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CONSERVATION of ATLANTIC TUNAS

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INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS

CONTRACTING PARTIES

(as of 31 December 2006)

Algeria, Angola, Barbados, Belize, Brazil, Canada, Cape Verde, China (People's Rep.), Côte d'Ivoire, Croatia, Equatorial Guinea, European Community, France (St. Pierre & Miquelon), Gabon, Ghana, Guatemala, Guinea (Rep.), Honduras, Iceland, Japan, Korea (Rep.), Libya, Mexico, Morocco, Namibia, Nicaragua, Norway, Panama, Philippines, Russia, Sao Tomé & Principe, Senegal, South Africa, St. Vincent and the Grenadines, Syria, Trinidad & Tobago, Tunisia, Turkey, United Kingdom (Overseas Territories), United States, Uruguay, Vanuatu, Venezuela

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-2- Temperate tunas, North	Algeria, Belize, Canada, China (People's Rep.), Croatia, European Community, France (St. Pierre & Miquelon), Iceland, Japan, Korea (Rep.), Libya, Mexico, Morocco, Norway, Panama, St. Vincent and the Grenadines, Tunisia, Turkey, United States	European Community
-3- Temperate tunas, South	Belize, Brazil, European Community, Japan, Namibia, South Africa, United States	South Africa
-4- Other species	Algeria, Angola, Belize, Brazil, Canada, China (People's Rep.), Côte d'Ivoire, Equatorial Guinea, European Community, France (St. Pierre & Miquelon), Gabon, Japan, Korea (Rep.), Mexico, Morocco, Namibia, Sao Tome & Principe, Senegal, South Africa, St. Vincent & the Grenadines, Trinidad & Tobago, Tunisia, Turkey, United States, Uruguay, Venezuela	Japan

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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, 2006-2007, Part I (2006)"***, which describes the activities of the Commission during the first half of said biennial period.

This issue of the Biennial Report contains the Report of the 15th Special Meeting of the Commission (Dubrovnik, Croatia, November 17-26, 2006) 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 Annual Reports of the Contracting Parties of the Commission and Observers, relative to their activities in tuna and tuna-like fisheries in the Convention area.

The Report for 2006 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 Annual Reports of the Contracting Parties of the Commission and 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.

WILLIAM T. HOGARTH
Commission Chairman

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[1]Reports received and distributed for the 2006 ICCAT annual meetings. Many Reports submitted to the Commission contain 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 2 to ANNEX 10 of the 2006 Commission Report).

ANNUAL REPORTS OF CONTRACTING PARTIES

ANNUAL REPORT OF ALGERIA[1]

After the promulgation Law 01-11 in July 2001 regarding fishing and aquaculture, the fishing and fishery resources sector in Algeria adopted a policy of integrated and sustainable development, rendered by the implementation of the *Plan National de Développement de la Pêche et de l'Aquaculture, PNDPA* (National Plan of Development of Fishing and Aquaculture).

As regards the catches of tunas and swordfish and within the framework of this policy, the sector has undertaken a development strategy that on the one hand takes into account Algeria's particular characteristics and regulations of these fisheries and its international responsibilities on the other.

At the national level, the development strategy for the fishing of tunas and tuna-like species is based on the results of a study carried out by the sector which has shown: (1) the ancient character of the fisheries, (2) the predominance of the artisanal fishing method, and (3) the important social consequences of this activity.

This study also resulted in knowledge on the limits of this type of fishing, particularly in terms of losses in profits in relation to the export of these products and to the socio-economic impacts generated by a modern fishing method.

On the international level, pursuant to Article 64 of the United Nations Convention on the Law of the Sea, Algeria has since the beginning recognized that the management of the catches of large migratory species requires shared responsibility at the regional level and, for this reason, joined ICCAT in 2001.

Thus, the *Ministère de la Pêche et des Ressources* Halieutiques, MPRH (Ministry of Fisheries and Marine Resources) has designed a strategy for the development of fishing for highly migratory species. This involves, on the one hand, the reconversion-modernization of a part of the fishing fleet for tunas and swordfish, respecting the pertinent international legal instruments and, particularly, the ICCAT Recommendations and Resolutions. This strategy was submitted for review to the Government Council, which adopted it in January 2004.

The fishing sector chose this development option because it allows combining the interesting social effects generated by traditional fishing techniques with the need to compensate for economic losses and delays in technology.

The instruments of this development strategy rely on the assistance granted by the State through successive National Plans to support and consolidate economic growth, as well as on international partnership that guarantees the transfer of technology.

As regards the 20 purse seiners foreseen by the PNDPA, three vessels over 24 m have already been purchased by private operators and reported in 2006 for the ICCAT white list and five other vessels are in the process of being built or received.

In this regard it should be noted that taking into account the level of technology required for the establishment and exploitation of a modern and effective fleet to fish large highly migratory species, Algeria has initially resorted to partnership and cooperation with other nations to benefit from their knowledge in this domain.

Thus, Algeria considers this partnership as "an initial approach for the development of a national fishery" and as such, according to provisions of the *Recommendation by ICCAT on Vessel Chartering* [Rec. 02-21] on the chartering of fishing vessels and, in particular, those mentioned in its paragraph 1.

[1] Original report in French.

Part I (Information on Fisheries, Research and Statistics

Section 1: Annual Fisheries Information

The total Algerian catches of tunas and tuna-like species amounted to 3,403 t in 2005, broken down as follows:

- Bluefin tuna (1,530 t)
- Swordfish (635 t)
- Small tunas (1,238 t).

This catch was made by a fleet comprised as follows:

- 106 artisanal longliners, 80 purse seiners and 11 trawlers. These are non-specialized vessels measuring between 6 and 24 m in length, and have 9 to 500 hp engines
- 3 specialized tuna vessels over 24 m (2 purse seiners and 1 longliner)
- 12 chartered longliners measuring 45 m.

In this respect, it should be noted that in 2003 a modernization-reconversion strategy was initiated for a part of the tuna fleet. This effort continued in 2004 and 2005 which resulted in the purchase of the first tuna vessels measuring over 24 m and at the same time to an important decrease in number of artisanal vessels participating in this fishery.

As foreseen, the first stage of this strategy has resulted in a decrease of annual catches as compared to the average catch in the 1990s. This decrease in the supply of national products on the market was largely compensated by the increase of imports of frozen tuna, fillets and canned products which amounted to almost 10,000 t in 2005.

Studies on size frequencies carried out on an estimated sample of 3,143 fish caught in April and May 2005, have shown that the size of the fish varies in a range from 90 cm and 305 cm with an average size of about 221 cm. Notwithstanding, the sample considered is mainly comprised of fish measuring from 190 cm to 255 cm.

The size frequency distribution of bluefin tuna is shown in **Figures 1** and **2**.

With regard to the weighted variation of bluefin catches, **Figure 3** shows that from a sample of 3,143 fish, the weight of this species varies from 8 to 421 kg, with an average weight of 223 kg and a predominance of fish weighing from 100 to 300 kg.

Figure 4 shows the size-weight distribution of bluefin tuna sampled in 2005.

The study on overall sex-ratio shows a difference with a tendency to balance between the abundance of males (51.92%) compared to that of females (48.08%). The overall sex-ratio is shown in **Table 1** and **Figure 5**.

Further, a clear predominance is noted of females measuring between 165 cm to 245 cm and in sizes above 250 cm a clear predominance of males is observed.

Section 2: Research and Statistics

The scheme for the collection of statistical data, in place in Algeria since the 1970s, has undergone several modifications and adjustments.

This scheme is based on statistical data collection officers who collect data at the port structures and then transmit the completed forms to the fishing agencies for processing.

The agencies transmit these data daily to the provincial authorities who in turn transmit them periodically (every ten days or once a month) to the Central Directorate which compiles, processes and analyzes the data collected.

The officers collect the information in two ways:

- By being present at the ports where the products are landed, and proceeding to checking on site;

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

The changes that have been made to this general scheme are aimed at improving the reliability of the statistical data. Thus, measures have been taken to adapt the scheme to the changes made in this area, taking as a reference the measures and recommendations of specialized regional and international organizations (FAO, ICCAT, GFCM, etc).

In this respect, it should be noted that in the past, the systems used for the collection of statistical data did not distinguish between tunas and other species. This did not facilitate the work of the scientists and researchers in monitoring and analyzing the results related to these fishery resources.

In fact, the old data collection forms only broke down the catches by group of species (white fish, blue fish crustaceans and mollusks) and fishing effort was considered in number of vessels.

Based on scientific advice, the fisheries administration made changes to the scheme in 2002 and introduced a new system for the collection of information that results in the availability of detailed monthly data on the catches (by species) and fishing effort (in number of vessels, number of days at sea, weight, vessel length and engine power).

As regards the tuna vessels, the specific scheme created is based on another method of data collection, i.e., the placing of two monitors on each vessel whose mission is to complete the statistical documents based on the ICCAT measures and recommendations.

This includes forms for the collection of information on the fishing areas, the number of fish caught, species, size, weight and sex of each fish caught, and the period of capture.

The data collected and dispatched by these two schemes (general and specific for tuna vessels) are consolidated and processed by the central administration in collaboration with scientists and comparative studies have been carried out since 1996.

As a result of the continuous efforts to improve these data collection and processing schemes, in 2005 the necessary fishery information was obtained for the completion of ICCAT Task II.

With regard to research, the fishing and marine resources sector has adopted, within the framework of its new development policy, a strategy of regional dimension that aims at integrating national research work with that carried out by international organizations: FAO, ICCAT, GFCM, and COPEMED.

For the entry into force of this strategy regarding fundamental and applied research, the Ministry of Fisheries and Marine Resources is in the process of forming a research unit in the fishing and aquaculture sector, and this in addition to its human and material capacities represented by the national network of universities and institutions focused on marine sciences.

In the meantime, research on tuna 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 major research currently in course is as follows:

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

These studies are partly based on statistical data collected since 1996 by observers on board tuna vessels.

In effect, from 2000 to 2005, scientists from the sector have processed a sample comprised of 19,001 fish. This study was essentially based on sex-ratio, size frequency, and size/weight relationship.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

Before joining ICCAT, Algeria followed a policy of rational exploitation of all its resources and adopted legislation and a regulation that reflects this option.

Thus, based first of all 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 responsible exploitation of the natural resources.

It is thus that the framework of regulations has developed from ordinance, including general rules on fishing from 1976 to the legislative decree of 1994 and finally more recently, in July 2001, to Law No. 01-11 on fishing and aquaculture.

The main objective of this framework is to regulate:

- Conditions to carry out fishing
- Market sizes of the species caught
- Sanitary and health conditions
- Sanctions and penalties, etc.

Fishing by foreign flag vessels in waters under national jurisdiction has been regulated since 1995 by the 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 March 9, 1995 and the inter-ministerial decree of November 4, 1995.

Furthermore, it should be pointed out that the fishing sector has updated the decree of March 9, 1995 concerning the opening and closing dates of the commercial fishing season for large migratory species in waters under national jurisdiction, in order to adapt it to the *Recommendation by ICCAT on Supplemental Regulatory Measures for the Management of Eastern Atlantic Bluefin Tuna* [Rec. 93-07], concerning the seasonal closure for bluefin tuna catches in the East Atlantic and the Mediterranean.

In accordance with ICCAT Recommendations [Recs. 93-02, 94-04 and 94-05] for bluefin tuna and [Recs. 00-22 and 01-22] for swordfish, the fishing sector has notified ICCAT of the implemented the ICCAT Statistical Document Programs from August 2, 2005. This system is perfectly operative as regards the control and monitoring of exports.

As concerns the control and monitoring of imports, which requires coordination with the Customs Administration, this system is in the process of being perfected, in particular, through the development of a common legal base.

In finalizing this system the Fishery Administration uses data on the import of tunas and swordfish, available at the Customs Administration, structured according to the *Système Harmonisé International* (SH 2000).

Section 4: Inspection Schemes and Activities

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

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 in place foresees controls at 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 maritime area to inspect (9.5 million hectares), the large number of small vessels fishing

these fish in an incidental manner, and the insufficient presence of the Administration and monitoring mechanisms in several secondary landing points.

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

Finally, the fisheries Administration has taken the necessary steps to implement a satellite monitoring system (identification of the service provider) which will contribute to the general control mechanism already in place.

Section 5: Other Activities

The major activity that has been carried out by the fisheries Administration for some years now has been campaigns to assess the fishery resources, within a framework of fishing policy of integrated and sustainable management. The processing of data from these fishing trips has allowed revising upward the reserves of fish production located in the waters under Algerian jurisdiction.

Another notable aspect is the closer association of the scientific community with the professional sector in the national program for the development of fishing and aquaculture through the recent establishment of the National Consultative Council for Fishing and Aquaculture.

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

Finally, coordination activities aimed at increasing the effectiveness of the conservation measures have been carried out with the structures concerned with the import and export of tunas (customs, Coast Guard, business, etc).

Table 1. Sex-ratio of bluefin tuna *(Thunnus thynnus)*.

Sex	*No. of fish*	*%*
Male	1,511	48.08
Female	1,632	51.92
Total	**2,075**	**100.00**

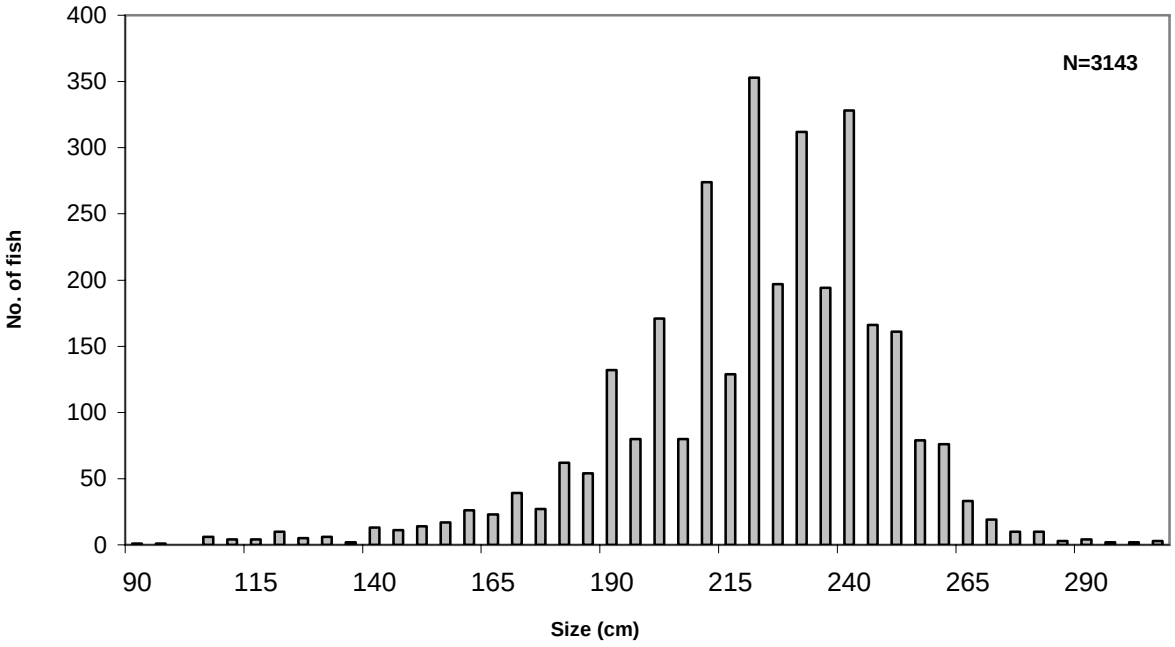

Figure 1. Distribution of size frequencies.

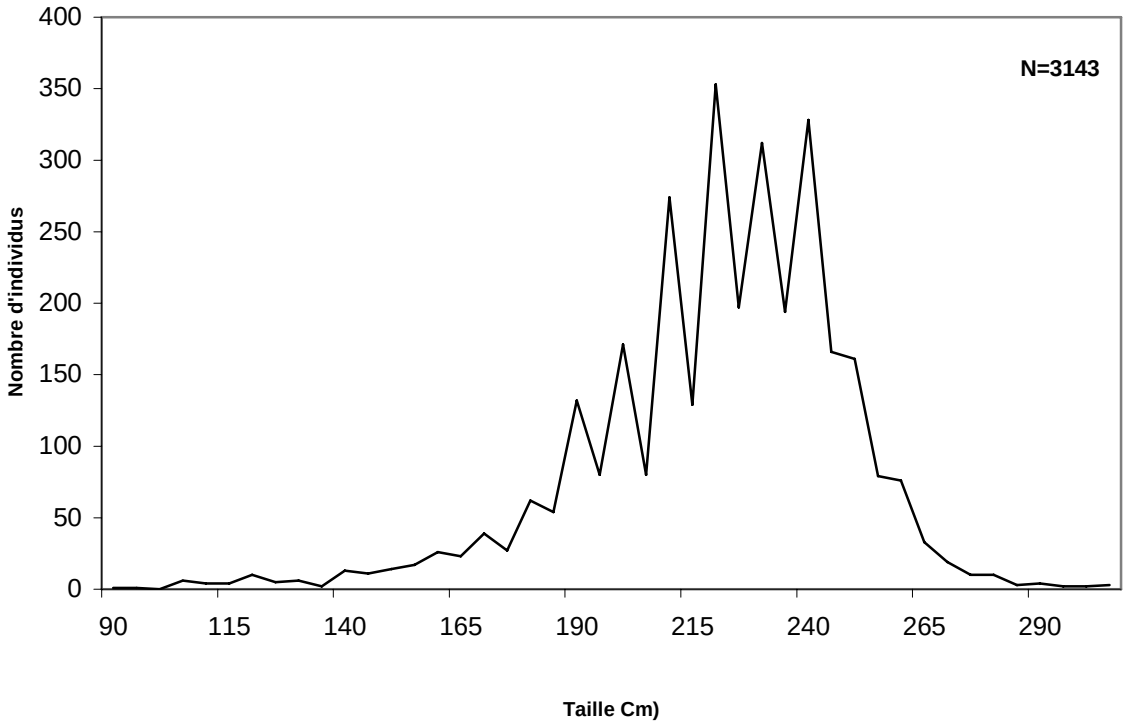

Figure 2. Size frequency curve.

