCAT also recommended lifting the bigeye tuna import trade restriction against Honduras. The United States is developing regulations to implement these measures.

3.3.2 Statistical Documentation Programs

The U.S. Bluefin Tuna Statistical Document program has been in place since the 1990s. As required under the program, the United States submits reports to ICCAT twice yearly providing information on the implementation of the program. In 2001, ICCAT recommended that all bigeye tuna and swordfish be accompanied by an ICCAT Bigeye Tuna or Swordfish Statistical Document, respectively, when those species are imported into the territory of a Contracting Party. The United States already has a domestic documentation program for swordfish called the Certificate of Eligibility. Either the domestic COE form or the ICCAT Swordfish Statistical Document meets the domestic reporting requirements. The United States is developing regulations to implement these measures.

3.4 Observer programs

The U.S. observer program currently meets two main objectives: monitoring of interactions between fishing gear and protected species (marine mammals, sea turtles, and to a lesser degree, sea birds), and monitoring of fishing effort and catch (estimation of total landings of target species and/or by-catch of non-target or prohibited species). An overview of observer programs in the United States can be found at our website at: http://www.st.nmfs.gov/st1/nop/. Click on the bullets under "About US" for info about both the National Observer Program, which is a coordinating office for NMFS observer programs in our headquarters outside of Washington, DC, and the Regional Programs. Observers for U.S. vessels in ICCAT fisheries are deployed from Miami, Florida and Panama City, Florida.

3.5 Vessel monitoring

Recommendation Concerning a Vessel Monitoring System Pilot Program [Ref. 97-12]

The United States adopted fleet-wide VMS requirements in the Atlantic pelagic longline fishery in May 1999, but was subsequently sued by an industry group. By order dated September 25, 2000, the U.S. District Court for the District of Columbia prevented any immediate implementation of VMS in the Atlantic pelagic longline fishery, and instructed the National Marine Fisheries Service (NMFS) to “undertake further consideration of the

scope of the [VMS] requirements in light of any attendant relevant conservation benefits." Pursuant to that order, NMFS conducted an analysis of HMS pelagic longline vessels to determine whether the VMS requirement could be restricted to a subset of HMS pelagic longline vessels. On October 15, 2002, the District Court for the District of Columbia issued a final order upholding the VMS regulation. The United States implemented the fleet-wide VMS requirement in the Atlantic pelagic longline fishery effective September 1, 2003.

3.6 Measures to ensure effectiveness of ICCAT conservation and management measures and to prohibit illegal, unreported and unregulated fishing

The United States is committed to full participation in ICCAT´s efforts to prohibit illegal, unregulated and unreported (IUU) fishing in the Convention area. The U.S. Government is actively developing a national plan of action (NPOA) to combat IUU, consistent with the International Plan of Action that was recently adopted by the FAO. Possible regulatory or legislative actions will be considered in the context of NPOA development.

3.6.1 Management Standard for the Large-Scale Tuna Longline Fishery [Ref. 01-20]

In 2001, ICCAT resolved that minimum management standards should be established for issuance of fishing licenses to tuna longline vessels greater than 24 meters in overall length and that an annual report should be submitted to ICCAT using a specific format. The United States issued permits to 17 tuna longline vessels over 24 meters in overall length. The U.S. submission is provided in the Appendix on page 7.

3.7 Other recommendations

3.7.1 Resolution on Seabirds [Ref. 02-14]

This resolution encourages ICCAT parties to inform the SCRS and the Commission of the status of their National Plans of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries (NPOA-Seabirds) and to voluntarily submit all available information on interactions with seabirds, including incidental catches in all fisheries under the purview of ICCAT, to the SCRS. The United States submitted an update on the implementation of its NPOA-Seabirds and observer data on seabird interactions in the Appendix on page 33.

3.7.2 Resolution on Atlantic Sharks [Ref. 01-11]

This resolution calls for the submission of catch and effort data for porbeagle, shortfin mako, and blue sharks; encourages the release of live sharks to the extent possible; encourages the minimization of waste and discards in accordance with the Code of Conduct for Responsible Fisheries; and calls for voluntary agreements not to increase fishing targeting Atlantic porbeagle, shortfin mako, and blue sharks until an assessment can be conducted. The United States already submits catch and effort data for all sharks caught incidentally in ICCAT-managed fisheries and has catch limits in place for Atlantic porbeagle, shortfin mako, and blue sharks. In 2002, pursuant to the 2000 Shark Finning Prohibition Act, the United States banned the practice of finning nationwide (67 FR 6194, February 11, 2002), which will reduce waste associated with finning. Additionally, the United States adopted a National Plan of Action for the Conservation and Management of Sharks in February 2001, consistent with the International Plan of Action for Sharks, which calls for management measures to reduce waste to the extent practicable and to protect vulnerable life history stages, such as juveniles.

3.7.3 Resolution on Improving Recreational Fishery Statistics [Ref. 99-07]

Recreational landings are estimated through a combination of tournament surveys (the Recreational Billfish Survey), the Large Pelagic Survey (LPS), the Marine Recreational Fishing Statistics Survey (MRFSS), and state landings data. Final regulations adopted in 1999 require selected HMS charter/headboat vessels that do not already do so to complete a logbook; implementation of this requirement is underway. In 1999, NMFS mandated the registration of all recreational tournaments for Atlantic highly migratory species. All tournaments are now required to submit landing reports, if selected. Currently, 100% of billfish tournaments are selected for reporting. The United States finalized regulations effective in March 2003 that implemented a mandatory recreational landings self-reporting system for Atlantic blue and white marlin, West Atlantic sailfish, and North Atlantic swordfish (68 FR 711). The United States is also in rulemaking to make recreational reporting requirements consistent across all tunas, billfish, and swordfish (68 FR 54410); implementation of this requirement is underway.

3.7.4 Recommendation Concerning Registration and Exchange of Information on Vessels Fishing for Tunas and Tuna-Like Species in the Convention Area [Ref. 00-17].

The United States has submitted the list of vessels required pursuant to this recommendation to the Secretariat.

3.7.5 U.S. Swordfish Certificate of Eligibility Program

A summary of data collected through this program in 2002 is provided in the Appendix, page 6.

3.7.6 U.S. Enforcement Actions

A summary of actions taken in ICCAT fisheries is provided in the Appendix, page 8.

Recent U.S. management actions for Atlantic highly migratory species can be found online at: http://www.nmfs.noaa.gov/sfa/hms/

Federal Register notices containing the full text of proposed and final regulations can be found at: http://www.access.gpo.gov/su_docs/aces/aces140.html.