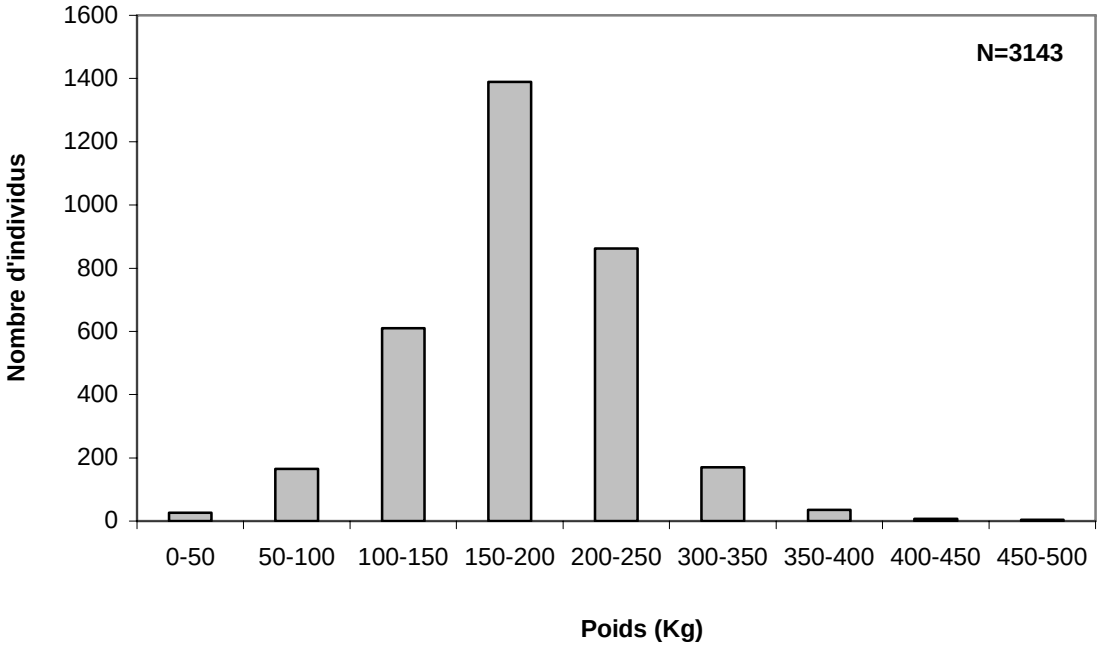

Figure 3. Distribution of weight frequencies.

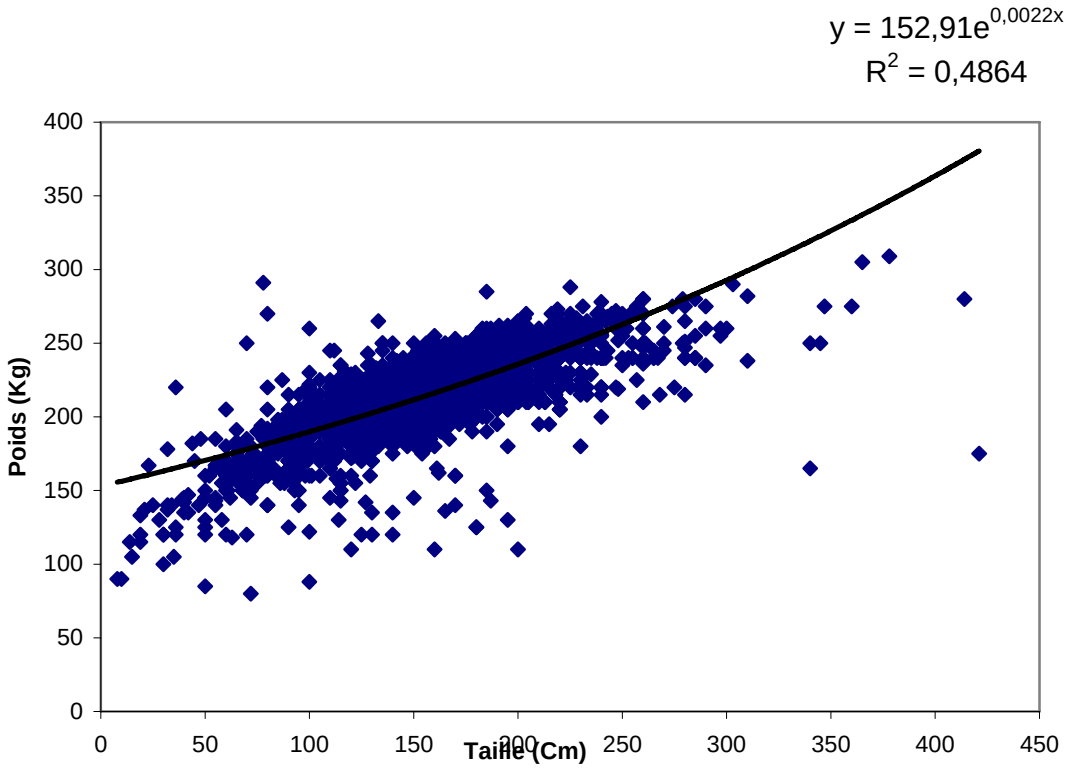

Figure 4. Size-weight relationship.

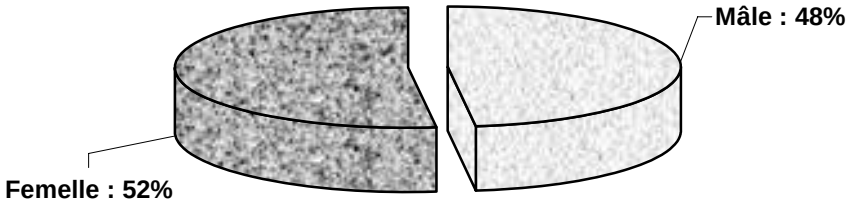

Figure 5. Percentage of males and females.

ANNUAL REPORT OF ANGOLA[1]

Henriette Lutuba Nsilulu[2]

Angola is a country with a surface area of 1,246,700 km^2 and the platform has a surface area of 51,000 km^2. The Exclusive Economic Zone is 330,000 km^2.

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

1.1 Species

The diversity of tuna species along the Angolan coast is influenced by the presence of the cold Benguela current to the south and the cold Gulf of Guinea current to the north of the country.

The tuna resource in Angolan waters is comprised of two major groups, small tunas and large tunas.

The small tuna group is dominated mainly by the following species:

- Atlantic bonito (*Sarda sarda*)
- Chub mackerel (*Scomber japonicus*)
- Atlantic black skipjack *(Euthynnus alletteratus*)

These species are mainly caught by the artisanal fishery and are also taken as by-catch of the fishery for small pelagics (jack mackerel, sardinellas) by the semi-industrial as well as the industrial fishery. The major catches are made in Angolan waters in the months of October and January, according to K. Lankester (2002) in the report of the EU-Angola agreement of September, 2002.

The large tuna group is comprised mainly of the following species:

- Bigeye tuna (*Thunnus obesus*)
- Yellowfin tuna (*Thunnus albacares*)
- Albacore (*Thunnus alalunga*)

These species are found on the high seas along the margin of the platform and their fishing is carried out by large vessels during a specific period (industrial fishing).

1.2 Gear types

The types of gear normally used for the target species are purse seine, surface longline, rod and reel, hand line, trawl.

1.3 Catches

Catches along the coast in 2005 amounted to 2,640 t, which represents a 10% increase as compared to 2004, as shown in **Figure 1**. These catches are from the artisanal, semi-industrial and industrial fisheries for small pelagics. Of 12 vessels licensed to fish large tunas during 2005, only one vessel has provided catch data (**Table 1**). The data on reported catches per vessel of large tunas for 2004 and 2005 are provided in **Table 2**.

The catches by fishing gears are given in **Table 3**.

Section 2: Research and statistics

A national sampling program has been on-going since 2003 by the *Institut National de Recherche de Pêche*, INIP (National Institute of Fishing Research). The objective of the program is to conduct a census of the vessels, to collect biological information and catch data to improve the quality of the data required by ICCAT.

[1]Original report in French.

[2]Institut d'Investigation de Pêches, Avenida 4 de Fevereiro, 26 Edificio Atlántico, C.P. 2603, Luanda, Angola; henrim60@yahoo.com

The statistical data are obtained by the *Direction Nationale de Pêche et Protection de Ressources*, DNPPR (National Directorate of Fishing and Protection of Resources), and the *Institut de Pêche Artisanale*, IPA (Artisanal Fishing Institute).

The DNPPR collects the data from the companies that are involved in tuna fishing, but it is their responsibility to provide the data in accordance with the laws of Aquatic Biological Resources.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

It is somewhat difficult to implement the ICCAT conservation and management measures once the vessels are on the high seas and do not unload at the port. However, Angola is making an effort to implement an on-board observer program.

Section 4: Inspection Schemes and Activities

Inspectors are dispatched to the unloading port for monitoring purposes and after that they are given a fishing license.

Table 1. Tuna catches (t) of the artisanal, semi-industrial and industrial fisheries in 2005.

Species	*Artisanal*	*Local semi-indust.+indust.*	*Large tunas*	*Total*
Scomber japonicus	1159	1200		2359
Euthynnus alletteratus	1			1
Sarda sarda	48	42		90
Thunnus obesus			75	75
Xiphias gladius			3	3
Thunnus albacares			111	111
Total	1209	1242	190	2641

Table 2. Catch (t) and effort (number of vessels) of the industrial fishery, 2004 and 2005.

	2004		*2005*	
Species	*Catches*	*Effort*	*Catches*	*Effort*
Thunnus obesus	871	16	75	
Katsuwonus pelamis	10	8		
Xiphias gladius			3	
Thunnus albacares			111	
Total	881	24	190	1

Table 3: Tuna catches (t) by fishing gear in 2005.

Species	*Hand line*	*Driftnets*	*Purse seine + Trawl*	*Longline*	*Total*
Scomber japonicus	259	900	1200		2359
Euthynnus alletteratus	1				1
Sarda sarda	12	36	42		90
Thunnus obesus				75	75
Xiphias gladius				3	3
Thunnus albacares				111	111
Total	273	936	1242	190	2641

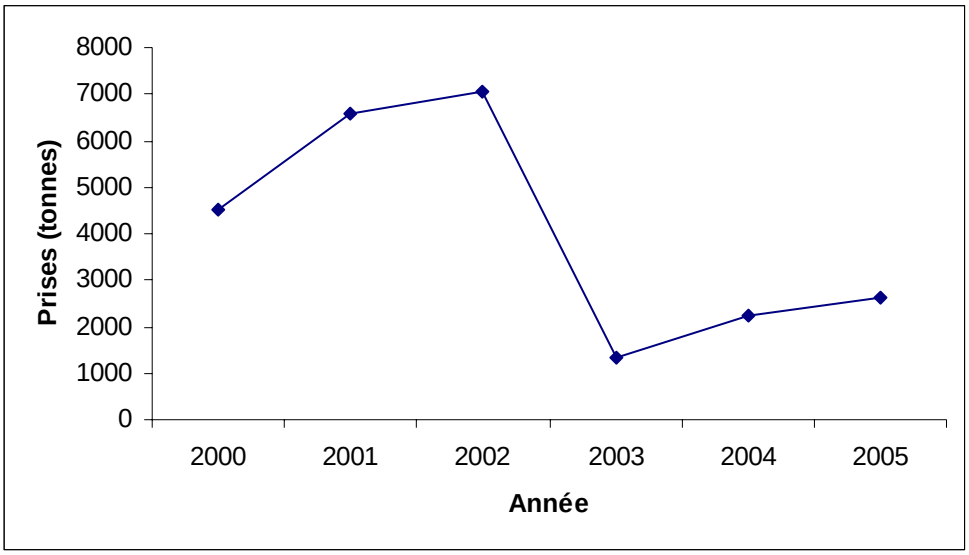

Figure 1. Development of the tuna catches (t), from 2000 to 2005.

ANNUAL REPORT OF BARBADOS[1]

Sandra Prescod-Dalrymple[2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

In 2005, the Barbados registered fishing fleet included 38 longliners, up from the 30 reported in 2004. These vessels range in length between 38 ft. and 75 ft. overall length with engines ranging in power between 135 and 660 HP. Less than two-thirds of the vessels (58%) are powered by engines of 390 HP or less while only one of the two vessels exceeding 50 ft. is currently active. Of the long liners registered in 2005, 27 have fiberglass hulls while seven are made of wood, two are made of wood and fiberglass and two are made of steel.

Twenty-nine (29) longliners or 76% of the registered longline fishing fleet conducted fishing trips in 2005. In addition, 218 other vessels also landed small amounts of tuna and tuna-like species during the reporting period. Note that in the local fishing fleet the longliners target the large tuna and tuna-like species. The other vessels target mahi-mahi and wahoo with hand or trolling lines, catching other tuna and tuna-like species opportunistically.

Local longliners have ice-holds for storing the catch but none have onboard ice making machines or freezing machinery and ice must be obtained at the beginning of each fishing trip from dockside facilities. Longline fishing trips do not usually exceed 14 days in duration and they normally 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.

Total (preliminary) reported catch for tuna and tuna-like fish in Barbados in 2005 was 557.1 tons (t), an increase of about 44% from 385.9 t in 2004. Total (preliminary) reported longline catch for tuna and tuna-like species in 2005 was 447.6 t, an increase of about 51.2% from 296 t in 2004. Increases in reported longline landings for billfishes (by 117% over 2004) and swordfish (by 64% over 2004) were largely responsible for this overall increase observed although recorded landings for tunas also increased by just over 30%. Wahoo was the only species showing a decline in catch (down for longliners by 56%) from the reported landings for 2004. **Table 1** provides estimated landings for tunas and tuna-like species for Barbados in 2004 and 2005.

Given that the longliners are not keeping official logbook records (although they use their own record keeping method), it is difficult to conduct catch per unit effort (CPUE) analysis. At present however, a crude measure of effort can only be calculated at the level of the trip. In 2005 there were 345 fishing trips conducted by long liners landing 447.6 t of fish and this translates to approximately 1.3 t of tuna and tuna-like species per trip assuming that all boats and all trips are equal. Recognizing the inadequacy of this estimate Barbados is attempting to introduce logbooks to the long line fishing vessels. It is anticipated that in the very near future, a better estimate of CPUE will result from this intervention. In the meantime, sampling is being undertaken in collaboration with the University of the West Indies (Cave Hill Campus) with a view to improving this analysis. Note that without access to log book data it is not clear if there were any changes in fishing patterns in this fishery. It is however anticipated that this information will be forthcoming in 2006 once the sampling is done.

No size frequency data were collected in 2005. The size frequency data collection program for large pelagics was discontinued in 2003 and there are no current plans to reinstate this program.

Section 2: Research and Statistics

Only two (Bridgetown Public Market and the Oistins Fish Market) of the 30 landing sites around the island are capable of receiving long liner fishing boats. Tuna and tuna-like species from long liners were therefore landed at these sites in 2005 while the other vessels would have landed their catch (inclusive of tuna and tuna-like species) at these and other sites. In 2005, a total of eight landing sites recorded landings of tuna and tuna-like species, the main landing site being the Bridgetown Public Market (542 t), the Oistins Fish Market (10 t) and Conset Bay (3 t). All other sites recorded landings of less than 1 t for the reporting period. Note that of the 552 t of tuna and tuna-like species landed at the Bridgetown and Oistins Markets 81% was landed by long liners.

[1]Original report in English.
[2] Fisheries Division, Ministry of Agriculture and Rural Development, Bridgetown, Barbados.

All tuna and tuna-like species caught by the local long line fleet are retained either for export or sold on the local market. None is known to be discarded. Likewise, all by-catch is retained either for personal consumption or sale on the local market. By-catch of this fishery in 2005 amounted to approximately 17.7 t. This comprised of mahi mahi (13.4 t) and sharks (4.3 t). In 2005, flyingfish (10.6 t) and turpits (1.7 t) were also caught opportunistically by small hook, gillnet and occasionally dip-net. Other mixed varieties of fish landed by these vessels amounted to approximately 1.2 t.

All fish are weighed and the landed weights recorded by staff at the landing sites. The data collection process employs both formal interviews (to ascertain information on gear used) and direct observation (to obtain information on vessel identification, species caught and weight). The market officials record the date of the landing and the weight of catch declared by the boat crew. No boat inspection is undertaken.

The catch is usually sorted by species prior to weighing for the purpose of calculating the toll which is required to be paid on all fish landed at the markets. However, given that the collection of toll is the primary reason for recording the weight of landings at the markets, in some instances and depending on the quantities landed, the tunas, billfishes, swordfish and kingfish from a single vessel may be weighed together since the same toll per unit weight is paid on these fish. Given that the Fisheries Division uses the data recorded in the market toll books to obtain the national catch and effort fisheries statistics, the Division is trying to address this shortcoming as the practice of aggregating species reduces the accuracy of the species level data generated by these markets. In this respect, the Division is seeking to sensitize the Market staff of the need to disaggregate the species of fish landed and to train them in species identification. At the same time, efforts are being made to encourage the use of log books on long liner vessels so that more information on fishing effort and location can be obtained to assist with developing fisheries management measures for the fishery. In this regard, it is worth noting that in 2002 the Fisheries Division designed and distributed draft copies of logbooks on a voluntary trial basis to the longline fleet in 2003. However, fisher cooperation in completing the logbooks was generally poor. The bulkiness of the books was the major criticism by fishers and the Fisheries Division is presently in the process of reviewing the format of the documents with the aim of providing a smaller and thus more practical logbook. As soon as this process is complete the revised logbooks will be introduced to the fishing community for further trials. It is hoped that this information will greatly augment the islands fisheries data collection and reporting systems.

In 1993, the regional fisheries management program CFRAMP (the CARICOM Fisheries Resource Assessment and Management Program) introduced two computer programs to Barbados to record fisheries information. The Trip Interview Program (TIP) was used to record local fish landings by vessel trip while individual vessel specification (e.g. type of vessel, length, beam, draught and engine power) were recorded in the Licensing and Registration System (LRS). Fish landing statistics were first captured and stored electronically by the Fisheries Division in mid 1994 using these programs. FoxPro 3.0 was used for processing data while Lotus 1.2.3 and Microsoft Excel were used to generate reports and by combining information from the two databases the Division was able to undertake useful analysis of the data. This notwithstanding there were gaps in the data particularly as it related to fishing effort that limited the depth of the analysis.

In 2005, the CARICOM Regional Fisheries Mechanism (CRFM), the successor to CFRAMP, introduced CARIFIS (Caribbean Fisheries Information System) to replace TIP and LRS. All fish landings data from 1997 to 2004 were migrated from TIP into CARIFIS and all fish landing data from January 2005 to present were entered directly into this new database. CARIFIS is capable of storing both fish landing statistics and vessel information, but in 2005 vessel information was being stored in another database that was developed in-house to address some of the shortcomings of LRS. Visual Foxpro is the processing component of CARIFIS while Stonefield Query is the software used to extract information and process reports.

The Fisheries Division has a long history of collaborating with the University of the West Indies in areas of fisheries research. In June 2005, a post-graduate student of the University of the West Indies completed a Masters thesis on “The Diet of Billfishes and Tunas Taken by the Barbadian Longline Vessels”. The study is part of the FAO Lesser Antilles Pelagic Ecosystem Project (FAO Trust Fund Project GCP/RLA/140/JPN) in which Barbados is participating. In addition, plans are being made for another student to undertake research in 2006 to obtain information on the operating characteristics of the long line fishery in Barbados. Specifically, the student will gather information on the vessels in the long line fishing fleet, the gear and fishing techniques being used, details on fishing effort, fishing area, length-weight frequency, target species and by-catch and fish handling practices on board the vessels. Note that the Fisheries Division did not conduct or participate in observer programs during the reporting period.

Regarding reported data, round weights for billfish and swordfish were raised from dressed weights by the factors recommended in the 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 in the dressed state in Barbados. However, it was only in 2005 that an acceptable conversion factor from this state to round weight was found in the literature and applied to the 2004 catch data and the corrected 2003 data. The conversion factor of DWT x 1.25 was taken from the Canadian Atlantic Fisheries Management Plan for Bigeye, Yellow fin and Albacore tuna produced by Fisheries and Oceans Canada. Round weights were previously estimated for tunas by multiplying the recorded dressed weight by a factor 1.15. This factor had been crudely derived by increasing the value suggested for gilled and gutted weight (x 1.13) by a small amount to account for the head. Wahoo are landed in Barbados gilled and gutted. Conversion to round weight was calculated by multiplication of a factor of 1.075 as used in the CRFM assessment of this species conducted in 2004. The breakdown of tuna catches by species is based on catch records obtained from a sub-sample of longline owners who keep records of their catches to this level of accuracy.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

Due to limited resources, and because of a national focus on matters of arbitration relating to fishing rights of Barbadian fishers, Barbados was not in a position to implement specific ICCAT management measures in 2005. As a result, the only ICCAT related legislation in place in 2005 was part of the Fisheries (Management) Regulations 1998, promulgated on July 27, 1998, which makes it illegal to land yellowfin or bigeye tuna weighing less that 3.2 kg total weight. The penalty for breaking this law is a fine of up to $50,000 Barbados Dollars (equivalent of US$25,000) or imprisonment for a term of two years or both. With the new reversal of the ICCAT tuna size limits this needs to be changed.

At present, there are no programs to monitor individual lengths and weights of fish landed on the island. However, it is reported that it is the local practice to export weighing over 60 lbs (27.3 kg) and big-eye tuna weighing over 44 lbs (20 kg) dressed weight. Trade of tuna and tuna-like species is monitored by the Customs Department (quantity) and the Ministry of Health (quality).

Section 4: Inspection Schemes and Activities

No efforts to inspect own and other nation tuna fishing activities and catches have been undertaken in 2005. Furthermore, to date, Barbados has made no advances towards implementing and administering the revised ICCAT port inspection scheme.

Section 5: Other Activities

No other related activities were undertaken in 2005.

Table 1. Estimated landings of tunas and tuna-like species for Barbados in 2004 and 2005 (tons).

Species/ species group	*Longliners*			*Other vessels*		
	2004	*2005*	*% Change*	*2004*	*2005*	*% Change*
Yellow fin tuna	181.4	239	31.8	29.5	53.9	82.7
Bigeye tuna	16.5	21.8	32.1	2.7	4.9	81.5
Albacore	8.2	10.9	32.9	1.3	2.5	92.3
Billfishes	62.3	135.4	117.3	11.9	21.4	79.8
Swordfish	23.5	38.7	64.7	1.8	5.2	188.9
Wahoo	4.1	1.8	-56.1	41.4	20.1	-51.4
Small tunas	0	0	0	1.3	1.5	15.4
Total	**296.0**	**447.6**	**51.2**	**89.9**	**109.5**	**21.8**

ANNUAL REPORT OF BELIZE[1]

A. Mouzouropoulos[2] and Beverly Wade[3]

Part I (Information on Fisheries, Research and Statistics

Section 1: Annual Fisheries Information

Belize, through its Ministry of Agriculture and Fisheries, is an active member of the following organizations: FAO, CRFM, (Caribbean Regional Fisheries Mechanism), OSPESCA (*Organización del Sector Pesquero y Acuícola del Istmo Centroamericano*), OLDEPESCA (*Organización Latinoamericana de Desarollo Pesquero*), PROARCA (*Programa Ambiental Regional para Centro America*), WECAFC (Western Central Atlantic Fishery Commission).

The Belize Fisheries Department, through its 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", continues to ensure the steady development of the sector and the integrity, productivity and sustainability of Belize's ecosystems.

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. It is an important foreign exchange earner and continues to contribute significantly to Belize's economy with export earnings in 2005 of US$41 million. The local capture fishing activity is carried out within the shallow protected waters of the main barrier reef as well as the three atolls. It revolves mainly around lobster and conch fisheries as well as shrimp trawling. Fisheries production for the year 2005 showed an increase of 89.8%, 21.6% and 60.0% for conch fillet, stone crab claws and squid compared to 2004, respectively. However, the production for lobster tails, lobster head meat, market clean conch, marine shrimp, fish fillet and whole fish showed a decrease of 12.4%, 11.9%, 0.28%, 57.0%, 8.3% and 19.6%, respectively.

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 interest 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 January 1, 2003, Immarbe introduced a 15% rebate on the Annual Tonnage Tax for vessels of 7501 GT and above as well as for any self-propelled tankers of up to 7500 GT which attain certification for the Green Award of the ISO 14001 Environmental Standard. Belize is the first shipping Registry to have introduced such an incentive.

Belize has ratified the ICCAT Convention and is a Contracting Party of the ICCAT Commission with effect from July 19, 2005. It has also been admitted as a Cooperating non-Contracting Party of the Inter-American Tropical Tuna Commission (IATTC) and the Indian Ocean Tuna Commission (IOTC). It has applied for Cooperating non-Contracting Party status of the North East Atlantic Fisheries Commission (NEAFC) and the Western and Central Pacific Fisheries Commission (WCPFC). Belize has also ratified the FAO "Compliance" Agreement, the "Fish Stocks" Agreement and the "IOPA-IUU", the provisions of which have already been incorporated into Belize's High Seas Fishing Act 2003. This serves to formalize its commitment to the elimination of activities which diminish the effectiveness of conservation measures.

For your guidance, Belize has been placed on the IMO White List in November 2001. In 2003 its Quality Management System which incorporates Fishing Vessel Administration attained accreditation to the new ISO 9001:2000. Furthermore, as a 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 0.0% in 2005 and in the Paris MOU from 24%

[1]Original report in English.

[2]Director-General, International Merchant Marine Registry of Belize; Head Delegate of Belize to ICCAT.

[3]Fisheries Administrator, Fisheries Department; Head Scientist of Belize to ICCAT.

to 8.77%. As the result, the Belize Registry qualified for the U.S. Coast Guard's Quality Shipping for the 21st Century (QUALSHIP 21) Program. It is one of only nine out of 168 Flag States/Ship Registries in the world holding this prestigious award in 2006 and the only one in Central America.

Section 2: Research and Statistics

2.1 Within Belize's territorial waters

In compliance with the mandate issued by the Secretariat of the Convention for the Regulations of International Trade in Endangered Species (CITES), to Queen Conch exporting countries in the Caribbean, Belize initiated the necessary surveys in November 2003 with the assistance of the Caribbean Regional Fisheries Mechanism (CRFM). In September of 2004, Belize's national report on its conch fishery was submitted to the CITES Secretariat in Geneva, Switzerland.

The monitoring of lobster, conch and finfish continued at the reserves.

Ecosystems monitoring was standardized and regularized in 2003. The Ecosystems Management Unit (EMU) of the Fisheries Department consists of the marine reserves and the Conservation Compliance Unit (CCU). The new management paradigm has shifted from specific species and site protection to the protection of entire ecosystems and the regulation of the activities within those systems.

The National Protected Areas Policy and Systems Plan Project was officially launched on May 5, 2004 for which a Task Force was appointed by the Deputy Prime Minister to oversee its implementation.

The monitoring of turtle nesting sites continues at all reserves.

2.2 Belize's high seas fleet

As already reported to ICCAT, there were no Belize registered fishing vessels on the High Seas catching tuna or tuna-like species in the ICCAT Convention area in 2005. However, some Belize fishing vessels target sharks within the ICCAT Convention area. Consequently, on August 16, 2006, Belize submitted Task II catch and effort statistics. Belize Fishing Vessels in the area target blue shark, shortfin mako shark, squid, shrimp, sardine, sardinella, tristan de cunha rock lobster, West African Spanish mackerel, horse mackerel, grenadier.

As the result of attaining Contracting Party Status in CCAT and membership on Panel 1 and Panel 4, Belize has the following quotas effective January 1, 2006:

- Bigeye tuna - up to 2100 tons
- Yellowfin tuna - up to 2000 tons
- Skipjack - unlimited
- North Atlantic albacore - up to 200 tons
- South Atlantic albacore - up to 360 tons
- Small tunas (wahoo, dolphinfish, mackerels) - unlimited

Belize is currently engaged in negotiations for the registration and licensing of 10 fishing vessels of below 24 meters in order to fish a part of the abovementioned quotas. Belize shall notify the ICCAT Secretariat of the details of these vessels in due course.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

As stated above, there were no Belize registered fishing vessels on the high seas catching tuna or tuna-like species in the ICCAT Convention area in 2005. Consequently:

3.1 Closed seasons

Nothing to report.

3.2 Data and minimum size

Nothing to report.

3.3 Capacity limits

Nothing to report.

3.4 Statistical Documents

No Statistical Documents for bluefin tuna or bigeye tuna were issued.

Belize has complied with the *Recommendation by ICCAT Establishing a Swordfish Statistical Document Program* [Rec. 01-22]. Statistical Documents were issued for exports of swordfish caught in the IATTC Convention area by five Belize registered fishing vessels totaling 44,085.40 kg, which were landed in Costa Rica and subsequently exported to Santa Cruz, Tenerife, Spain. Copies of the Statistical Documents were reported to the ICCAT Secretariat on March 31, 2005.

3.5 Other measures regarding individual species

With regard to the *Recommendation by ICCAT Regarding Atlantic Blue Marlin and Atlantic White Marlin* [Rec. 97-09], Belize does not have any longline vessels targeting these species in the ICCAT Convention area.

With regard to the *Resolution by ICCAT on Atlantic Sharks* [Res. 01-11], Belize does minimize waste and discards from shark catches in accordance with Article 7.2.2(g) of the Code of Conduct for Responsible Fisheries. Furthermore, we only have one vessel targeting shortfin mako and blue shark.

With regard to the *Resolution by ICCAT Incidental Mortality of Seabirds* [Res. 02-14], Belize has not yet licensed longline vessels to target tunas and Belize's interactions with seabirds are minimal. However, voluntary submission of data to the SCRS will commence in 2007 by which time Belize will have licensed longline vessels to target tunas.

With regard to the *Resolution by ICCAT on Shark Fishery* [Res. 03-10], FAO Consultants visited Belize in August/September 2005 and reviewed the National Plan of Action for Sharks. The reviewed document will be formally submitted to the FAO in December 2006.

With regard to the *Resolution by ICCAT on Sea Turtles* [Res. 03-11], Belize does encourage the release of marine turtles that are caught incidentally caught alive in its fishing activities generally. Here again, when the licensing of vessels to target tuna or tuna like species in the ICCAT area commences, all available information on interaction with sea turtles in ICCAT fisheries will be collected and provided to the SCRS.

3.6 Trade sanctions

ICCAT Recommendations by ICCAT 02-17 and 03-18 regarding Bolivia and Georgia are respected.

3.7 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. The provider is Pole Star Space Application Limited which utilizes an automatic, real time internet based service called Purplefinder Vessel Management Solutions. This reporting system complies with paragraph 4 of the *Recommendation by ICCAT Concerning Minimum Standards for the Establishment of a Vessel Monitoring System in the ICCAT Convention Area* [Rec. 03-14]. For example, the margin of error is +/- 20 meters with a confidence level of 99%.

3.8 General

With regard to the *Resolution by ICCAT on Improving Recreational Fishery Statistics* [Res. 99-07], this is practiced in Belize national waters but not regulated. However, all fishing vessels engaged in such activities are obliged to respect all national fisheries regulations. Belize is currently cooperating with OSPESCA in the production of a report on sports fishing which will be released during early 2007.

Regarding the *Recommendation by ICCAT Establishing a Program for Transshipment by Large-Scale Longline Fishing Vessels* [Rec. 05-06], Belize does not currently have such fishing vessels in the ICCAT Convention area.

With regard to the *Recommendation by ICCAT to Adopt Additional Measures against Illegal,* U*nreported and Unregulated (IUU) Fishing* [Rec. 03-16], these are contained in Belize's Quality Management System and will be reflected in its National Plan of Action for IUU which will be submitted to the FAO in December 2006

Section 4: Inspection Schemes and Activities

To ensure compliance with paragraph 7 of the *Recommendation by ICCAT for a Revised Port Inspection Scheme* [Rec. 97-10], surveillance is 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 has carried out 35 inspections on vessels in the ICCAT Convention area during the period from January 1, 2004 to August 31, 2006.

Section 5: Other Activities

5.1 ICCAT Chairman's Regional Workshop for the Caribbean and Latin America

Belize had the honor of hosting the abovementioned Workshop at the El Pescador Hotel, San Pedro, Ambergris Caye on July 11 and 12, 2006. This was attended by delegates from Canada, Brazil, Mexico, Trinidad and Tobago, Uruguay, United States, CRFM and Belize. It was a productive and lively workshop, the details of which will be reported by the Chairman.

5.2 Reporting to FAO/Other RFMOs

Belize has submitted its list of fishing vessels to the FAO together with the information required per Paragraphs 1 and 2 of Article VI of the FAO "Compliance Agreement". These records are updating on a monthly basis.

Belize has submitted it catch and effort statistics to all RFMOs in whose Convention areas registered fishing vessels, as well as such other data and information as are required by their respective Resolutions. Apart from ICCAT, the other RFMOs are: IATTC, IOTC, and WCPFC.

Belize believes that by the actions it has taken and the results thereof, it has fully demonstrated its commitment to the effective implementation of the ICCAT conservation and management measures. However, as we are all aware, in the same way as other Contracting Parties, Belize is continuing to refine and improve its various systems and their efficacy.