4. Other activities

U.S. Research on Gear Modification to Reduce Sea Turtle By-catch

Preliminary results from U.S. research in the Atlantic Ocean have shown that larger circle hooks significantly reduce turtle catches in the pelagic longline fishery (e.g. with mackerel bait, the number of loggerhead turtles caught was reduced by 65%). Unlike "J" hooks, which are often swallowed, circle hooks often become anchored in the mouth, and therefore hook extraction is easier and safer for sea turtles. There are a number of devices available to remove hooks and line from turtles caught on pelagic longlines. Long handled LaForce line cutters and long handled Aquatic Release Corporation dehookers are used to remove gear from turtles too large to be boated. The Epperly Biopsy Pole is used with a stainless steel corer to take tissue samples for genetics. Short handled de-hookers used to remove hooks from animals that are boated. Miscellaneous tools have been developed to remove line, hooks, or the barb or eye of hooks on boated turtles. A dip net is used to bring small (<50 kg) turtles aboard. Mouth openers and gags used on boated turtles to allow access to internal hooks. U.S. gear experts presented this by-catch reduction technology to the international fishing community and resource managers at the International Fisheries Forum in Honolulu (2002), and at the NOAA-sponsored International Technical Expert Workshop on Marine Turtle By-catch, in Seattle, Washington (2003). As new technological solutions are discovered, we will continue to help export these technologies to other fishing nations.

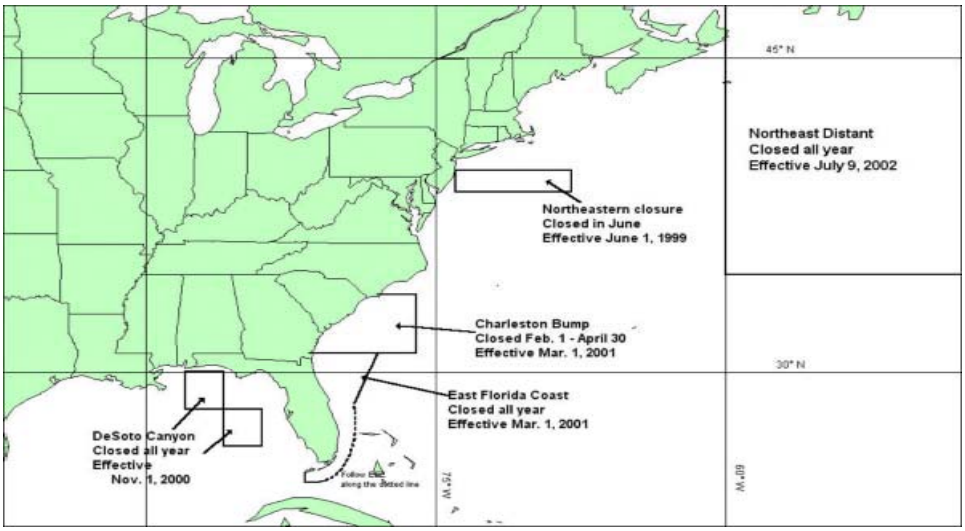


Fig. 1. U.S. domestic time/area closures for ICCAT species.

REPORTS OF OBSERVERS FROM COOPERATING NON-CONTRACTING PARTIES, ENTITIES OR FISHING ENTITIES

REPORT OF CHINESE TAIPEI[1]

1. National fisheries information

1.1 General overview

The distant water longline (DWLL) fishery is currently the only tuna fishery operated in the Atlantic Ocean and the Mediterranean Sea by Chinese Taipei. The total number of vessels operating in these areas was around 170 in 2002, a decrease from the previous year. However, the total catch made by the fleet was estimated to be about 47,000 t in 2002, a slight increase from 2001. In addition, the catch estimates for re-registered vessels under encouragement of ICCAT and the Japan-Chinese Taipei Joint Action Plan are also presented in a separate paragraph. More detailed information on major tuna species is as follows:

1.2 Albacore

Chinese Taipei longliners fished albacore all year round in the Atlantic Ocean. The total catch of this species in 2002 was estimated at 21,527 t, of which 4,305 t were caught in the North Atlantic Ocean and 17,222 t in the South Atlantic. For North Atlantic albacore, relative to the 4,399 t catch in the previous year, the catch has remained at similar level. For South Atlantic albacore, the catch increased from the 15,833 t of the previous year.

1.3 Bluefin tuna

Chinese Taipei longliners fished bluefin tuna in the Mediterranean Sea and in the East Atlantic Ocean. The catch of bluefin tuna was 666 t in 2002 and 633 t in 2001.

1.4 Tropical tunas

The catches of bigeye tuna and yellowfin tuna from the Atlantic Ocean in 2002 were estimated at about 16,503 t and 4,542 t, respectively. The catch of bigeye tuna (16,429 t in 2001) maintained a similar level relative to the previous year. The catch of yellowfin tuna decreased 5.47% from the previous year (4,805 t in 2001).

1.5 Swordfish

The preliminary estimate of swordfish catch in the Atlantic Ocean was 1,359 t in 2002, with a decrease of 6.15% from 2001, and was comprised of 286 t from the North Atlantic Ocean and 1,073 t from the South Atlantic Ocean.

1.6 Catch estimates for re-registered vessels

The preliminary catch estimates of re-registered vessels operating in Atlantic Ocean for albacore, bigeye tuna, yellowfin tuna and swordfish were 124 t, 1,980 t, 117 t and 115 t in 2002, respectively.

2. Research and statistics

2.1 Domestic research and statistics

The routine collection and compilation of data for tuna and tuna-like species are applied. Data, including Task I and Task II for all tuna and tuna-like species under ICCAT competence, as well as the number of fishing vessels, have been reported to the ICCAT Secretariat. Task I catch estimates (in round weight, t) for the Chinese Taipei tuna longline fishery that operated in the Atlantic Ocean during the 1991-2002 period was also submitted

[1] Original report in English.

to the Secretariat. Chinese Taipei scientists also presented their research results at the regular meetings and inter-sessional working group meetings of the SCRS.

2.2 Financial contribution to ICCAT scientific research

In addition to the domestic research conducted by Chinese Taipei scientists, Chinese Taipei has continued to provide financial contribution for the scientific research programs implemented by ICCAT. From 1998 to 2003, Chinese Taipei has donated US$15,000 to the ICCAT Secretariat, US$10,000 to the Bigeye Tuna Program, US$238,560 to the four-year Bigeye Tuna Year Program (BETYP), US$30,000 to the Bluefin Tuna Program (BYP), US$35,000 to the Billfish Program (BIL Program), US$3,000 to the 4th Meeting of the ICCAT Ad Hoc Working Group on Allocation Criteria, and US$50,000 to the Coordination of Research.

3. Implementation of ICCAT conservation and management measures

3.1 Limit on the number of fishing vessels for bigeye tuna and North Atlantic albacore

The number of fishing vessels for catching bigeye tuna was limited to 125 in accordance with the *Recommendation by ICCAT on the Bigeye Tuna Conservation Measures* [Ref. 02-01].

In accordance with the 1998 *Recommendation by ICCAT on the Limitation of Fishing Capacity on Northern Albacore* [Ref. 98-08], the number of fishing vessels for catching North Atlantic albacore was set at the average number for the 1993-1995 period, and a list of vessels fishing for North Atlantic albacore in 2002 and 2003 was transmitted to ICCAT Secretariat on 31 May 2002 and 15 August 2003, respectively. Likewise, in accordance with the *Recommendation by ICCAT Concerning the Establishment of an ICCAT Record of Vessels over 24 Meters Authorized to Operate in the Convention Area* [Ref. 02-22], a list of the respective vessels larger than 24 meters length overall that were licensed authorized to fish for tuna and tuna-like species in the ICCAT Convention Area was transmitted to ICCAT Secretariat on 30 June 2003.

3.2 Catch limits and minimum sizes

In accordance with the relevant ICCAT Recommendations, catch limits have been set on bigeye tuna, East Atlantic bluefin tuna, North and South Atlantic swordfish, blue marlin, and white marlin. Measures to prohibit the catch of undersized yellowfin tuna, bigeye tuna, bluefin tuna and swordfish were also implemented. More detailed information is described below. As for the *Recommendation by ICCAT Regarding Compliance with Management Measures which Define Quotas and/or Catch Limits* [Ref. 00-14], Chinese Taipei will take into account the relevant adjustment of underages/overages from one year to be added to/subtracted from the quota/catch limit immediately after or one year after that year.

3.2.1 Albacore

According to ICCAT recommendation adopted in 2001, a catch limit of 27,500 t of South Atlantic albacore was set for Chinese Taipei, South Africa, Brazil and Namibia. There was no agreement on the allocation of catch quota by individual country. During 2002, information on the cumulative catches of South Atlantic albacore were reported to South Africa every two months based on the 2001 *Recommendation by ICCAT on Revision and Sharing of the Southern Albacore Catch Limit* [Ref. 01-06]. Starting from 2003, information on the accumulative catches of South Atlantic albacore has been reported to the Secretariat under the requirement as set forth in the *Recommendation by ICCAT on the Southern Albacore Catch Limit and Sharing Arrangement for 2003* [Ref. 02-06].

3.2.2 Bluefin tuna

The catches of this species amounted to 633 t in 2001 and 666 t in 2002, which were within the catch limit. In addition, in compliance with a resolution of ICCAT, vessels were restrained from fishing for West Atlantic bluefin and from operating in the Mediterranean Sea between 1 June and 31 July. The size limit of 6.4 kg on the bluefin tuna catch in the regions was applied.

3.2.3 Swordfish

In 2002, the total catch of swordfish for Chinese Taipei vessels in the Atlantic Ocean was estimated at about 1,359 t, of which 1,073 t were made in the South Atlantic Ocean and 286 t in the North Atlantic Ocean. The discard of swordfish was estimated at about 353 t, of which 224 t was made in the South Atlantic and 129 t in the North area. In addition, restrictions on minimum weight (< 25 kg) and size (< 125 cm) of swordfish for vessels operating in this region were applied.

3.2.4 Atlantic white marlin and blue marlin

In 1997, ICCAT adopted a recommendation on the conservation of Atlantic white marlin and blue marlin, requesting a 25% reduction on the catch of these two species from the 1996 catch level within 1998 and 1999. The recommendation requested Chinese Taipei to further reduce its catch of blue marlin to 482.3 t and its catch of Atlantic white marlin to 424.5 t. The catches of blue marlin and white marlin were 272 t and 165 t, respectively, in 2002, both within the catch level as recommended. In addition, white marlin discards were estimated at about 33 t in the Atlantic Ocean.

3.2.5 Bigeye tuna

The estimated catch of bigeye tuna in the Atlantic Ocean was about 16,503 t in 2002 in accordance with the ICCAT recommendation on the bigeye tuna catch limit. Chinese Taipei also provided the list of vessels targeting bigeye tuna in this region since 1997 to comply with the ICCAT recommendation on registration and exchange of information on bigeye tuna fishing vessels. Besides, there is also a restriction on the minimum size of 3.2 kg for bigeye tuna caught in this region.

3.3 Closed seasons

In accordance with the 1993 ICCAT Recommendation [Ref. 93-7], a regulation prohibiting longline vessels from fishing for bluefin tuna in the Mediterranean from 1 June to 31 July was implemented.

3.4. Ban on imports

According to ICCAT Resolutions/Recommendations [Refs. 01-15, 01-14, 00-16, 00-15, 99-8, 99-10), the imports of products of bluefin tuna, swordfish, and bigeye tuna caught by countries as referred to in the Resolutions/Recommendations have been prohibited.

3.5 Observer programs

For purposes of better understanding the fishing activities and the by-catch issue of the longline fishery and to be in line with the international requirement for conserving marine resources, the government has launched an experimental observer program since 2001. In 2002 and 2003, two scientific observers each year were placed on board two large-scale tuna longliners operating in the Atlantic Ocean, for the collection of scientific data, biological samples and information on the fishing operations as well as on the targeted and non-targeted species. Data obtained will be reviewed and used for scientific purposes in the near future.

3.6 Vessel monitoring

All vessels that were permitted to fish for tuna and tuna-like species in the ICCAT Convention area were required to install satellite-based vessel monitoring system (VMS).

3.7 Transshipment

According to *Resolution by ICCAT on Concerning the Measures to Prevent the Laundering of Catches by Illegal, Unreported and Unregulated (IUU) Large-Scale Tuna Longline Fishing Vessels* [Ref. 02-25], fishing vessels are required to have prior authorization of at-sea or port transshipment and obtain the validated Statistical Document, whenever possible, prior to the transshipment of their tuna and tuna-like species. Transshipments should also be consistent with the reported catch amount of each vessel in validating the Statistical Document and require the reporting of transshipment.

4. Inspection scheme and activities

4.1 Inspections

The catches landed at domestic ports are required to undergo inspections according to ICCAT Resolutions and Recommendations, upon receipt of reports on alleged violations.

4.2 Related activities

To double check actual landings and reported landings, landing data were collected from traders stationed at foreign landing ports as well as at fish markets for those landings made at domestic ports. Furthermore, certified weight reports were obtained from the public surveyors who supervised the offloading of catch at importing countries, especially Japan, for crosschecking of landing/import/trade data.