ANNUAL REPORT OF BRAZIL[1]

Paulo Travassos and Fábio Hazin

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

In 2005, the Brazilian tuna longline fleet consisted of 99 vessels registered in the following ports: Rio Grande (1), Itajaí (8), Santos (9), Itaipava (20), Recife (19), Cabedelo (4), and Natal (38). Of these 99 longliners, 61 were national and 38 were foreign chartered vessels. There was an increase of 11.2% in the total number of vessels from 2004, when 89 vessels were operating. The number of bait-boats operating in 2005 was 41, the same from 2004. These 41 vessels were based in the same ports (Rio de Janeiro, Itajaí, and Rio Grande). All baitboats are national.

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 48,911.0 t (live weight), in 2005 **(Table 1)**, representing an increase of 9.6% from 2004 (44,642.1 t). The majority of the catch again was taken by baitboats (28,146.3 t; 57.5%), with skipjack tuna being the most abundant species (25,268.7 t), accounting for 89.8% of the baitboat catches. Catches of this species increased by 9.7%, from 2004. With a total catch of 2,235.5 t, yellowfin tuna was the second dominant species in the baitboat fishery.

Total catch of the tuna longline fishery (17,983.2 t) was about 79.8% greater than 2004, with yellowfin tuna being the most abundant species (4,695.1t), accounting for 26.1% of the longline catches. Swordfish and blue shark, accounting for 21.0% (3,780.1 t) and 14.0% (2,520.2 t) of the catches, were, respectively, the second and third most caught species. With a total catch of 2,310.9 t, dolphin fish was the fourth most abundant species in the longline fishery, accounting for 12.9%. These catches, as well as a great part of the increase of Brazilian longline yield, resulted from the fishing activities of a small scale fishing fleet based mainly in Itaipava- ES (southeast coast). Although made of relatively small boats, this fleet is highly mobile, operating throughout most of the Brazilian coast and targeting a variety of species. Most of the year, however, it targets dolphin fish, using a surface longline, in the vicinity of Vitoria-Trindade Chain **(Table 1)**.

The total catch of white marlin and blue marlin was, 243.4 t and 609.8 t, respectively, representing an increase of about 302.4% and 313.0%, from 2004, when the catches of theses species were 80.5 t and 194.8 t. Meanwhile, the catch of sailfish decreased by 22.2% from 2004 (533.9 t), reaching 415.4 t in 2005. This strong increase in the catches of white and blue marlins was mainly the result of fishing operations of a foreign chartered fleet (19 vessels), flagged to Panama and based in Recife[2], which operated all year round, during 2005, differently from 2004, when its fishing operations began only around May-June 2004. The total catch of this fleet in 2005 was 4,335.6t, representing an increase of 133.5% from 2004 (1.856.8 t), with yellowfin tuna (1,780.6 t) being the main target species. In order to increase their catches of this tuna species, these vessels fished with a shallow longline, in the equatorial zone (10^{o}N-10^{o}S), where high concentrations of blue and white marlins are known to occur. Data collected from observers on board indicated that the following amount of discards is included in the figures provided above: white marlin: 22.2 t live and 16.9 t dead, and blue marlin: 39.9 t live and 10.6 t dead. Although these amounts represent a relatively low proportion of the catches, they show a significant improvement from 2004.

A new purse seine fishing activity began recently in Brazil, based in the south coast, to target skipjack tuna. In 2005, the total catch of this fleet was 1,603.9 t, with skipjack tuna accounting for 69.7% of the catch.

Data from the National Observer Program were also used to estimate the impact of the tuna fisheries on seabird populations along the Brazilian coast. During 2005, 68 incidental catches of seabirds were registered during fishing cruises made by the Brazilian tuna fleet based in ports located in the Northeast coast. Capture rates in the pelagic longline fisheries in south and southeast areas during 40 cruises (473 sets and 499,978 hooks), between November 2000 and December 2005 was 0.07 birds/1000 hooks. The most common species caught were the black-browed (*Thalassarche melanophris*) and yellow-nosed (*T. chlororhynchos*) albatrosses, white-chinned (*Procellaria aequinoctiales*) and spectacled (*P. conspicillata*) petrels, and great shearwater (*Puffinus graves*). Other species captured reported by fishermen or in the literature are tristan albatross (*Diomedea dabbenena*),

[1]Original report in English.
[2]This fleet stopped fishing operations in Brazil in the first quarter of 2006.

southern royal albatross (*D. epomophora*), northern royal albatross (*D. sanfordi*), wandering albatross (*D. exulans*), great shearwater (*Puffinus gravis)* and southern fulmar (*Fulmarus glacialoides*).

Section 2: Research and Statistics

Several institutions directly assisted the Special Secretariat of Fisheries and Aquaculture (SEAP) in processing and analyzing data from 2005: *Universidade Federal do Pará*, UFPA (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*, UFRN (Federal University of Rio Grande do Norte), located in the northeast, *Instituto de Pesca de São Paulo* (São Paulo Fishery Institute), located in the southeast, and *Universidade do Vale do Itajaí*, UNIVALI (Itajaí Valley University); and *Fundação Universidade do Rio Grande*, FURG (Rio Grande University), located in the south. These institutions, together with the *Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis*, IBAMA (Institute of Environment and Renewable Natural Resources), 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, in 2005, a total of 36,758 fish were measured at landing, practically the same number of fish measured in 2004 (36,747). The distribution of fish measured by species was: yellowfin= 6,088; bigeye= 1,049; albacore= 990; swordfish= 9,410; skipjack= 13,636; blue shark= 4,526; and shortfin mako= 1,330. Additional size data obtained at sea by observers aboard all chartered vessels were aggregated to this data base, resulting in a total of 50,401 fishes measured, as follows: yellowfin= 18,092; bigeye= 3,274; albacore= 5,329; swordfish= 11,882; blue marlin= 2,859; white marlin= 4,342; and sailfish= 4,623.

Data have also been collected from several recreational fisheries based off southeast and northeast Brazil, mainly in the Rio de Janeiro, Vitória, Recife, and Fernando de Noronha, where sport tournaments are conducted by local yacht clubs. These data were collected mainly under the scope of a program implemented by the Institute of Environment and Renewable Natural Resources (IBAMA), for the control and statistics of recreational fisheries in Brazil.

Research on the incidental catches of seabirds continued, aiming mainly at testing and implementing mitigation measures to reduce the incidental catch of seabirds by the longline fishery, through partnerships between the Special Secretariat of Fisheries and Aquaculture (SEAP), seabird conservation institutions (Projeto Albatroz and NEMA), and universities. The results from these research and statistics activities are expected to help in the reduction of the impact of tuna longline fishing activities on seabirds species caught by Brazilian fishing boats.

In 2005, an important billfish research effort in cooperation with U.S. scientists was begun, including collection of spines and gonads, for age and growth and reproduction studies, as well as habitat utilization, through PSAT tags, and gear selectivity, by the use of circle hooks, hook timers, and TDRs. Part of these results were presented during the 2006 ICCAT Marlin Stock Assessment Session, which took place in May.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

In order to adequately comply with ICCAT recommendations, the Brazilian government has implemented the following rules regulating the Brazilian tuna fishery, in 2005:

*Rule **No. 12, of July 14, 2005**, establishing:*

- The mandatory release of all specimens of white marlin and blue marlin which are still alive by the time of boarding;
- The prohibition of sale of any white marlin and blue marlin caught;

*Rule **No. 26, of July 19, 2005**, establishing:*

- New procedures for completing and submitting fishing logbooks of the Brazilian tuna fisheries, particularly for purse seine and baitboat fisheries.

Table 1. Total catch made by Brazilian tuna fishing vessels in 2005, by species and fishing gear.

	Gear					
Species	*LL*	*BB*	*PS*	*Sport*	*Surf*	*Total catch*
Yellowfin tuna (YFT)	4,695,121	2,235,569	0	233	292,060	7,222,983
Albacore (ALB)	3597	196,770	0	0	80	555,857
Bigeye tuna (BET)	1,013,845	56,108	100	0	730	1,080,683
Skipjack tuna (SKJ)	0	25,268,661	1,118,965	11	0	26,387,637
Blackfin tuna (BLF)	556	900	0	279	0	90,835
Atlantic bonito (BON)	0	0	900	0	0	900
At. Black skipjack (LTA)	0	0	2800	0	0	2800
Frigate tuna (FRI)	0	298,970	84,610	10	148,400	531,990
TUN (Tunas nei)	34,596	0	20,192	0	5,100	59,888
Swordfish (SWO)	3,780,063	0	0	0	5,430	3,785,493
Sailfish (SAI)	415,418	0	0	318	70	415,806
White marlin (WHM)	243,444	0	0	0	230	243,674
Blue marlin (BUM)	609,771	0	0	1,635	250	611,656
Spearfish (SPF)	475	0	0	0	0	475
Dolphin fish (DOL)	2,310,896	0	0	287	0	2,311,183
Wahoo (WAH)	447,315	0	0	1,243	0	448,558
Serra Spanish mackerel (BRS)	0	0	0	0	4710	4710
King mackerel (KGM)	906	137	0	27	200,900	201,970
OTF*	542,775	0	20	226	42,362	585,383
Blue shark (BSH)	2,520,160	0	0	0	3,110	2,523,270
Silky shark (FAL)	165,697	0	0	0	0	165,697
Bigeye thresher (BTH)	72,666	0	0	0	190	72,856
Hammerhead shark (SPN)	173,609	0	135	0	785	174,529
Shortfin mako (SMA)	256,265	60	0	0	15	256,340
Tiger shark (TIG)	156	0	0	0	0	156
Oceanic whitetip shark (OCS)	77,926	0	0	0	0	77,926
Sand tiger shark (CCT)	5,341	0	0	0	0	5,341
Ground sharks (CVX)	6,932	0	0	0	0	6,932
Shortfin make (MAK)	169,574	0	0	0	0	169,574
Thresher (THR)	40,334	0	0	0	0	40,334
OTS**	40,402	0	0	0	2,540	42,942
TOTAL	**17,983,250**	**28,146,275**	**1,603,922**	**4,269**	**1,173,252**	**48,910,968**

*OTF= Other fishes.

**OTS= Other sharks.

ANNUAL REPORT OF CANADA[1]

B. Lester[2], S. Paul[3], J. Neilson[3] and A. McMaster[4]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual 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. The adjusted Canadian quota for the 2005 calendar year was 731.8 t. The Canadian nominal landings of Atlantic bluefin tuna in 2005 were 599.7 t **(Table 1)**. The 132.1 t shortfall in the 2005 fishery will be carried over to 2006 in deriving the 2006 Canadian quota.

All traditional bluefin tuna fishing areas produced catches of tuna in 2005 **(Table 2)**, however, there were landings which were not accompanied by geographic data at the required scale for dividing catch into individual fishing areas within western Nova Scotia. These data were classified as 'unspecified' in **Table 2**, and therefore, areas within the western Nova Scotia fishing area (with the exception of the St. Margaret's Bay trap fishery) must be considered a minimum. The tended line fishery in the area between Georges and Browns Bank off southwest Nova Scotia known as the Hell Hole continued to be an important fishing area (80 t, minimum). The Gulf of St. Lawrence rod and reel fishery produced the largest fraction of the total Canadian landings in 2005 (251 t, 42% of total). The Gulf of St. Lawrence fish weighed about 400 kg (round), on average. Fish captured in the Hell Hole fishery weigh about 180 kg (round), on average.

Additional catche**s (Table 2)** were also taken from the St. Margaret's Bay traps (8.7 t), from the rod and reel fishery off northeastern Nova Scotia (11 t), and from coastal fishing areas off Halifax and Liverpool, Nova Scotia (70 t). Throughout the Scotian Shelf, 8 t were taken by electric harpoon. In 2005, catches on the Tail of the Grand Banks of Newfoundland were low. The Newfoundland fishery has shown marked fluctuations in recent years, due primarily to decreased effort as a result of market considerations and the availability of bluefin.

In 2005, 529 licensed fishermen 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 7 bluefin tuna trapnet licenses **(Table 3)**.

A new management approach was implemented beginning in the 2004 fishery season, which results in each of the seven fleet sectors being assigned a specific share of the Canadian quota based on catch history. Fleets operate independently of each other, adopting their own strategies to address when and how to harvest the resource.

1.2 Swordfish

Swordfish occur in Canadian waters from April to December, 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 2005 was 1348 t. Canada's adjusted quota for 2005 was 1618.0 t. Canadian nominal landings in 2005 were 1557.9 t **(Table 1)**, resulting in an underage of 60.1 t. The 2005 dead discard estimate was 106.3 t which will result in a deduction of 46.2 t from the 2007 initial catch limit.

The tonnage taken by longline was 1365.0 t (or 88% of the catch), while 193 t were taken by harpoon **(Table 4)**. The mean round weight of fish caught by longline and harpoon was 69 kg and 117 kg, respectively **(Table 4)**. Only 48 of the 77 licensed swordfish longline fishermen landed fish in the 2005 fishery **(Table 4)**. This number is slightly higher than 2004 but is still significantly lower than the mid-1990's when all, or nearly all, of the swordfish longline licenses were active **(Table 4)**. The reduced effort in recent years is a result of a combination of factors including the reduced quota, increased opportunities for fishing other species, relatively low market value, and the introduction of the ITQ system for this fishery. Although a total of 962 fishermen are eligible for

[1] Original report in English.
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harpoon licenses, only 86 were active in 2005 as harpooning swordfish is usually an opportunistic activity conducted during other fisheries.

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. In 2005, however, the other tunas accounted for slightly greater than 15% of commercial large pelagic species landed. Yellowfin tuna was the most important other tuna species landed, followed by bigeye and albacore. While yellowfin tuna landings were down from the previous year, they were still more than three times the 2003 level. This was mainly due to availability of this species in Canadian waters, and market conditions and fish value. Forty-eight of the 78 licensed other tuna fishermen were active in 2005.

One Canadian offshore longline vessel is authorized to direct for other tuna species with a bluefin tuna by-catch. The 77-vessel swordfish/other tunas longline fleet has been permitted to direct for other tunas and retain bluefin tuna by-catch under certain conditions in order to reduce dead discards. 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 2005 were 202.2 t of porbeagle, 11.4 t of blue shark and 90.9 t of shortfin mako **(Table 1)**.

In 2005, 28 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 more than 1000 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 for scientific research purposes.

Section 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. The 2005 scientific research program at the Biological Station (St. Andrews) was as follows:

1) Using funds from the Bluefin Year Program, a program of biological sampling of bluefin tuna continued in 2005. The results of the sampling activities benefited a number of international research programs and have been reported to the SCRS.

2) Canadian scientists prepared and submitted a paper describing a declining trend in condition of bluefin tuna. Revisions to the initial submission will be made shortly.

3) Canada, along with several other ICCAT member countries, has been active in studies of age determination for bluefin tuna. In particular, Canadian scientists completed a pilot study of the utility of radiocarbon dating procedures to validate the ages of bluefin tuna. Preliminary results suggest older ages than those implied by published age-length relationships. Funding to complete the age validation study has now been obtained.

4) Canadian scientists have completed a study of the inner ear of bluefin tuna, from the perspective of the sensitivity of this fish to seismic exploration for oil and gas. A paper has been published in the primary scientific literature.

2.2 Swordfish research

Canada provided estimates of dead swordfish and bluefin discards based on Observer coverage of the domestic large pelagic longline fleet.

In 2006, with the active cooperation of the swordfish harpoon fishery, Canada successfully applied fourteen satellite archival tags to large swordfish in that fishery. One more year of tagging effort is planned. Results from the first year of the study have been encouraging, with eight of the eleven tags reporting. To date, two tags have remained attached to the fish for more than 330 days.

Canada assisted with the planning for the successful ICCAT Workshop on Swordfish Stock Structure held in Crete (March, 2006) and was an active contributor to the meeting.

Canada has initiated a study to develop prototype satellite archival tags whose sole purpose is to measure fish survival after capture and release. The intent of the study is to develop a tag with considerably lower cost than current designs, and smaller size, allowing application to a broader size range of animals.

2.3 Sharks

The current shark management plan includes greatly reduced porbeagle quotas in order to facilitate stock rebuilding. Even though the quota has been set at or below MSY, stock rebuilding to $SSN_{20\%}$ is expected to take until about 2020, while recovery to MSY will take until about the 22nd century. Recent research compared current growth and maturity with that present at the time of the start of the fishery in 1961, and found that population productivity has increased as population abundance has decreased. Research comparing the growth of NW Atlantic porbeagle with that of the South Pacific population indicated that NW Atlantic porbeagle grow more quickly, and to much larger sizes, than do South Pacific porbeagle. Archival satellite popup tags are currently being deployed on NW Atlantic porbeagle to locate the pupping ground.

The primary directed fishery for blue sharks is recreational. An analysis of the status of blue sharks in Canada indicated that shark derby catches were a minor component of blue shark catch mortality in Canada; most of the mortality was associated with by-catch from pelagic longline fisheries. Ongoing monitoring of shark derby catch rates will be used as an index of blue shark abundance in Canadian waters.

Mako sharks are an important component of the by-catch of the pelagic longline fishery in Atlantic Canada. Catch rates and size composition of the mako shark catch in pelagic longline fisheries will continue to be monitored as an index of mako abundance in Canadian waters.