5. Other recommendations and activities

5.1 Measures to ensure effectiveness of ICCAT conservation and management measures and to prohibit illegal, unreported, and unregulated fisheries

In accordance with *Resolution by ICCAT Calling for Further Actions Against Illegal, Unregulated, and Unreported Fishing Activities by Large-Scale Longline Vessels in the Convention Areas and other Areas* [Ref. 99-11], and the *Supplemental Resolution by ICCAT to Enhance the Effectiveness of the ICCAT Measures to Eliminate Illegal, Unregulated and Unreported Fishing Activities by Large-Scale Tuna Longline Vessels in the Convention Areas* [Ref. 00-19], forty-one (41) FOC vessels that were built in Chinese Taipei shipyards have been re-registered to the Chinese Taipei registry. The changes of the re-registration vessel list were also reported to the Secretariat on 7 July 2003.

In accordance with *Resolution by ICCAT Concerning More Effective Measures to Prevent, Deter and Eliminate IUU Fishing by Tuan Longline Vessels* [Ref. 01-19] the following measures have been taken: (1) Administrative guidance has been provided to the industry about not engaging in FOC/IUU activities that might diminish ICCAT conservation and management measures; and (2) Administrative guidance has been made to banking institutions about not granting loans to IUU fishers.

Furthermore, in accordance with *Resolution by ICCAT Concerning Further Defining the Scope of IUU Fishing* [Ref. 01-18], vessels that have been identified to be conducting IUU fishing were prohibited access to Chinese Taipei fishing ports.

5.2 Implementation of the ICCAT Management Standard for Large-Scale Tuna Longline Vessels

Pursuant to the *Resolution by ICCAT Concerning a Management Standard for the Large-Scale Tuna Longline Fishery* [Ref. 01-20], a report on the implementation of the ICCAT Management Standard for Large-Scale Tuna Longline Vessels was submitted to the Secretariat.

5.3 Information submitted to the ICCAT Secretariat

Lists of fishing vessels fishing bigeye tuna and North Atlantic albacore were sent to the Secretariat on 30 June and 15 August 2003.

On 31 July 2002, the following information for 1999, 2000, and 2001 was sent to the Secretariat, namely, Task I catch statistics, Task I fishing power (fleet) statistics, Task II catch and effort statistics, Task II size data, and shark data. Furthermore, size data for 1998, 1999, and 2000 for specific species were sent to the Secretariat on 11 September 2002.

According to the ICCAT recommendation adopted in 2002, the catch limit of 27,500 t on southern albacore was set for Chinese Taipei, South Africa, Brazil and Namibia, who were requested to initiate multilateral discussions when a total cumulative catch level of 22,000 t had been reached, to decide on steps to prevent catches exceeding the catch limit of 27,500 t. There was no initiative on discussions of catch allocation for individual countries. In accordance with the requirement as set forth in the recommendation, Chinese Taipei reported its cumulative catch to the Secretariat every two months in 2003.

5.4 Compliance Reporting Tables

Complying with the *Recommendation by ICCAT on the Application of Three Compliance Recommendations* [Ref. 98-14], Compliance Reporting Tables were submitted to the Secretariat.

5.5 Statistical Document

In accordance with ICCAT Recommendation, regulations on the application of Bluefin Tuna Statistical Document were implemented as from 1994. To meet the requirement of Japanese and U.S. domestic regulation on the import of swordfish, regulations on the application of the swordfish Certification of Eligibility were implemented starting from June 1999 and November 2000 for the United States and Japan, respectively. Furthermore, a system for issuing the ICCAT Bigeye Tuna Statistical Document in accordance with ICCAT recommendation has been in effect since 1 July 2002.

5.6 Shark statistics

In order to be in accordance with the international trend on the management of shark species, Chinese Taipei has not only initiated the Observer Program but has also the improved the national data collection systems to achieve the goal. Specifically, the column for shark statistics in the original logbook sheets is subdivided into four columns for different shark species in the revised format of the logbook sheets.

REPORTS OF OBSERVERS FROM NON-CONTRACTING PARTIES, ENTITIES OR FISHING ENTITIES

NATIONAL REPORT OF BELIZE[1]

A. Mouzouropoulos[2] and Beverly Wade[3]

1. National fisheries information

Belize, through its Ministry of Agriculture and Fisheries, is an active member of the following organizations: FAO, Caribbean Regional Fisheries Mechanism (CRFM), *Organización del Sector Pesquero y Acuícola del Istmo Centroamericano* (OSPESCA), *Organización Latinoamericana de Desarollo Pesquero* (OLDEPESCA), *Programa Ambiental Regional para Centroamerica* (PROARCA), *Comisión de Pesca para el Atlántico Centro Occidental*
(COPACO).

The Fisheries Department's mission is "to provide the country and the people of Belize with the best possible management of aquatic and fisheries resources with a view to optimize the present and future benefits through efficient and sustainable management".

Over the last decade, the local fishing industry of Belize has made a significant contribution to the development of the country by providing direct employment to fishermen and processing personnel. The local fishing industry ranks as the third foreign exchange earner in the country and contributed 7.2% of the GDP in 2001. The local fishing activity is carried out within the shallow protected waters of the main barrier reef as well as the three atolls. It revolves around lobster and conch fisheries as well as shrimp trawling. The local fishing fleet as well as its fishermen are licensed by the Fisheries Department.

The fleet which fishes on the high seas is registered by the International Merchant Marine Registry of Belize (IMMARBE) and is licensed by the Fisheries Department. IMMARBE is dedicated to providing "an efficient, cost effective quality ship registration service and to enforce national laws and international Conventions which have been ratified by Belize in the interests of safety at sea and the protection of the environment." It is a Gold Corporate Sponsor of Belize's Audubon Society, which became the first Belizean member of the World Conservation Union, the world's largest environment organization, based in Switzerland. As part of its own eco-shipping policy, with effect from 1 January 2003, IMMARBE introduced a 15% rebate on the Annual Tonnage Tax for any vessels of 7501 GT and above as well as for any self-propelled tankers of up to 7500 GT that attain certification for the Green Award or the ISO 14001 Environmental Standard. Belize is the first shipping Registry to have introduced such an incentive.

For your guidance, Belize has been placed on the IMO White List in November 2001 and the Shipping Registry attained ISO 9002 accreditation in November 2001. Furthermore, as the result of its quality measures involving the de-registration of some 1,584 vessels of all types, the Port State Control three-year rolling detention ratios for the Belize registered fleet have improved dramatically, e.g. in the U.S. Coast Guard from 23.08% in 2001 to 16.7% in 2002 and in the Paris MOU from 24% to 20.5%

2. Statistics and research

As already reported to ICCAT on 4 August 2003, there are no Belize registered fishing vessels on the high seas catching tuna, tuna-like species or sharks within the ICCAT Convention area. Consequently, Belize has submitted nil returns for Task I catch statistics, Task I fishing power (fleet) statistics, Task II catch and effort statistics, Task II size data, and catch-by-size data.

[1] Original report in English.
[2] Director-General, International Merchant Marine Registry of Belize.
[3] Fisheries Administrator, Fisheries Department.

3. Implementation of ICCAT conservation and management measures

You will recall that at the meetings of the Commission in 2001 and in 2002, Belize expressed its commitment to implement measures to eliminate the activities of fishing vessels that were identified as diminishing the effectiveness of ICCAT conservation. Belize is now pleased to report that the implementation of the aforementioned measures has been completed and therefore wishes to summarize these measures as follows:

3.1 De-registration of non-compliant fishing vessels

Belize has already submitted to the ICCAT Secretariat the names of 513 fishing vessels that were de-registered during the period from 1 September 2001 to 11 October 2002. Vessels which are ascertained as fishing illegally are not only de-registered but also fined in accordance with our Registration of Merchant Ships (Disciplinary Regulations, 1999) S.I. Number 56 of 1999 which includes as an offence "the violation of any International Conventions ratified by Belize, or Resolutions issued by the competent bodies of the United Nations " as well as our Resolution No. 195 Section 8(c) for violation of "the fishing regulations and conservation programs for the protection of certain marine species and areas which have been set in place by Regional Agreements and/or organizations such as ICCAT, IATTC, CCAMLR, IOTC, NAFO, NASCO and others." Belize is pleased to report that the level of non-compliance has dropped dramatically and consequently we have only de-registered "ex officio" six vessels during the period November 2002 to September 2003 for offenses relating to their fishing operations. Furthermore, during this period Belize has only received complaints from fishing organizations worldwide in respect of nine vessels, all of which have been vigorously investigated and appropriate action has already been taken in respect of those found to be non-compliant. There are no outstanding cases under investigation.

3.2 Implementation of the High Seas Fishing Act 2003 (HSFA)

This Act was approved by Cabinet on 8 October 2002 and was passed by the House of Representatives and the Senate of Belize on 1 February 2003. It basically follows the model recommended to us by the CARICOM Fisheries Unit/Caribbean Regional Fisheries Mechanism. This Act embodies the requirements of the 1993 FAO Compliance Agreement, the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, the Fish Stocks Agreement insofar as these relate to the Flag State in relation to its high seas fleet and co-operation with other States in this regard. Briefly, the Act provides for:

- Part III Section 4: the mandatory licensing of all high seas vessels in compliance with the abovementioned Agreements

- Section 3(2): the "monitoring, control and surveillance of the operations of fishing vessels of Belize pursuant to Articles V and VII of the Compliance Agreement."

- Part IV: International Co-operation which includes the provision of information to international organizations as well as the exchange of information with other States in compliance with Articles V and VI of the Compliance Agreement, Sections 28-32 of the IPOA as well as Articles 20 and 21 of the Fish Stocks Agreement.

- Part V: Enforcement of the Act that incorporates the provisions of the Merchant Ships (Disciplinary Regulations 1999) S.I. Number 56 of 1999.

- Part IV: Prohibition and Offences which, *inter alia*, prohibits activities which undermine the effectiveness of international conservation and management measures.

3.3 Fishing vessel licensing

In addition to compliance with the requirements of the Registration of Merchant Ships Act as amended in 1996, the Registration of Merchant Ships (Fishing Vessels of 24 meters in length and above) Safety Regulations, all new registrations as well as fishing vessels which are already registered are required to apply for a High Seas Fishing License by completing the relevant Application Form detailing, *inter alia*, a description of the vessel, its fishing gear, area of fishing, the species targeted, method of processing etc. Vessels that wish to fish in breach of conservation measures or for species for which Belize has no agreed catch quotas from ICCAT are not registered or licensed. Belize has not issued any licenses for fishing tuna or tuna-like species in the Atlantic or neighboring

seas. All licenses are valid for one year. Renewal is dependent upon the license holder having adhered to all conditions of this license.

3.4 Vessel monitoring (VMS)

Belize has successfully implemented VMS Reporting on its fishing vessels. It is based on Inmarsat, utilizing Inmarsat C, Inmarsat Mini-C and Inmarsat D+ equipment. Our provider is Pole Star Space Applications Limited who utilizes an automatic, real time, internet based service called Purple Finder Vessel Management Solutions. This reporting system complies with the recommendations by ICCAT.

3.5 Catch and effort reporting

Fishing vessel owners/operators are required to submit data of their fishing operations based on our format for such reporting which includes a detailed fishing log showing information regarding catch, landings etc.

4. Inspection schemes and compliance

For the purpose of ensuring compliance, surveillance will be conducted on a regular basis or as a result of an investigation by: boarding at sea or in port, plant checks, observer teams, requesting the assistance of other governments/organizations, as necessary.

Belize believes that by the actions that have been taken and the results thereof, Belize has fully demonstrated not only its commitment to, but also its effective implementation of, ICCAT conservation and management measures.

NATIONAL REPORT OF ST VINCENT & THE GRENADINES[1]

Leslie Straker[2]

1. The local fishing fleet

The local pelagic fishing fleet of St. Vincent and the Grenadines is a predominantly artisanal one. In 2002 there were 624 registered vessels in St. Vincent and the Grenadines and 1,560 fulltime fishers. Because of the small-scale nature of fishing operations any one of these vessels is likely to catch tunas and tuna-like species opportunistically. However, it is estimated that 250 of these vessels (500 fishers) target these species. More than 95% of these vessels are open fiberglass boats less than 8m in length. They are equipped with 15-125 Hp gasoline outboard engines. The other 5% of the pelagic fishing fleet is comprised of six longliners (13 m in length) and several "day tour" boats that are engaged in sport fishing.

In general a fishing trip has a duration of one day for the open fiberglass vessels (4:00 am-4:00 pm) and up to five days for the longliners. The smaller vessels fish predominantly in the eastern waters of the state 50 miles off-shore. The longliners conduct fishing in the western waters of the state 150 miles off-shore. Trolling by the open vessels; longlining by the longliners, beach seining and gillnetting are the primary fishing gears used to catch tuna and tuna-like species.

Landings of tuna and tuna-like species by the local artisanal fishing fleet for 2002 decreased for most of these species **(Table 1)**. In particular yellowfin tuna decreased by more than 10 metric tons (t) from the 2001 estimate while skipjacks decreased by more than 38 t.

2. The high seas fishing fleet

St. Vincent and the Grenadines is also responsible for a high seas fishing fleet. These vessels are foreign owned vessels registered with St. Vincent and the Grenadines and conduct their fishing activities on the high seas. In 2002 there were 42 vessels fishing in the Atlantic. Tuna and tuna-like species were caught with yellowfin tuna being the main species targeted. The main areas of 10^{o}-15^{o}N and 55^{o}-70^{o}W, and 20^{o}-25^{o}N and 40^{o}-70^{o}W were the two main areas for fishing activity in the Atlantic by these vessels in 2002. Reported catch from these two areas totaled 1,591 t and 502 t, respectively, for all species **(Table 2)**.