2.4 Incidental catch

Canada has initiated a study of by-catch in its pelagic longline fishery in 2005. The intent of the investigation is to relate patterns of by-catch to fishing practices. The potential to do such work is enhanced for certain years, when the Canadian fishery practices can be compared to Japanese practices in the same waters and months (for example, the Japanese fishery had high levels of Canadian observer coverage when it operated in the Canadian EEZ in 1999).

2.5 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 also a member of ICCAT *Ad Hoc* Working Group on Precautionary Approaches.

Part II (Management Implementation)

Section 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[5]. 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

3.1.1 Bluefin tuna

Canada has implemented the ICCAT regulatory recommendations that apply to bluefin tuna in the Canadian Atlantic Bluefin Management Plan (Appendix A[5]). The 2005 quota was set at 731.8 t (see 1.1 above), and no person shall have in their 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.

3.1.2 Swordfish

Canada has implemented the ICCAT regulatory recommendations that apply to swordfish in the Canadian Atlantic Swordfish Management Plan (Appendix A[5]). The 2005 quota was set at 1618.0 t (see 1.2 above), and there is a prohibition on the taking and landing of swordfish less than 25 kg in round weight, and/or less than 125 cm LJFL (with 15% tolerance). In 2002, a restructuring of the fleet, through the implementation of individual transferable quotas gave more control in managing the quota. In 1998-2005, landings of fish <119 cm LJFL were reduced to as close to zero as possible.

3.1.3 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 2005. A multi-year management plan for both swordfish and other tunas was published in 2005. 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 their possession any bigeye or yellowfin weighing less than 3.2 kg.

[5] Available from the Secreetariat.

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.

3.3 Observer programs

Canada has had an excellent Observer Program since 1977. Observers collect biological data, and monitor compliance with fishing regulations. In 2005, 5% observer coverage (by sea days fished) on the pelagic longline fleet fishing for swordfish and 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

Canada has eight licenses for large pelagic vessels over 24 meters in length. Most fishing is conducted within the 200 mile zone. All vessels are equipped with a VMS system as per the recommendation adopted by ICCAT. Canadian licensing measures permit these licenses to be used on smaller vessels such that in certain years less than eight vessels over 24 meters in length may actually operate in the fishery.

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.

Section 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, 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 (tons round weight) of large pelagic fish species, 1995-2005.

Species	*Landings*										
	1995	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Swordfish	1609.2	739.1	1089.5	1115.1	1118.5	967.8	1078.9	959.3	1284.9	1203.3	1557.9
Bluefin tuna	576.1	598.0	504.5	596.0	576.1	549.1	523.7	603.7	556.6	536.9	599.7
Albacore tuna	11.5	23.9	30.8	23.2	38.8	121.7	51.0	112.7	55.7	27.1	52.1
Bigeye tuna	148.6	144.0	165.7	119.6	262.8	327.0	241.2	279.3	181.6	143.1	186.6
Yellowfin tuna	174.4	154.5	100.1	56.6	21.8	105.2	125.3	70.4	72.7	303.5	239.5
Unspec. tuna	0.0	0.0	0.0	0.0	0.0	0.5	0	.1	0.4	0.2	1.3
Blue shark	137.8	11.8	10.9	4.5	53.5	18.4	0.4	5.1	6.0	0.3	11.4
Shortfin mako	111.2	67.4	110.1	69.5	70.4	77.8	69.3	78.2	73.3	79.5	90.9
Porbeagle	378.0	1015.4	1339.4	1007.8	958.2	902.3	498.6	236.6	142.4	231.5	202.2
Unspec. sharks	38.4	12.7	42.5	37.3	17.6	10.7	19.7	21.1	13.4	11.3	14.7
Marlin[1]	4.4	8.3	8.3	7.9	4.8	5.3	3.2	2.1	1.4	1.7	4.7

[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 and in subsequent years.

Table 2. Canadian bluefin tuna landings and discards (tons round weight) by fishing area, 1994-2005.

Bluefin fishing area (west to east)	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Western NS												
o Bay of Fundy	34	43	32	55	36	38	18	31	13	10	5	3
o Georges Bank											3	18
o Hell Hole	165	211	147	101	152	182	74	182	125	188	60	18
o SWNS (coastal)	0	0	60	84	106	93	113	61	114	28	40	0
o St. Marg's Bay	80	72	90	59	68	44	16	16	28	84	32	9
o Unspecified[3]											141	191
NE Nova Scotia	39	61	41	69	82	26	7	25	35	7	11	21
G of St. Lawren.	61	175	111	101	115	164	236	149	205	192	239	251
Newfoundland	5	10	95	30	21	10	71	51	68	33	5	59
Offshore	0	4	22	6	16	18	13	7	16	14	0.5	30
Year-end adj[1]	7	-	-	-	-	1	1	<1	<1	<1	-	<1
Total Landings	**391.6**	**576.1**	**598.0**	**504.5**	**596.0**	**576.1**	**549.1**	**523.7**	**603.6**	**556.6**	**536.9**	**599.7**
Discards[2]	-	-	-	6.0	16.3	10.7	46.0	13.2	36.9	14.0	14.6	0.0
Canadian quota	*510.0*	*613.5*	*613.5*	*552.6*	*600.7*	*577.7*	*569.5*	*553.0*	*594.7*	*580.0*	*645.9*	*731.8*

[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; 1998-2005 estimate for entire fishery based on Observer coverage (see SCRS/99/77).
[3]In 2005, there were landings which were not accompanied by geographic data at the required scale for dividing catch into individual fishing areas in the western Nova Scotia area.

Table 3. Distribution of tuna, swordfish longline and shark fishing licenses by region and species[1] in 2005.

Region	*Number of licences[1]*							
	Bluefin	*Swordfish (LL)*		*Other tuna (LL)[4]*		*Sharks*		
	Total	*Active*	*Total*	*Active*	*Total*	*Active*	*Explor.*	*Rec.*
Gulf	601	446	0	0	0	0	10	34
Newfoundland	55[3]	12	6	2	6	2	0	26
Scotia-Fundy	42	42	71	46	72	47	16	1059
St. Margaret's Bay[2]	24	7	-	-	-	-	-	-
Quebec	54	26	0	0	0	0	2	0
Total	776	533	77	48	78	49	28	1119

[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 1995-2005 swordfish vessels landing fish, landings (tons round weight), discards[1], average weight of fish (kg round) by gear, percentage of small fish by number[2], and percentage of catch sampled for size.

	1995	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Number of vessels landing fish											
. Longline											
. Harpoon	77	77	60	49	53	61	63	46	44	45	48
Landings (t)	97	112	105	109	66	92	84	71	89	86	86
. Longline											
. Harpoon	1421	646	1000	875	1101	873	957.6	922	1138[3]	1116	1365.0
. Total	188	93	89	240	18	95	121.3	38	147	87	192.9
Discards (t)[1]	1609	739	1089	1115	1119	968	1078.9	959	1285	1203	1557.9
Average weight (kg)	-	-	5.0	51.7	34.6	49.9	26.4	32.7	78.6	44.8	106.3
. Longline											
. (# sampled)	68	69	70	61	56	58	69	72	63	70	69
. Harpoon	(20247)	(9077)	(14438)	(13447)	(19630)	(12991)	(13611)	(12859)	(17298)	(15368)	(20333)
. (# sampled)	122	161	131	126	109	111	102	117	108	121	117
% small fish by number landed[2]	(1131)	(561)	(652)	(1911)	(147)	(830)	(1287)	(413)	(1364)	(658)	(1646)
<125 cm											
<119 cm	**9**	3	5	3	3	3	2	<1	2	**<<1**	**<<1**
% of catch sampled	4	**<1**	**2**	**<1**	**<<1**	**<<1**	**<1**	**<<1**	**<1**	<<1	<<1
	94	97	100	95	100	100	100	100	100	100	100

[1] Discarded dead from swordfish longline fishery: no estimates prior to 1997; 1997 actual tonnage observed by at-sea Observers; 1998-2005 estimate for the 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 again in 2004-2005. Regulation changed to <119 cm LJFL with no tolerance from 1996-2003.

ANNUAL REPORT OF CAPE VERDE[1]

Vanda Marques da Silva Monteiro[2]

Part I (Information on Fisheries, Research and Statistics)

Since tunas and tuna-like species are migratory oceanic resources with seasonal passage in Cape Verde waters, an estimate of their potential depends on the stock assessments carried out for the entire Atlantic Ocean. For this purpose, the statistical data are transmitted annually to ICCAT. The fishery for tunas and tuna-like species has considerable economic importance in Cape Verde and studies on these species are one of the major research objectives of the country.

Section 1: Annual Fisheries Information

The major tunas fished in Cape Verde are: yellowfin tuna (*Thunnus albacares*), bigeye tuna *(Katsuwonus pelamis*), bigeye tuna (*Thunnus obesus*), and small tunas, such as Atlantic black skipjack *(Euthynnus alletteratus*), frigate tunas *(Auxis* spp.), and wahoo (*Acanthocybium solandri*).

These resources are caught by the artisanal fleet and the by industrial or semi-industrial fleet.

1.1 Catches

In 2004, the overall catch of the industrial and artisanal fishery amounted to 8,482 tons, of which 40% of the catches corresponded to tunas and similar species **(Figures 1 and 2)**.

In 2002, the average yield of the artisanal fishery underwent a slight decrease as compared to previous years, with an average catch of 34 kg/trip. However, catches by small vessels remained at about 4.0 t (INDP *Statistical Bulletin, No. 11*). As concerns the semi-industrial fishery, the average catch (in kg/day at sea) showed a minor decline, at 684 kg, but the average catch (in kg/vessel) showed a slight increase, with catch of 61 t/vessel.

Some billfish and swordfish are caught in Cape Verde waters mainly by EU vessels and by sport fishing.

Sharks are usually taken as by-catch of the other fisheries or for additional information on research cruises directed at other species. Since 2004 there has not been any national fishery directed at sharks. However, due to the current high demand for shark fins, four or five small artisanal fishery boats carry out shark fishing using surface longline. The foreign surface longline fleet, authorized only to fish tunas, catches shark as by-catch, but the catch is quite high.

In addition to the national market, tuna fishing products are also destined for export as fresh, frozen and canned product.

The catches of the artisanal fishery are relatively stable.

The annual industrial catch confirms a fluctuation with a decreasing trend.

In the two fisheries (artisanal and industrial) sharks are caught as by-catch or accessory catch. The potential of sharks and rays that are found in Cape Verde waters is not yet known, but it has never been a directed fishery, and consequently these catches have never been monitored. These species are thought to be under-exploited.

In the scope of FAO, an International Plan of Action for the Conservation and Management of Sharks (IPA-Sharks) has been developed, whose objective is to assure the conservation and management of sharks and their sustainable utilization in the future. In the framework of this plan and at the sub-regional level, the *Commission Sous Régionale des Pêches*-CSRP (Sub-Regional Commission on Fishing) has encouraged its seven member countries (Cape Verde, Gambia, Guinea Bissau, Guinea, Mauritania, Senegal and Sierra Leone) to develop a National Plan of Action for the Conservation and Management of Sharks.

[1] Original report in French.

[2] Instituto Nacional de Desenvolvimento das Pescas (INDP), C.P. 132 Mindelo Sao Vicente, Cape Verde.

1.2 Fleet and gears

En 2005, the Cape Verde fishing fleet was comprised as follows:

- 735 small boats with outboard motors
- 297 small boats without motors
- an average of 3 fishers per small boat
- about 70 large vessels with inboard motors.

The resources are exploited by the artisanal fleet, i.e., small boats, and by the industrial fleet, which are larger vessels.

The gears used are hand line and pole and line.

The number of artisanal vessels has tended to decline, in spite of the considerable increase in the rate of motorization, which went from 69% in 1995 to 73%, four years later, i.e., 1999. The small boats have very reduced fishing capacity and autonomy.

The industrial fishing vessels are larger vessels, many of which are obsolete, and the majority are privately owned. These are mainly tuna vessels, lobster vessels and purse seiners.

The number of fishers in 1999 was 4,283. There is a declining trend and in 2005 the number of registered fishers was 3,096 **(Figure 3)**.

1.3 Foreigh fleet

The foreign fleet that fishes in the Cape Verde EEZ is comprised essentially of tuna vessels (baitboats and purse seiners), and surface longliners, the majority of which pertain to EU countries **(Figure 4)**. Sharks are the most caught species, followed by billfish and swordfish.

Section 2: Research and Statistics

The *Instituto Nacional de Desenvolvimento das Pescas*-INDP (National Institute for the Development of Fishing) and the *Direction Générale de Pêche*-DGP (General Directorate of Fishing) are responsible for all matters related to large migratory species in Cape Verde. These two institutions pertain to the *Ministère du Tourisme, des Transports et de la Mer*-MTTM (Ministry of Tourism, Transport and the Sea).

Interviewers collect statistical data on tunas and tuna-like species at the landing ports and then this information is processed for analysis.

Size sampling is conducted for all the billfish and similar species caught in Cape Verde.

A Statistical Bulletin is published annually, but for various reasons, there has been some delay in its publication.

With the objective of creating a National Corps of On-board Observers, the General Director of Fishing intends to carry out a course very soon for the on-board observers.

Cape Verde has participated in the Regional Workshop for the Improvement of Fishery Statistics, sponsored by ICCAT and the Japan Data Improvement Project (JDIP).

Information from Cape Verde is always provided for purposes of updating ICCAT statistics and for stock assessments.

Part II (Management Implementation)

Section 3: **Implementation of ICCAT Conservation and Management Measures**

In order to comply with the ICCAT recommendation, the Government of Cape Verde, through its Fisheries Management Plan, has implemented the following measures:

3.1 Industrial fishery

- Maintain the prohibition on the catch of yellowfin and bigeye tunas weighing less than 3.2 kg.

3.2 Artisanal fishery

- Maintain the prohibition on the catch of yellowfin and bigeye tunas weighing less than 3.2 kg.
- Reserve an exclusive economic zone for fishing activities within a three nautical mile limit.

3.3 Foreign fishing

- Maintain the prohibition on the catch of yellowfin and bigeye tunas weighing less than 3.2 kg.
- Prohibit the foreign fleet from any fishing activity within the 12 nautical mile limit.

3.4 Sharks

- Shark fishing only for fins is prohibited in the entire Cape Verde EEZ (Resolution 3/2005 of 21 February).

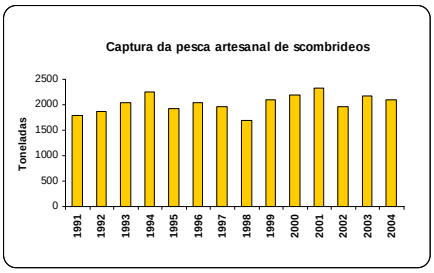

Figure 1. Development of the catches (t) by the artisanal fishery for tunas (1991-2004). (Source: INDP Statistical Bulletins)

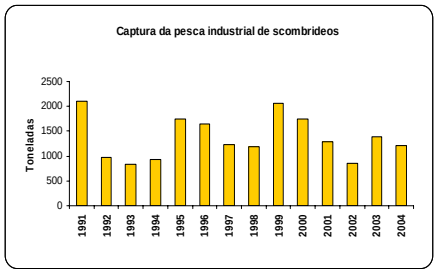

Figure 2. Development of the tuna catches (t) by the industrial or semi-industrial fishery (1991-2004). (Source: INDP Statistical Bulletins)

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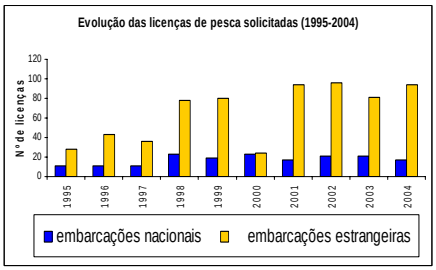

Figure 3. Development of fishing licenses requested (1995-2004). (Source: DGP)

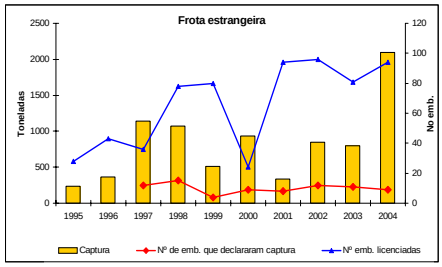

Figure 4. Development of foreign fleet activity. (Source: DGP)

ANNUAL REPORT OF THE PEOPLE'S REPUBLIC OF CHINA[1]

Zhou Yingqi, Song Liming, Xu Liuxiong, Dai Xiaojie[2]

Part I (Information on Fisheries, Research and Statistics

Section 1: Annual Fisheries Information

Longline is the only fishing gear used by the Chinese fishing fleet to fish tunas in the Atlantic Ocean. Twenty-six (26) Chinese tuna longliners operated in 2005, with a total catch of 8,968.7 t of tunas and tuna-like species, more than in 2004. In 2004, the highest CPUE of bigeye and yellowfin was in the first quarter while the lowest CPUE was observed in the third quarter **(Figure 3)**. In 2005, bigeye and yellowfin CPUE in the first quarter was also the highest and that of the fourth quarter was the lowest (**Figures 1** and **3**). Bigeye and yellowfin CPUE in 2004 was higher than in 2005 **(Figure 3)**. In 2004, fishing effort was highest in December and effort in July was the lowest **(Figure 3)**. In 2005, the fishing effort in the fourth quarter was the highest and that of the third quarter was the lowest **(Figures 2 and 3)**. Monthly fishing effort in 2005 was higher than in 2004 **(Figure 3)**. The target species are bigeye tuna and bluefin tuna. Yellowfin tuna, swordfish and albacore are taken as by-catch. The fishing gear used is deep water longline, with 17-19 hooks per basket. The branch line is 49-53 meters long. The length of the main line between the two branch lines is 46-51 meters. **Table 1** shows the species composition of the catch in the total Atlantic since 1993.