Total reported landings of 3,738 t for 42 vessels fishing in the Atlantic in 2002 were less than the 8,289 t for the 38 vessels reporting in 2001. In particular, landings for bigeye tuna decreased substantially from 505 t in 2001 to 14 t in 2002. This amount (14 t) probably reflects inadvertent by-catch by these longline vessels. Landings for albacore decreased from 5,662 t to 501 t. This represents a very substantial decrease. However, St. Vincent and the Grenadines recognizes that while some by-catch is anticipated, this is still too large a catch given ICCAT management initiatives with respect to this species. St. Vincent and the Grenadines will therefore continue to work towards further decreasing catches for albacore hence facilitating greater compliance with ICCAT regulations. Yellowfin tuna also showed a decrease from its 2001 level of 1,340 t to 1,162 t in 2002. The miscellaneous category however showed a substantial increase from 83 t in 2001 to over 1,663 t in 2002. In 2003 measures will be put in place to ensure that this particular category is further disaggregated when reporting.

In **Table 3** the length and gross tonnage of St. Vincent and the Grenadines High Seas fishing vessels are shown. Eighteen (18) vessels in 2002, fishing in the Atlantic, were over 24 meters in length. Of these vessels, 17 were longliners and one was a mother ship.

[1] Original report in English.
[2] Fisheries Division, Ministry of Agriculture Lands and Fisheries.

3. Legislation

The Fisheries Division operates under the Ministry of Agriculture Lands and Fisheries and is responsible for the overall management and development of the fisheries sector. The Division has the following pieces of legislation to assist in this task:

- The Maritime Areas Act of 1983
- The Fisheries Act, No.1 of 1986
- The Fisheries Regulations, No. 8 of 1987 to the Act No. 1 of 1986
- The Fisheries Processing Regulations of 2001
- The High Seas Fishing Act of 2001
- The High Seas Fishing Regulations (pending)

Table 1. Annual landings (t) of tunas and tuna-like species in St. Vincent and the Grenadines (2000-2002), by local fishing vessels.

Common Name	*Scientific Name*	*2000*	*2001*	*2002*
Yellowfin tuna	*Thunnus albacares*	33.4	23.5	13.4
Albacore	*Thunnus alalunga*	0.8	0.3	0
Skipjack tuna	*Katsuwonus pelamis*	68.1	96.8	58
Blackfin tuna	*Thunnus atlanticus*	23	24	10
Bigeye tuna	*Thunnus obesus*	0.6	0.03	0
Little tuna	*Euthynnus alletteratus*			
Wahoo	*Acanthocybium solandri*	46.1	55.9	17
Mackerels	*Scomberomorus* spp.	0.9	0.4	.5
Atlantic sailfish	*Istiophorus albicans*			
Atlantic blue marlin	*Makaira nigricans*			
Atlantic white marlin	*Tetrapturus albidus*	0.1	0.7	0
Swordfish	*Xiphias gladius*	0.1	0	0
Shark unsp.				2.5
Shortfin mako	*Isurus oxyrhinchus*			

Table 2. Catch (t) data for St. Vincent and the Grenadines high seas fishing vessels for 2002 (42 vessels contributed to this data set).

Region	*Gear*	*Yellowfin*	*Bigeye*	*Albacore*	*W. marlin*	*B. marlin*	*Sailfish*	*Skipjack*	*Miscellaneous*	*Total*
0-5N and 20-45W	LLFB	58.25	0.80	26.77	0.00	1.23	5.88	3.91	52.43	149.27
0-5S and 15-20W	LLFB	1.12	0.00	4.23	0.00	0.18	0.30	0.83	23.35	30.01
10-15N and 30-35W	LLFB	1.15	0.00	2.61	0.00	0.00	0.66	0.70	5.44	10.56
10-15N and 55-70W	LLFB	540.24	2.72	13.97	0.27	4.36	56.72	144.74	828.08	1,591.09
15-20N and 45-60W	LLFB	54.17	1.92	45.39	0.00	2.35	11.88	10.87	89.16	215.73
20-25N and 40-70W	LLFB	108.00	2.40	119.04	0.00	3.58	29.49	21.76	218.10	502.36
30-35N and 45-70W	LLFB	8.52	1.79	31.11	0.00	1.18	8.30	5.45	122.08	178.45
5-10N and 30-55W	LLFB	10.60	1.63	29.12	0.00	1.25	7.59	7.76	140.91	198.85
5-10N and 30-55W	LLFB	89.57	2.91	54.42	0.00	1.78	17.12	10.68	146.30	322.78
Atlantic	LLFB	290.53	0.00	175.27	0.00	20.90	14.86	0.00	38.08	539.64
Grand total (2002)		**1,162.15**	**14.16**	**501.93**	**0.27**	**36.80**	**152.81**	**206.69**	**1,663.94**	**3,738.74**
2001 Totals		**1,340.70**	**505.54**	**5,662.40**		**305.84**	**-**	**-**	**83.29**	**8,289.70**

Table 3. Length and GRT of St. Vincent and the Grenadines high seas vessels fishing in the Atlantic greater than 24m in length (2002).

	Length (m)	*GRT (t)*	*Gear*
1	27.30	181	Longline
2	49.01	614	Longline
3	27.30	181	Longline
4	27.30	181	Longline
5	43.63	506	Longline
6	49.00	627	Longline
7	42.47	530	Longline
8	49.00	627	Longline
9	43.63	506	Longline
10	33.50	204	Longline
11	42.95	607	Longline
12	33.50	204	Longline
13	57.38	632	Longline
14	33.50	204	Longline
15	81.60	2647	Mother ship
16	46.56	635	Longline
17	28.88	178	Longline
18	45.26	544	Longline

REPORTS OF OBSERVERS FROM INTERGOVERNMENTAL ORGANIZATIONS

REPORT BY THE CARIBBEAN COMMUNITY & COMMON MARKET (CARICOM)[1,2]

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1. Introduction

The Caribbean Regional Fisheries Mechanism (CRFM) was established under the auspices of CARICOM (Caribbean Community and Common Market), and was officially launched in March 2003. The CRFM represents the permanent successor of former regional fisheries projects: the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP), and the Integrated Caribbean Regional Agriculture and Fisheries Development Programme (ICRAFD). The CRFM is expected to build on the progress achieved during CFRAMP and ICRAFD, through the continued promotion of regional cooperation and coordination in advancing management issues of common concern. This report provides statistics, research and management information on behalf of the following CRFM/CARICOM countries: Grenada, Republic of Guyana, Commonwealth of Dominica, St. Kitts and Nevis, and St. Lucia.

2. Fisheries information

Large pelagic fisheries in these countries continue to have a substantial artisanal component, which provides employment for the rural poor and an important natural domestic source of protein.

2.1 Grenada

In Grenada, large pelagic species are harvested using longline gear and by trolling also. A total of 360 vessels participate in large pelagic fishing operations. There are two types of vessels used, called 'pirogues' and 'launches'. There are 280 pirogues and 80 launches currently in operation. The pirogues are small vessels ranging from 5 to 9 m in length, and powered by outboard engines. Pirogues do not have working decks, and are used for single-day fishing trips. Grenada's pirogue fleet operates between 5 and 40 miles off the east and west coasts of the island. The longline and trolling gear of the pirogues are fully manually operated. On the other hand, Grenada's launches range from 9 to 15 m in length. These larger vessels allow fishers to stay at sea for 3-7 days at a time and to fish at greater distances off the island's west coast. The launches use longline gear, with the main lines usually deployed and retrieved mechanically but with the hook and float lines operated manually. Several species of tunas and billfishes comprise the commercial large pelagic catch in Grenada (see **Table 1**).

2.2 Republic of Guyana

In Guyana, large pelagic species are harvested by the demersal and deep slope fisheries, which are multi-species and multi-gear fisheries. The demersal fishing fleet consists of 936 vessels, 6-15 m in length: of this total, 371

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1 Original report in English.

2 Report prepared by the Caribbean Regional Fisheries Mechanism (CRFM) on behalf of Grenada, Republic of Guyana, Commonwealth of Dominica, St. Kitts and Nevis, and St. Lucia.

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vessels are equipped to conduct multi-day fishing trips. Demersal fishing operations employ a variety of gear all of which are locally constructed from raw materials: gillnets, Chinese seines, pin seines, and cadell gear (a vertical longline that is manually operated). Fishing is conducted in an area 15-20 miles off Guyana's north coast. Several demersal species are targeted, as well as several species of sharks. Some of the most commonly caught shark species are: blacktip shark (*Carcharhinus limbatus*); silky shark (*C. falciformis*); Brazilian sharpnose shark (*Rhizoprionodon lalandii*); scalloped hammerhead (*Sphyrna lewini*); smalleye hammerhead (*Sphyrna tudes*); blacknose shark (*C. acronotus*). Tuna-like species, mainly Spanish mackerel (*Scomberomorus brasiliensis*) and king mackerel (*S. cavalla*), comprise a large portion of the by-catch of demersal fishing operations.

The deep-slope fishery consists of 40 vessels, averaging 14 m in length and powered by inboard engines. These vessels fish just off the edge of Guyana's continental shelf (30-70 miles offshore), and can stay at sea for up to a month. The gears employed are traps and hand lines. Like the demersal gear, the traps and hand lines are made by traditional methods. Several species of sharks, as well as the Spanish and king mackerels, comprise a small portion of the deep-slope catch.

2.3 Commonwealth of Dominica

In Dominica, large pelagic species are harvested mainly during November to July of the following year and the fishery is developing. An estimated 342 pirogues, ranging from 6 to 8 m in length and powered by outboard engines, participate in the fishery. Fishing trips are single-day trips. Large pelagic fishers have experimented with the use of FADs since the 1980s, but the use of FADs has become more common and more organized in the last three years. The FADs are constructed from materials that are locally available, and fishers pay a small fee every time they fish around the FAD. At present there are about 12 anchored FADs in operation. Artisanal methods of trolling and longlining have been used traditionally in the past. However, with the increasing popularity and efficiency of FADs, fishers now use hand line gear more often. Several large pelagic species are commonly caught, including wahoo (*Acanthocybium solandri*), yellowfin tuna (*Thunnus albacares*), blackfin tuna (*T. atlanticus*), skipjack tuna (*Katsuwonus pelamis*).

2.4. St. Kitts and Nevis

The large pelagic fishery in St. Kitts and Nevis is developing. At present, 135 fishing vessels, mainly small open wooden boats but some fiberglass pirogues also (all less than 9 m in length), are involved in large pelagic fishing operations. These vessels are used for single-day fishing trips, but allow fishers to operate up to 35 miles offshore. There is also a small but active recreational fishery. The majority of the commercial large pelagic fishing vessels are located in Nevis. There has been a gradual increase in the use of FAD technology on both islands, with 90% of the large pelagic catch in Nevis taken around FADs. In St. Kitts, fishing methods include trolling and using single vertical longlines that are set around the FADs. In Nevis, fishers also troll around the FADs, as well as utilize hand lines. Several tuna and mackerel species make up the large pelagic catch, including wahoo (*Acanthocybium solandri)*, yellowfin tuna (*Thunnus albacares*), skipjack tuna (*Katsuwonus pelamis*). blackfin tuna (*T. atlanticus)*, Atlantic black skipjack (*Euthynnus alletteratus*), king mackerel (*Scomberomorus cavalla*) and cero mackerel (*S.regalis*).

2.5. St. Lucia

The commercial large pelagic fishery in St. Lucia is developing. A total of 1,083 fishing vessels, ranging from 4 to 20 m, are currently involved in the large pelagic fishery. The majority of the vessels are deckless fiberglass reinforced pirogues, powered by outboard engines. Fishing trips are therefore restricted to single-day trips. Vessels operate in coastal waters, and the main gears used are hand lines, bottom line, trolling gear, and tuna gillnets locally known as 'seine bonik' (used to encircle schools of tunas close to shore). Fishers also troll around FADs. The proportion of catch taken around the FADs is currently unknown. Statistical sampling of FAD catches is being considered. All gears used are manually operated. Several large pelagic species are also caught by recreational fishers, with some data coverage achieved during fishing tournaments.

3. Statistics and research

Table 1 provides currently available best estimates of commercial landings of large pelagic species in 2002 in Grenada, Republic of Guyana, Commonwealth of Dominica, St. Kitts and Nevis, and St. Lucia. The fisheries in these countries are multi-species and multi-gear fisheries, and this may explain at least in part, why certain

species landings show notable fluctuations from one year to the next. Both Dominica and St. Kitts and Nevis have recorded increased use of FADs in their large pelagic fisheries in recent years, and this may have altered both the amount of landings and its species composition (see **Table 1**).

3.1 Grenada

During 2003, Grenada's fisheries staff collaborated with U.S. scientists to put in place arrangements for resuming biological data collection on billfishes caught by the commercial fishery in Grenada. These activities are in progress, and these data should be available to facilitate assessments planned in the near future.

3.2 Republic of Guyana

During 2003, CRFM staff collaborated with Guyana to provide additional training to fisheries data collectors, with particular emphasis on the issue of shark identification. Sharks are landed dressed (i.e. without heads, tails, and fins), making species identification very difficult. The fisheries staff in Guyana is examining the possibility of introducing a logbook system and/or conducting at sea inspections to improve reporting of shark catches at the individual species level.