1.1 Albacore

Albacore were caught as by-catch by the Chinese longline fleet in the Atlantic Ocean. The total albacore catch in 2005 was estimated at about 206.5 t, a 43.1% increase from the previous year (144.3 t), among which 111.6 t were caught in the North Atlantic Ocean and 94.9 t in the South Atlantic Ocean.

1.2 Bluefin tuna

The total catch of bluefin tuna by the Chinese longline fleet was 23.7 t in the northeast Atlantic Ocean in 2005, with a decrease from the previous year (41.0 t in 2004).

1.3 Tropical tunas

Tropical tunas in the statistics include bigeye and yellowfin tunas in the Atlantic Ocean. The total catch of bigeye tuna in 2005 amounted to 6,200.2 t, which is 5.4% lower than that of 2004 (6,555.3 t), while the catch of yellowfin tuna was 1,185.5 t, which is 9.2% lower than in 2004 (1,305.2 t).

1.4 Swordfish

The total catch of swordfish in 2005 was 199.2 t, a 40.3% decrease from the previous year. Of this amount, 107.9 t (55.8 t in 2004) were caught in the North Atlantic Ocean and 91.3 t (277.8 t in 2003) were caught in the South Atlantic Ocean.

Section 2: Research and Statistics

Shanghai Fisheries University (SFU) is authorized by the Chinese Fisheries Authority 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. One observer was dispatched on board the Chinese Atlantic tuna longline fishing fleet for data collection in January, 2006. This observer checked and recorded the bigeye and yellowfin biological data, the catch composition and the nominal CPUE of the catch species during the research from January 20 to April 24, 2006 **(Table 2)**.

[1]Original report in English.
[2] Shanghai Fisheries University, 334 Jungong Road, Shanghai 200090, P. R. China.

Table 2 shows that the average nominal CPUE of bigeye tuna is 12.10 fish/1000hooks and that for yellowfin tuna is 2.80 fish/1000hooks. The highest CPUE occurred in April for bigeye, at 20.51 fish/1000hooks and in January for yellowfin at 3.96 fish/1000hooks.

Additionally, a logbook data submission system is being established, which could provide a certain level of information on catch and fishing effort in detail.

Part II (Management Implementation)

Section 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 tuna, eastern bluefin tuna, northern and southern swordfish, blue marlin and white marlin, adoopted by ICCAT, the Fishery Administration Authority of China required all the Chinese fishing companies operating in the Atlantic Ocean to report their catch data monthly to the Branch of Distant Water Fisheries of China Fisheries Association (BDWF-CFA) and the Tuna Working Group in SFU.

In order to implement the conservation and management measures for bigeye tuna, the Fishery Administration Authority of China urged some tuna vessels to leave the Atlantic Ocean.

The Chinese tuna fleet strictly followed the minimum size criteria established by ICCAT for the conservation and protection of juvenile tunas.

3.2 Tuna Statistical Document Program

Since July 2002, all exported bluefin tuna and bigeye tuna caught by the Chinese tuna fleet have been accompanied by a Bluefin Tuna Statistical Document and a Bigeye Tuna Statistical Document, respectively, as required by the resolution and recommendation adopted by ICCAT.

3.3 Fishing vessel management

The Fishery Administration Authority of China has established a fishing license regulation and, June 1, 2003, Chinese fishing vessels that intend to operate on the high seas must apply for a license. As a responsible fisheries nation, China continually inputs more effort towards strengthening tuna fisheries management. The main measures taken include:

1) Implementation of a fishing license system. The Chinese Government will issue a “High Seas Fishing Permit” to all legal fishing boats operating on the high seas. The fishing permit explicitly specifies the fishing area, main target species and quota, and fishing time permitted, so that the harbor nations can easily check these if the boat enters their harbor.

2) All fishing companies have to report their catch data every month to the Tuna Working Group of the BDWF-CFA.

3) Continuation of implementation of the national tuna observer program in the Pacific, Atlantic and Indian Oceans.

4) All large-scale tuna longliners have to install VMS equipment, starting from October 1, 2006.

5) Strengthening of consultations with relevant nations who are willing to accept Chinese tuna boats concerning fishing access, and assuring their legal access and normal fishing operation.

6) Encouraging scientists to conduct research on the incidental catch of sea turtles and sea birds, and request fishing companies to report their incidental catches of sea turtles and sea birds, if any.
7) A logbook checking and submission system has been set up as normal management work. A pilot logbook data submission system was tested last year, through which more detailed information on catch and fishing effort can be obtained. In 2006, the Fisheries Bureau of the Ministry of Agriculture requested all fishing

boats to complete the logbook according to the required format, and will take into consideration the implementation of a logbook system by the fishing vessels or company as one of the main conditions for renewing fishing permits and licenses.

8) Improvements in the data reporting system and the submission of fisheries statistics to regional tuna fisheries management organizations as required.

3.4 Observer program

In accordance with the Commission's recommendation on the bigeye tuna observer program adopted in 1997, China has carried out a tuna observer program in ICCAT waters since 2001.

The Tuna Working Group of the SFU has been in charge of the national tuna observer program in the Pacific, Atlantic, and Indian Oceans, which was authorized by the Bureau of fisheries, Ministry of Agriculture. A scientific observer program has been carried out normally with the full cooperation of the BDWF-CFA and supported by SFU. So far, scientists and graduate and post graduate students from SFU majoring in marine fisheries science and technology, and marine fisheries resources have been chosen as candidates for tuna scientific observers.

A scientific observer has been dispatched on board a Chinese Atlantic tuna longline fishing fleet since January, 2006. The area covered was 04°48′N-11°53′N / 27°00′W-37°43′W (the high seas area); 516 bigeye tuna and 29 yellowfin tuna and other tuna and tuna-like species were measured. The duration of the observer investigation was from January 20 to April 24, 2006,

Table 1A. Catch of tunas and tuna-like species (in round weight, t), 1993-1998.

Species	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*
Bluefin tuna	--	97.4	136.9	92.8	48.7	85.3
Yellowfin tuna	139.0	155.9	200.0	124.3	83.6	698.3
Bigeye tuna	70.1	428.3	475.7	519.8	427.1	1502.9
Swordfish	72.5	85.7	104.2	131.9	39.6	365.3
Albacore	--	14	8	20	--	--
Skipjack	--	--	--	--	--	4
Unspecified Shark	--	--	--	--	--	5
Short mako	--	--	--	--	--	
Spearfish	--	--	--	--	--	2.4
Blue marlin	--	--	--	--	--	
White marlin	--	--	--	--	--	3.6
Sailfish	--	--	--	--	--	--
Other	41.0	68	76.0	80	90	--
Total	322.6	849.3	1000.8	968.8	689.0	2666.9

Table 1B. Catch of tunas and tuna-like species (in round weight, t), 1999-2005.

Species	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Bluefin tuna	103	79.6	68.1	39.1	19.3	41.0	23.7
Yellowfin tuna	2190	1674.2	1055.8	696.7	1049.7	1305.2	1185.5
Bigeye tuna	7347	6563.5	7210	5839.5	7889.7	6555.3	6200.2
Swordfish	838	365.6	302	513.2	669.1	333.6	199.2
Albacore	60	104.7	82.7	225.7	181.6	144.3	206.5
Skipjack	--	--	--				0
Unspecified Shark	31	--	--				--
Short mako	--	152.8	--				--
Spearfish	--	--	--				--
Blue marlin	--	23.2	91.6	87.8	88.5	58.4	96.3
White marlin	--	2.4	19.8	22.8	7.6	6.5	8.6
Sailfish	--	7.4	8.1	11.7	4.7	4.5	7.8
Other	415	234.2	532.4	590.3	137.4	173.1	1040.9
Total	10984	9207.6	9370.4	8026.8	10048	8621.7	8968.7

Table 2. Catch (kg) composition and nominal CPUE (fish/1000 hooks). (From observer data: January 20 to April 24, 2006).

Species		*Jan.*	*Feb.*	*Mar.*	*Apr.*	*Sub-total*
BET	No.	271	500	850	1325	2946
	Catch	9398	20770	26857	32375	89400
	CPUE	9.68	7.22	11.0	20.51	12.10
YFT	No.	111	217	73	205	606
	Catch	4861	9490	3191	2355	19897
	CPUE	3.96	3.13	0.94	3.17	2.80
SWO	No.	8	22	19	23	72
	Catch	402	854	659	1162	3077
	CPUE	0.29	0.63	0.25	0.36	0.38
BUM	No.	0	8	12	13	33
	Catch	0	300	710	570	1580
	CPUE	0.20	0.23	0.16	0.2	0.20
TOTAL	No.	390	747	954	1566	3656
	Catch	14661	31414	31417	36462	113954
	CPUE	14.13	11.21	12.35	24.24	15.48

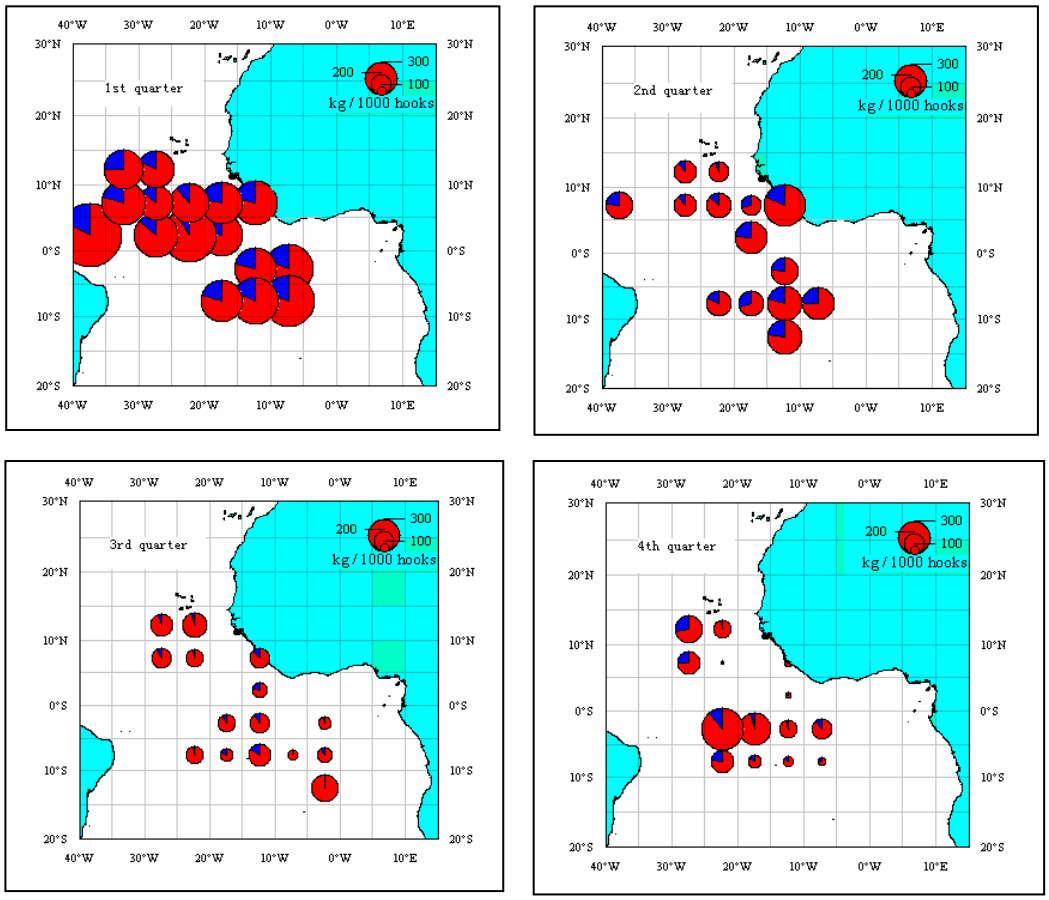

Figure 1. The CPUE distribution of bigeye tuna (in red / dark grey shaded area of circles) and yellowfin tuna (in blue / black shaded area of circles) by 5º×5º and quarter in 2005.

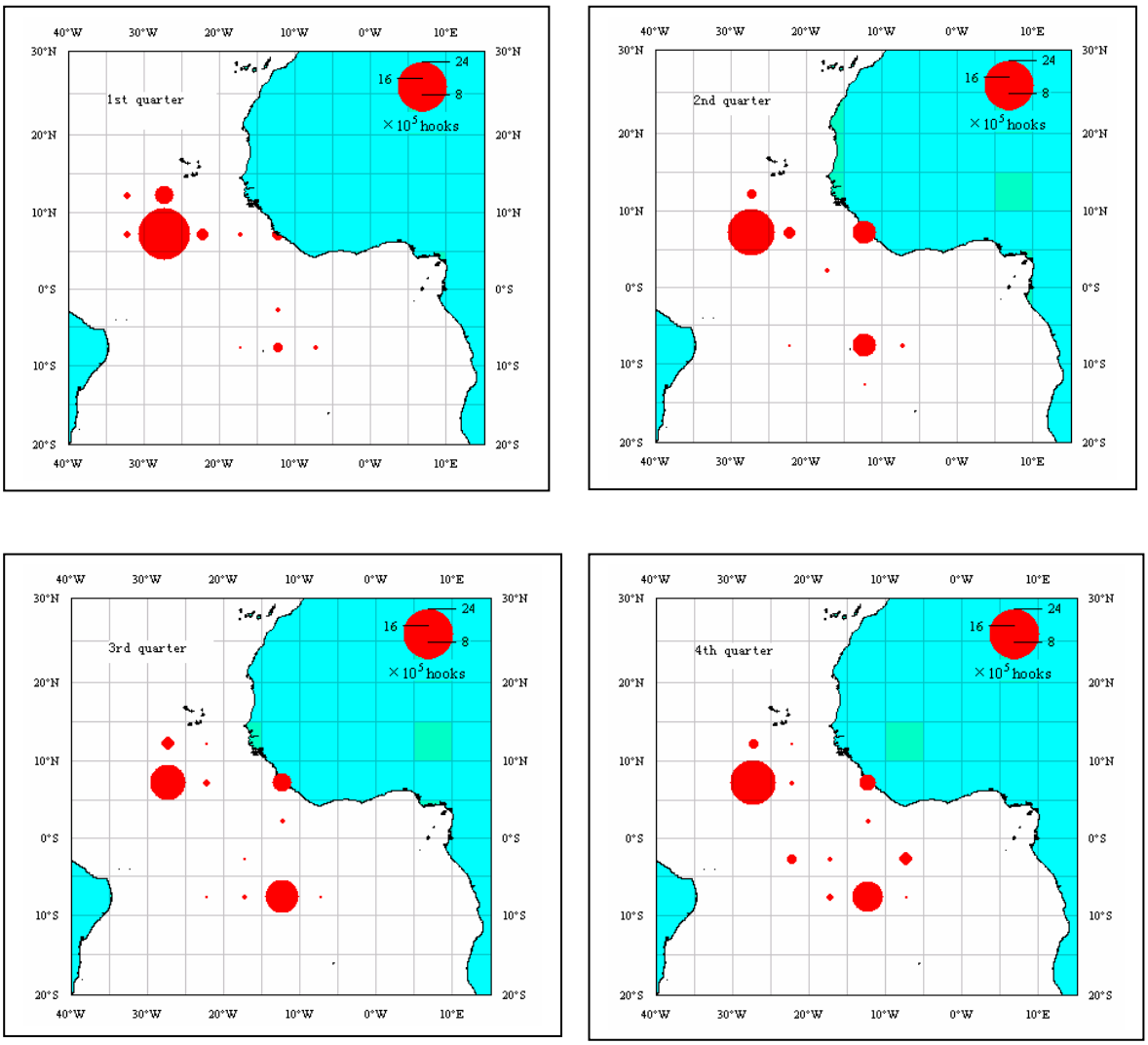

Figure 2. Distribution of fishing effort by 5°x5° and by quarters in 2005.

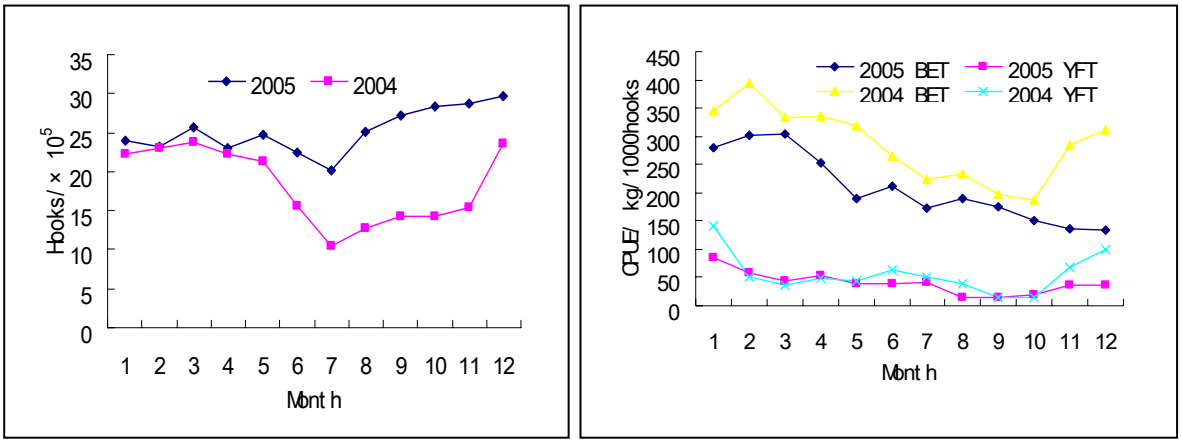

Figure 3. Distribution of fishing effort (left) and CPUE (bigeye and yellowfin, right) by month in 2004 and 2005.

ANNUAL REPORT OF CROATIA[1]

Vlasta Franičević [2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

The total Croatian catch of tuna and tuna-like fishes in 2005 was 1,017 metric tons (t), of which 100% is comprised of bluefin tuna. The total catch was caught by purse seine and transferred into floating cages for growing purposes. Additionally, 1,930 t of large bluefin tuna have been imported in Croatia in 2005 from France and Libya for growing purposes. The number of licensed vessels actively fishing for tuna and tuna-like species in 2005 was 32, while 16 of these vessels have been reported as licensed large-scale vessels (> 24 m).

Section 2: Research and Statistics

During 2005, a study carried out within the framework of the Bluefin Year Program (BYP) on bluefin tuna farming based on the tagging of live specimens in captivity, continued and all the tagged specimens were harvested at beginning of 2006. The first results of these research activities were summarized and reported in a paper presented to the SCRS (SCRS/2005/114).

A Pilot Sampling Program has been established in accordance with Recommendation 05-04. The collection of Task II data on bluefin tuna caught by Croatian fishing vessels (for farming purpose) and eventually harvested from farms has been carried out.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

All the conservation and management measures regarding bluefin tuna fisheries and farming are incorporated in national legislation.

Section 4: Inspection Schemes and Activities

Croatia has nothing to report at this time.

Section 5: Other Activities

Croatia has nothing to report at this time.

[1] Original report in English.

[2] Ministry of Agriculture, Forestry and Water Management, Directorate of Fisheries, Croatia, Ivana Mažuranića 30, 23000 Zadar, E-mail: mps-uprava-ribarstva@zd.htnet.hr

ANNUAL REPORT OF EQUATORIAL GUINEA[1]

Equatorial Guinea is located in the Gulf of Guinea, close to the Equator, and has a continental area as well as an insular area, which occupies 28,051 km^2. Equatorial Guinea has land and maritime boundaries with Cameroon, Gabon, Gabon, Nigeria and Sao Tome & Principe. The capital is Malabo, located on the island of Bioko and the second city is Bata in the continental region of the country.

Other islands are Annobon (17 km^2), Corisco (15 km^2), Elobey Grande (2.2 km^2), Elobey Chico (0.19 km^2) and small adjacent islands, all of which are located in the Muni Estuary.

Equatorial Guinea has an Exclusive Economic Zone (EEZ) of about 314,000 km^2. Equatorial Guinea is negotiating the assessment of its fishing resources with FAO and within the scope of multi-lateral and bi-lateral cooperation.

Part I (Information on Fisheries, Research and Statistics

Section 1: Annual Fisheries Information

Equatorial Guinea currently carries out three types of fisheries: industrial, artisanal and sport.

At present, there are no Equatorial Guinea industrial vessels in operation. No chartering arrangements have been concluded and there are no vessels registered with Equatorial Guinean flag. At present, any vessels fishing with Equatorial Guinea flag within the Convention area and outside the area should be considered illegal vessels.

However, Equatorial Guinea has granted industrial fishing licenses to Spanish and French boat owners associated with national companies to fish in its jurisdictional waters and its EEZ. There are also small vessels (less than 20 m) that carry out semi-industrial fishing.

As concerns artisanal fishing, there are more than 60 organized boats that carry out this type of fishing.

In the sport fishery, some licenses have been granted to individual persons.

Section 2: Research and Statistics

The Fishing Law of Equatorial Guinea governs fishing and research. However, this activity has not yet been developed. Notwithstanding, negotiations are under way, as indicated above, with FAO and the Basque Government, within the framework of Cooperation Agreements with Spain, to develop research on Equatorial Guinea's maritime resources

With regard to the collection, processing and submission of fishing statistics, Equatorial Guinea does not yet have a reliable statistical scheme to meet the requirements of ICCAT. Therefore, at the request of the Government, ICCAT recommended at its 2005 annual meeting that support to the Republic of Equatorial Guinea in establishing a data collection and data processing scheme be continued.

[1] Original report in Spanish.

ANNUAL REPORT OF THE EUROPEAN COMMUNITY[1]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

The various fleets of the European Community fish all the principal species which are regulated by ICCAT in the Atlantic Ocean and the Mediterranean Sea.

The total catch of tunas and related species carried out by these various fleets in 2005 was about 198,596.6 tons (summary table in Annex 1)[2], which represents a reduction of the EC catches in relation to the 2004 level.

Chapter 1 of the EC Annual Report including reports of the various Member States of the European Community providing the details and technical information pertaining to the various fisheries, both by species and by fishing gear, as well as Chapter 2 concerning Research and Statistics were previously transmitted to ICCAT for analysis by the Scientific Committee.

Section 2: Research and Statistics

2.1 Research

All the Member States of the European Community have national research institutes or, in certain cases, regional laboratories, supervised by the major universities of the country. The detailed description of the research carried out by the Member States of the Community is given in Section 2 of the individual Annual Reports presented.

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

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

Under the respective national Data Collection Programs, the European Community partially finances the collection of biological data in order to carry out supplemental studies to support stock evaluations. In addition, the European Community fully or partly finances research programs on highly migratory species carried out jointly with the Member States concerned. The principal work undertaken in 2005 within the framework of these European programs is as follows:

2.1.1 Bluefin tuna

- Evaluation of the biological parameters in collaboration with the FAO/COPEMED project and FAO/MedFisis;
- Evaluation of the impact of the spatial and temporal fluctuations on the stock assessment and management of this stock (FEMS program);
- Collection of biological data (in particular, parameters on reproduction and sexual maturity REPRODOTT program) and also the incidence of by-catches;
- Collection of data on the sport fishing of bluefin tuna;
- Indices of abundance (CPUE), size sampling at landing in the Mediterranean and in the Atlantic;
- Biological sampling to obtain size/sex variable by time-area strata, growth rates;
- Tagging in the Mediterranean and in the Atlantic.

2.1.2 Swordfish

- Biological sampling to obtain the size/sex variables by spatial/temporal strata, growth rates;
- Evaluation of the biological parameters in collaboration with the FAO/COPEMED project and FAO/MedFisis; and
- Tagging in the Mediterranean and in the Atlantic.

[1]Original report in English and French.
[2]The Annexes are available from the Secretariat.

2.1.3 Tropical tuna

- Analysis of the diet of yellowfin tuna;
- Evaluation of the impact of management measures (moratorium, restriction on the use of certain fishing gear for the management of the stocks which are exploited in mixed fisheries) - European programs FEMS;
- Real time monitoring of the environmental conditions of sub-surface strata in the Gulf of Guinea - PIRATED program;
- Development and update of the "GAO" oceanographic database enabling marine biologists to have easy access to verified data by various spatial/temporal strata; and
- Biological sampling to obtain size/sex variables by time-area strata, growth rates.

Parallel to the Community programs, some Member States finance research programs, which may be implemented jointly with other Member States or with third countries.

2.2 Statistics

Both the European Community and its Member States continued their close cooperation with the SCRS in 2005.

The European Community has binding legislation for its Member States', applicable to all the fleets fishing for highly migratory species throughout the range of their fishing activity. This regulation implements the ICCAT recommendations.

This regulation aims to meet the requirements of ICCAT Tasks I and II. The instruments used (vessel logbooks, landing declarations, etc.) and the possibilities of exchanging data, results in improved monitoring of catch data, particularly in terms of speed and accuracy.

In addition, the Community has Regulations (EC No. 1543/2000, 1639/2001 and 1581/2004) that stipulate the requirements for the collection and management of data needed for stock assessments (national Data Collection Programs). Within this framework, the European Community finances programs at improving fishing statistics:

- Scheme for sampling and the correction of logbooks;
- Systems for data collection and processing of catch data and fishing effort for the various fleets concerned; and
- Size sampling at landing.

Moreover, the Member States adopt national regulations which implement and, in some cases, supplement the Community legislation, to take account of the specific nature of the national fisheries.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures)

3.1 At the regulatory level

After each plenary session of ICCAT, the European Community transposes the conservation measures adopted by ICCAT into its legislation so that they are binding on its Member States and their nationals.

All the technical conservation measures in force for the highly migratory species are consolidated in the Council Regulation (EC) No. 973/01 laying down technical conservation measures for certain highly migratory fish stocks (OJ L137/1 of 19 May 2001) and modified by Council Regulation (EC) No. 831/2004 of 26 April 2004.

The control measures adopted by ICCAT are also transposed into Community law by Council Regulation (EC) No. 1936/01 establishing certain control measures applicable to the fishing activities for certain highly migratory fish stocks (OJ L 236/1 of 3 October 2001), and modified by Council Regulation (EC) No. 869/2004 of 26 April 2004.

The measures adopted at the 2005 ICCAT annual meeting as well as the catch limits for bluefin tuna, southern and northern swordfish, southern and northern albacore, bigeye tuna, and white and blue marlin were transposed into Community legislation by the Council Regulation No. 51/2006 of 22 December 2005 fixing for 2006 the

fishing opportunities and associated conditions for certain fish stocks and groups of fish stocks, applicable in Community Waters and for Community vessels, in waters where catch limitations are required (OJ L16/1 of 20 January 2006, p.01).

3.1.1 Statistical Document Programs

The information received from the Member States in the context of implementing these programs, which indicates a clear interest in their correct application, were transmitted in due time to the ICCAT Executive Secretary so that they could be circulated to the other ICCAT Parties.

This information, which in particular noted the prohibition of landings of swordfish, justified by the non-respect of the provisions regarding the Statistical Document Programs, such as the submission of statistical documents in the absence of notified validating authorities, the absence of fishing quotas or false declarations of the catch areas thereby permitting the cover-up of the fishing activity in the Convention area.

As a follow up of the identification procedure concerning Singapore, a monitoring action has been undertaken which led to the identification of a large number of swordfish consignments unduly declared as having been caught by Singapore vessels and re-exported with documents which had not been issued by the competent authorities notified to the ICCAT Executive Secretary. Investigations are ongoing in cooperation with Singapore.

Furthermore, data on products exported outside the scope of the Statistical Document Programs have been provided to the ICCAT Executive Secretary in order to draw the attention of the exporting countries to these programs and encourage them to envisage their participation.

3.1.2 Trade sanctions

The recommendation adopted by ICCAT, relating to the lifting of trade sanctions on imports of swordfish, bigeye tuna and bluefin tuna against Cambodia, Equatorial Guinea and Sierra Leone, have been transposed into Community legislation by the Council Regulation (EC) No. 919/2005 of 13 June 2005[3]. The English, Spanish and French language versions of these three Regulations were sent to the ICCAT Executive Secretary for distribution to the other ICCAT Contracting Parties.

The monitoring of trade has not identified tentative imports from the two countries which are subject to such sanctions (Bolivia and Georgia).

3.2 Compliance

3.2.1 Catch limits

In 2005, the European Community has in general respected all the catch limits adopted by ICCAT except for eastern and Mediterranean bluefin tuna and blue marlin (see compliance tables).

3.2.2 Minimum size

The European Community overall respects the minimum size for bluefin tuna in Mediterranean, in particular in relation to farming activities.

With regard to swordfish, the number of under-size fish in catches slightly exceeded the tolerance fixed by ICCAT. The Community is currently financing studies on gear selectivity (hooks) in order to reduce juvenile catches.

3.2.3 Vessels lists

The Community transmitted, in due time, the vessels lists fully respecting the formats required by ICCAT.
For 2005, the Community communicated the following details:

- 1555 Community vessels greater than 24 meters authorized to fish in the ICCAT area, a reduction from that in 2004;

[3]Official Journal of the European Union L 156 of 18 June 2005.

- 1181 Community vessels authorized to fish for northern albacore, a reduction from that in 2004;

- 166 Community fishing vessels, supplying bluefin tuna for farming purposes in the ICCAT area, an increase from that in 2004;
- 117 Community fishing vessels fishing for tuna farming purposes;

3.2.4 Large scale long line vessels

The Community took the necessary measures to control the activities of its large scale long line vessels (*see annex 3)* and to ensure that Tuna vessels on the ICCAT Record of vessels over 24 meters are fishing in accordance with ICCAT management and conservation measures (see Annex 4).

3.2.5 Area/season closure for bigeye tuna

In 2005, the European Community fully respected points 8 to 12 of the *Recommendation by ICCAT on a Multi-year Conservation and Management Program for Bigeye Tuna* [Rec. 04-01]. The report on the implementation of internal sanctions required under point 11 is included in Annex 5.

3.2.6 Bluefin tuna farming report

In 2005, the European Community fully respected the Recommendation by ICCAT on Bluefin Tuna Farming. The Community transmitted the following details (see Annex 2):

- Quantities of bluefin tuna caged during 2005: 12,562.93 tons
- Quantities of bluefin tuna marketed during 2005: 12,545.40 tons

3.2.7 Plan aimed at reducing the catches of juveniles bluefin tuna in the east Atlantic and Mediterranean

In 2004 and 2005, the Member States developed specific plans to reduce their catches of juvenile bluefin tuna in their Mediterranean fisheries. The Community transmitted in 2005 the results obtained to the SCRS and to the Commission.

Overall, the implementation of the plan was positive and showed a reduction of catches of juveniles due to the development of farming. Since 2004, the Member States established a sampling program for the estimation of the size of the bluefin tuna caged which showed that the bluefin tuna caged weighed more than 10 kg. The results have been transmitted to the SCRS.

3.3 At the Member State level

Member States make great efforts at the national level to comply with ICCAT recommendation and resolutions, in terms of fishing effort limitation (capacity/number of ships), catch limits (management of the quotas), and landing controls from third countries vessels and in particular those from flag of convenience vessels.

3.4 Complementary conservation and management measures

The European Community has adopted a control regime under the Community fisheries policy which imposes on the Member States specific obligations as regards control. In this regard, each Member State must control, inspect and supervise on its territory and in the maritime waters under its sovereignty or jurisdiction all fishing activities and in particular directed fishing, transshipment, landing, marketing, transport and storage of fish products and the recording of the landing and sale of fishery products (Council Reg. (EEC) No. 2847/93 of 12 October 1993 establishing a control regulation for the compliance with the common Community fisheries policy, EU Official Journal No. L261 of 20 October 1993, p. 1). This control regulation was strengthened following the reforms introduced into the common fisheries policy.

In addition to these obligatory provisions, Member States must adopt more restrictive provisions for certain species than those imposed at the Community level or by ICCAT. These provisions, modified to meet national requirements, target rational management and more accurate monitoring of the fisheries, up to the retail point of the catch. Depending on the Member States and the fisheries concerned, the following elements, in particular, are to be noted: annual fishing plans, an obligatory specific license to be issued annually (special fishing permit), limit to the number of licenses issued, withdrawal of the license in the event of infringement, detailed record of

fishing activities, on-board scientific observers, notification by vessels of entry and departure from port and fishing areas, by-catch limits, vessel catch quotas, seasonal closures, and, minimum sizes.

Some Member States are studying the future compliance of the new measures aimed at controlling fishing activities of highly migratory species and the protection of the resources. These measures should in particular strengthen the sector's supervision and monitoring of the fish from catch to retail.

The European Community has also adopted specific programs for certain species and gears:

- prohibited the use of driftnets to catch highly migratory species since 1 January 2002; obligatory Community logbook,
- on-board scientific observers for longline vessels (juvenile catches),
- monthly transmission of catch data for all species subject to TAC and quotas and quarterly transmission for other species,
- obligatory satellite tracking (VMS) for vessels greater than 24 meters, and from 1 January 2005 for those greater than 15 meters,
- adoption of Council Regulation (EC) 1185/2003, regarding the practice of shark finning.

The European Community has also strengthened its control regime, centered on three main principles which it considers as priority issues: the improvement of post-landing controls, the control of third country vessels operating in Community waters, and cooperation between the Member States and the European Commission.

In addition, the European Commission submitted a proposal for a Council Regulation concerning management measures for sustainable use of the fishery resources in the Mediterranean which is still under discussion in the Council of Ministers.

Finally, the European Commission has created the Community Fisheries Control Agency.

In April 2005, the Council of Ministers agreed to set up a Community Fisheries Control Agency as a key part of the drive to improve compliance with the rules under the 2002 reform of the Common Fisheries Policy (CFP). The Agency will strengthen the uniformity and effectiveness of enforcement by pooling EC and national means of fisheries control and monitoring resources and coordinating enforcement activities. This operational co-ordination will help tackle the shortcomings in enforcement resulting from the disparities in the means and priorities of the control systems in the Member States. The Agency will organize the deployment of national control and inspection means according to a European strategy. Its tasks and mandate will be defined in close co-operation with the Member States in accordance with EC objectives and priorities.