3.3 FAO TCP project RLA/0070: preparation for expansion of domestic fisheries for large pelagic species by CARICOM countries

Based on analyses of technical, social and economic information, this project examined the potential and requirements for further development of large pelagic fisheries in CARICOM countries, including the benefits and technical and legal implications of different regional and international management arrangements. To date, two FAO-CARICOM regional workshops have been held to review the results of the technical and socio-economic studies, and to make specific recommendations for options for future management of large pelagic species in the region. The CRFM is currently examining the feasibility of the FAO-CARICOM recommendations in order to develop the most appropriate option for CRFM member countries. At present, there is recognition of ICCAT's present strong focus on evaluation and management of the large tuna species, and the need for greater effort at the regional and sub-regional levels in respect of assessment and management of the small tuna and tuna-like species.

4. Implementation of ICCAT conservation and management measures

4.1. Grenada

Some billfish tag and release activities are conducted by the sport fishing sector, and these are usually reported directly to The Billfish Foundation. In striving to continue limiting swordfish catches, Grenada did not issue any export licenses for swordfish in 2002-2003. The minimum size regulation for swordfish is enforced.

4.2 Republic of Guyana

At this time, Guyana is limiting efforts to develop fisheries for tuna and tuna-like species for which there are existing effort limitations, minimum size regulations, and catch limits. Guyana would like to develop fisheries for tuna and tuna-like species in the near future, through expanded cooperation with ICCAT.

4.3 St. Kitts and Nevis, and St. Lucia

Some billfish tag and release activities are conducted by the sport fishing sector, and these are usually reported directly to The Billfish Foundation.

Table 1. The annual commercial large pelagic fish landings (t) of five CARICOM countries for the period 1998-2002.

Country	*Common name*	*Scientific name*	*1998*	*1999*	*2000*	*2001*	*2002*
Grenada	Yellowfin tuna	*Thunnus albacares*	484.1	430.0	403.2	758.8	593
	Skipjack tuna	*Katsuwonus pelamis*	23.4	23.0	23.3	15.3	14
	Blackfin tuna	*Thunnus atlanticus*	232.7	94.0	163.8	222.7	255
	Bigeye runa	*Thunnus obesus*	0.3	<0.5	0.4	0.2	0.3
	King mackerel	*Scomberomorus cavalla*	28.4	13.5	9.0	3.8	5
	Wahoo	*Acanthocybium solandri*	59	82.0	50.6	71.1	59
	Atlantic bonito	*Sarda sarda*	13.9	16.1	7.2	9.6	10
	Albacore	*Thunnus alalunga*	7	6.0	12.2	20.8	23
	Atlantic sailfish	*Istiophorus albicans*	151.2	148.0	164.3	186.7	151
	Blue marlin	*Makaira nigricans*	60	100.0	86.6	103.5	69
	White marlin	*Tetrapturus albidus*			0.5	15.1	8
	Swordfish	*Xiphias gladius*	32.3	42.2	84.5	73.5	54
	Shark unspecified		17.9	24.0	29.1	28.8	
	Spanish mackerel	*Scomberomorus brasiliensis*	0.9	0.9	1.0	0.2	0.6
	Frigate tuna	*Auxis thazard*		<0.1	0.2	1.1	<0.1
Republic of Guyana	King mackerel	*Scomberomorus cavalla*	440	398.0	214	239	267
	Serra Spanish mackerel	*Scomberomorus brasiliensis*	625	1143.0	308	329	441
	Blacktip shark	*Carcharhinus limbatus*			50	14.4	86
	Smalltail shark	*Carcharhinus porosus*			192	114	
	Tiger shark	*Galeocerdo cuvieri*				4	
	Smooth hammerhead	*Sphyrna zygaena*			11		4
	Sharpnose shark	*Rhizoprionodon spp.*					21
	Shark unspecified		2562	2175.0	903	666	842
Commonwealth of Dominica	Yellowfin tuna	*Thunnus albacares*		80.4	78.1	120	169
	Skipjack tuna	*Katsuwonus pelamis*		85.2	85.5	45	55
	Blackfin tuna	*Thunnus atlanticus*		79.2	83.2	54	78
	Bigeye tuna	*Thunnus obesus*				5	
	Wahoo	*Acanthocybium solandri*		50.0	45.9	11	17
	King mackerel	*Scomberomorus cavalla*		36.0	34.9	2	
	Marlin unspecified					67	72
	Tuna unspecified					12	
	Atlantic Sailfish	*Istiophorus albicans*				2	
	Swordfish	*Xiphias gladius*				1	
St. Kitts	Tuna and mackerels unspecified		10.0	9.0	3.0	4.4	11.0
Nevis	Tuna and mackerel unspecified		6.3	14.7	20.5	18.8	2

Country	*Common name*	*Scientific name*	*1998*	*1999*	*2000*	*2001*	*2002*
	Wahoo						5
St. Lucia	Yellowfin tuna	*Thunnus albacares*	166.2	123.2	133.7	144.5	93.7
	Skipjack tuna	*Katsuwonus pelamis*	163.1	153.0	216.1	151.4	106.2
	Blackfin tuna	*Thunnus atlanticus*	60.3	41.0	45.3	107.5	96.1
	Albacore tuna	*Thunnus alalunga*	0.2	0.3	0.5	3.1	2.3
	Atlantic black skipjack	*Euthynnus alletteratus*	1.6	2.3		1.1	10.4
	Tuna unspecified		3.1	3.0	1.0	0.3	1.1
	Atlantic bonito	*Sarda sarda*	<0.1	0.2	0.1	0.1	0
	Bullet tuna	*Auxis rochei*				0.1	<0.1
	King mackerel	*Scomberomorus cavalla*		-	9.1	0.6	0.7
	Spanish mackerel	*Scomberomorus maculatus*		-		0.5	26.5
	Cero mackerel	*Scomberomorus regalis*		-	3.2	5.41	0.5
	Wahoo	*Acanthocybium solandri*	250.3	310.0	243	213	217.2
	Blue marlin	*Makaira nigricans*	1		10.3	4.6	
	Shark unspecified			6.0			
	Bigeye tuna	*Thunnus obesus*	<0.1	<0.1		0.7	2.1
	Billfish unspecified						8.9

Notes:

All countries:

i) Blank spaces indicate that data were not made available for this report.

ii) Data for 2002, where available, are preliminary and subject to revision.

iii) At present, wahoo catches may include a small amount of king mackerel. Recording by individual species slowly improved through the years in some instances.

Grenada: Landings of skipjack tuna can include catches of frigate tuna and bullet tuna.

Guyana: All data for Guyana represent sampled landings only.

Commonwealth of Dominica and St. Kitts and Nevis: The use of FADs has increased in recent years.