Operational co-ordination**:** The Agency will organize the joint deployment of the national means of control and inspection (surveillance vessels, aircraft, vehicles and other equipment as well as inspectors, observers and other staff) according to an EC strategy. Joint deployment plans will be agreed by the Agency and the Member States concerned on the basis of identified criteria, benchmarks, priorities and common inspection procedures. Multinational teams will be set up for inspection at sea and onshore in identified areas and on identified fisheries and fleets at given times. The Member States concerned will adopt the necessary measures to undertake the joint control and inspection activities. The Agency will provide support to the Member States in meeting their responsibilities not only in EC waters but also in relation to fisheries agreements concluded with non-EC countries. It will also be active on the high seas under international control and inspection schemes agreed within the framework of Regional Fisheries Organizations.

The tasks involved will also include training of inspectors, provision of equipment and services for control and inspection, co-ordination of the implementation of joint pilot projects to test new control and inspection technologies, development of joint operational control procedures or establishment of criteria for the exchange of means of control and inspection.

In addition, the Agency may offer contractual services which Member States will be able to request and for which they would be charged. These services may range from chartering and manning an inspection vessel to contracting observers on board fishing vessels.

Towards a level playing field: The creation of the Agency will not change the obligations of the Member States in enforcing CFP measures or those of the European Commission in ensuring that Member States fulfill these

obligations. The Agency will undertake operational co-ordination to help both the EC and Member States fulfill their control and inspection obligations, an activity that is not part of the core tasks of the European Commission.

As well as strengthening the effectiveness of control and monitoring, the Agency's activities will improve the flow of information between and among the Member States and the Commission. It will also lead to better relations between the EC and its international partners by centralizing contact points and promoting more uniform control and inspection methods.

Section 4: Inspection Schemes and Activities

4.1 Member States

4.1.1 Shore and in-port inspection

On-shore controls undertaken by the Member States are generally carried out in the landing port and/or at the time of sale, when this is at auction. They can also intervene at any time during the transport or at the central markets. These controls primarily cover the quantities landed, the sizes, the age and weight of the fish, and the respect of closed fishing periods. They can also intervene at the time of marketing, to verify data.

Some Member States have established an information network between the various landing ports to improve the monitoring of vessel movements.

Routine inspections are also carried out, by third country inspectors and scientific institute observers, at the time of landing of tropical tuna by Community vessels in Africa.

The same controls that are applied to port inspections are carried out in transshipments of tunas, including foreign vessels, whether Contracting Party or non-Contracting Party to ICCAT.

4.1.2 Air and sea inspections

In addition to the terrestrial methods, Member States have maritime and aerial means to monitor fishing activities and the respecting by Community vessels of the technical and administrative requirements imposed on each fishery. Air and sea control exercises, whether routine or specific, are organized throughout the fishing seasons.

This mechanism does not ignore, however, the great practical difficulties faced by the responsible Administrations of some Member States in achieving the same level of effectiveness when dealing with a very high number of landing points located on their territory.

Since 1 January 2000, the mandatory satellite tracking of vessels greater than 24 meters has improved the monitoring at sea.

4.1.3 Implementation and results (2005)

- **Spain**

  - In-port results:
    Atlantic: 124 vessels inspected (17 infringements),
    Mediterranean: 89 vessels inspected (7 infringements).

  - At sea results:
    Atlantic: 4 vessels inspected (0 infringements),
    Mediterranean: 59 vessels inspected (5 infringements).

  - Aerial surveillance: 646 in the Atlantic (0 infringements).
    202 in the Mediterranean (0 infringements);

  - Tropical tunas: During the period from 1 November 2005 to 30 November 2005, VMS was employed to ensure the respect of the moratorium in the Gulf of Guinea.

At the national level in Spain, inspection activities are primarily focused on bluefin tuna in the Mediterranean Sea and on albacore in the North Atlantic Ocean. Additionally, Spain has also concentrated on the control of swordfish and tunas, and has prohibited the landing/importation of tuna from vessels which have not respected ICCAT recommendations.

The objectives of the inspection activities are:

- To monitor and control, by maritime, aerial and land based means, the activities of longline and purse seine vessels;
- To monitor and control cargo vessels which transport or transship ICCAT managed species;
- To monitor and control vessels flying the flag of third countries and "flags of convenience";
- To monitor and control technical measures;
- To monitor and control minimum sizes, in particular of bluefin tuna in the framework of the reduction plan for juvenile tunas;
- The constant monitoring and control of fishing activities in waters falling under the jurisdiction of Spain.

• **France**

- In-port results:
  Mediterranean: 19vessels inspected (0 infringements)

- Bluefin tuna: air and sea controls - landing inspections for minimum sizes/weights and at all the marketing stages; verification of log book and trade data. Landing controls carried out in France did not give rise to any observed infringements. It should be noted that, the method of storage of the tuna on board ships (frozen water) makes the accurate verification of well quantities very difficult, at the time of on-board inspections.

  Mediterranean: 2 inspections carried out at sea (0 infringements)
  Atlantic: 51 inspections carried out at sea (2 infringements)

- Daily catch monitoring by the French authorities led to the closure of the bluefin tuna fishery in the Atlantic Ocean by decrees of 29 June 2005, 20 July 2005, and 9 August 2005. The purse seine fishery in the Mediterranean was closed by decree on 23 September 2005, with the French national quota being closed by decree of 6 October 2005, which was notified to the European Commission.

- Tropical tunas: To ensure the respect of the moratorium in the Gulf of Guinea during the period 1 November 2005 to 30 November 2005 was monitored by VMS.

• **Italy**

Within the framework of the implementation of the Community control regulation including for ICCAT control measures, Italy deployed the following resources:

- human, naval and aerial resources (numerous administrations)
- significant development of the inspectors' training (specialization as regards fishing)
- 308 patrol vessels, 25 aircraft
- 185 on-land inspections (2 infringements)
- 290 at sea inspections (3 infringements)
- 5 aerial inspections (0 infringements)

• **Portugal**

- Human, naval (Navy), and aerial resources,
- 47 joint inspection missions undertaken (13 continental, 10 Madeira, 24 Azores) (4 infringements)
- The Azores Autonomous Regional authority under took 57 inspections (0 infringements)
- Landing controls (swordfish, Tunas) through to marketing (minimum sizes, value, statistics, etc.); obligation to pass through the auction (fresh fish)
- Control of tuna consignments intended for the processing industry.

• **Greece**

The control of fishing and trade of tunas is carried out by Port Authorities and particularly 156 inspection vessels and 7 aircrafts were engaged in the controlling of fishing activities among with other tasks.

In 2005, numerous inspections of fishing vessels took place by port authorities and as a result in three cases that all concern Greek fishing (no foreign fishing vessels caught fishing illegally in Greek waters). Administrative penalties and fines of 1.600 euros were imposed for infringements concerning the existing legislation as well as a suspension of fishing activities for 35 days.

• **United Kingdom**

- On-land and at sea inspections for all fishing activities,

• **Ireland**

- all landings inspected in port to ensure the vessels respect the regulations, 0 detected infringements
- surveillance aircraft also carried out missions,
- all vessels involved in the fisheries are inspected before engaging in fishing activities (via fishing authorization).

• **Malta**

Malta has a team of Fisheries Protection officers that carry out inspection on the activities of large pelagic species activities thus aiding the conservation of highly migratory species. These inspectors assure that fishing for bluefin tuna is only carried out following the Recommendations and Resolutions of ICCAT. A VMS system has been installed on all vessels over 15 m. VMS is currently being installed on vessels between 12-15 meters.

• **Cyprus**

During 2005, Cyprus deployed the following resources for monitoring and controlling fishing activities:

- Human resources: the Fisheries Inspectorate Service (29 Fisheries Inspectors), which operates the Vessel Monitoring System.

There were no violations reported regarding illegal tuna fishing activities by Cyprus fishing vessels. Inspections were carried out of foreign fishing involved in Tuna farming harvesting activities.

• **Other Member States**

The other Member States also carry out controls in accordance with Community legislation to ensure the respect of the ICCAT conservation measures.

4.2 The European Commission

In parallel to the Member States, the European Commission has 29 fisheries inspectors whose function is to supervise the inspection and control activities undertaken by the national services of the Member States.

During 2005, 18 inspection missions directly concerned with the fishing activities of highly migratory species were undertaken, with the priority being placed on the bluefin tuna fisheries, in the Mediterranean and in the Bay of Biscay.

The main goals of the missions were:

- The verification of the respect of the Community regulation regarding driftnet fishing in the Mediterranean;
- Verifying that Member States have taken the necessary measures to ensure the respect of the technical measures concerning bluefin tuna, and in particular the ICCAT recommendations;
- Verifying the compliance with Community legislation on catch and landing declarations;
- Assess the control measures implemented by the Member States.

The work of the European Commission inspectors involves the inspectors accompanying the national inspectors in all aspects of their activities, both land based and at sea, to evaluate the compliance with the binding provisions of Community legislation, which includes, in particular, the ICCAT recommendations.

In 2005, the bluefin tuna was a top priority. Inspectors paid closer attention to the control of the vessels documents (logbook), the control of the catch record, the use of the statistical document and to the landing procedures and transport of the fish. Throughout the year, particular attention was paid to the detection of the juvenile bluefin tuna.

The general evaluation of the catch recording system of highly migratory species in the Community is positive. The data concerning the tropical tuna is supervised by scientific institutes in the Community pursuant to the provisions of the fishing agreements concluded by the EC with the third countries concerned.

Concerning bluefin tuna, all Member States of the European Community have established a specific catch data recording system, which allows the monitoring of the utilization of the catch quota.

Section 5: Other activities

5.1 Satellite based VMS established by the European Union

The European Union introduced a satellite based Vessel Monitoring System (VMS) in 1998. In the first phase, from 30 June 1998, vessels exceeding 20 meters between perpendiculars or 24 meters overall length in the following categories were required to be equipped:

- vessels operating in the high seas, except in the Mediterranean Sea,
- vessels catching fish for reduction to meal and oil.

In the second phase, which commenced on 1 January 2000, all vessels exceeding 20 meters between perpendiculars or 24 meters length overall wherever they operate were subject to VMS. Since 1 January 2000 third country fishing vessels operating in the Community fishing zone must also be equipped with a VMS position monitoring system.

In the final phase in accordance with Article 22 (1b) of EU regulation 2371/2002 all EU fishing vessels exceeding 18 meters in length overall must have installed onboard a fully functioning Vessel Monitoring System (VMS) unit from 1 January 2004 and this has applied to all vessels exceeding 15 meters in length overall since 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 (and from 1 January 2006 at the latest, their speed and course). 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[4].

An obligation is placed on Member States to establish and operate Fisheries Monitoring Centers 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:

[4] Council Regulation (EC) No 1447/1999 of 24 June 1999 establishing a list of types of behaviour which 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. Furthermore with VMS the time of arrival in port and 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 2244/2003 of 18 December 2003 laying down detailed provisions regarding satellite-based Vessel Monitoring Systems, the general obligation to be equipped with VMS being set in Article 22(3) and Article 23(5) of Council Regulation (EC) No. 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the CFP.

The main provisions of the detailed rules concern:

- the requirements for the satellite tracking devices,
- the frequency of 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 has 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; nevertheless it improves the efficiency and effectiveness of their deployment.

Besides monitoring fisheries in Community waters, the European Community 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 EC 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 Community ensures that VMS is used in bilateral fisheries agreements with third countries and in the framework of regional fisheries organizations.

5.2 Developments in electronic reporting and remote sensing systems

The reinforcement of the system of control and enforcement of fishing activities was one of the pillars of the reform of the CFP adopted in 2002, as defined in Council Regulation (EC) No 2371/2002. Within this framework, the basic Regulation foresaw that the Council would decide in 2004 on the obligation to transmit information on fishing activities electronically, including landings, transshipments and sales notes as well as on the obligation on authorities to put in place means of remote sensing. The Commission therefore presented in 2004, a proposal for a Council Regulation on electronic recording and reporting of fishing activities and on means of remote sensing.

5.2.1 Electronic reporting

Under Community rules, masters of fishing vessels of overall length greater than 10 meters are required to keep a logbook of their operations, indicating particularly the estimates of the quantities of each species caught and kept on board, the date and location of such catches and the type of fishing gear used. Logbooks must be brought up to date on a daily basis and at the time of arrival in port. This information is currently recorded by the masters of fishing vessels in a paper logbook. Information concerning transshipments, landings, sales and transport is also recorded on paper. The process of gathering, analyzing and transmitting the information to authorities is slow, costly and can be prone to errors which can hinder the quality of the data. In order to make it more efficient, accurate and less costly, the Commission favors an electronic recording and reporting system which will replace the current manual and process.

5.2.2 Remote sensing

VMS has greatly strengthened fisheries control. However the system only monitors the behavior of those who obey the VMS rules. It does not check those whose system is switched off or malfunctioning and it cannot identify vessels from non EU countries which do not have the system fitted. Vessels that do not obey the rules can be detected using remote sensing technology known as the Vessel Detection System (VDS) which relies on remote sensing through satellite radar technology. The aim of the Vessel Detection System (VDS) is to determine the number of fishing vessels and their position in a given area, to cross-check the positions of the fishing vessels detected by VDS with position reports from VMS and signal the possible presence of fishing vessels from which no position reports have been received through VMS. The Commission would therefore like to ensure that Member States make the necessary arrangements with existing monitoring centers to that they can carry out such cross-checks.

5.2.3 Community financial assistance for fisheries control

The Community has been providing financial assistance to Member States for fisheries control since 1991. This policy is based on the fact that policing involves high costs, particularly on action at sea, and that such policing in no few occasions involves co-operation amongst Member States, constant training needs, investment in technology and Information Technology (IT) networks and heavy expenditure on patrol vessels & aircraft used for control.

With this objective in mind, three Council Decisions have been adopted providing for Community financial support for Member States' expenditure on fisheries inspection (Decisions 89/631/EC, 95/527/EC and 2004/465/EC). Each decision provides for a financial envelope covering a multi-annual time-frame.

The Commission thereafter adopts each year a Decision on the eligibility of expenditure for the year concerned (providing for financial assistance for Member States that have foreseen expenditure on fisheries control in their yearly fisheries Control Program)".

ANNUAL REPORT OF FRANCE (ST. PIERRE & MIQUELON)[1]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

The total catches of tunas and tuna-like species in the Atlantic Ocean by France (in respect of St. Pierre & Miquelon) amounted to 64 t in 2005, a considerable decrease as compared to 2004 (87 t). This decrease is attributed to the concentration of the fishing activity on swordfish, in detriment to other species, particularly bigeye tuna (*Thunnus obesus*-BET).

The quotas allocated to the archipelago only permit one local boat owner to operate one vessel. Like last year, 12 local vessels of the artisanal fleet were granted licenses to fish bluefin tuna from the available quota. This activity which, because of the size of the vessels (less than 12 meters), could only be practiced in the French zone using floating lines with a maximum of two hooks. Thus, for the local fleet it continues to be an activity at the margin of the traditional activities of the artisanal fleet which is directed mainly at cod in the 3Ps area.

1.1 Bluefin tuna (west Atlantic stock)

There was no reported catch of bluefin tuna in 2005 by the 12 vessels licensed to fish this species. It should be noted that these vessels are not equipped for this fishing and they only carry out some attempts to fish in the summer.

The total French catches of west Atlantic bluefin tuna are made by a Canadian chartered vessel (a 30 meter longliner) and amounted to 4.9 t in 2005, as compared to 9.8 t in 2004. For 2005, France (St. Pierre & Miquelon) has an overall quota of 13.71 tons of bluefin tuna from the western stock. This quota level results from the transfer of unused quota from previous years, due to the “running” transfers (for an initial quota of 4 t per year of this species).

1.2 Albacore (north Atlantic stock)

Catches in the Atlantic in 2005 amounted to 2.12 t, compared to 7.06 t in 2004. These catches are comprised of by-catches made by a chartered vessel fishing tunas in the islands.

1.3 North Atlantic swordfish

Swordfish is the target species found in this part of the northwest Atlantic. Catches in 2005 rose to 48.46 t (against 35.65 t in 2004).

1.4 Other species

Within the scope of the activity of one vessel authorized to fish the tuna quotas allocated to the island, by-catches of the following species were also caught: 5.7 t of bigeye tuna (28.3 t in 2004) and 2.6 t of sharks (7.01 t in 2004).

Section 2: Research and Statistics

French research on tunas and tuna-like species is carried out by the *Institut Français de Recherche pour l’Exploitation de la Mer*, IFREMER (French Research Institute for the Exploitation of the Sea). This Institute is present in the St. Pierre & Miquelon, but the laboratory concerned doe not carry out research on tunas. This research is assured by various centers in France.

[1]Original report in French.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

Of particular note here is the resumption of fishing activity on tunas under the open rights of the islands in international waters, through the chartering of a Canadian fishing vessel that is specialized in this activity, with conditions similar to those of last year.

It was possible to carry out this activity again this year due to the signing of a chartering arrangement between PROPECHE SARL and the Canadian company IVY FISHERIES, LTD. This agreement was concluded in April 2005 and expired at the end of September of the same year. In accordance with ICCAT Recommendation 02-21, the Executive Secretary was notified about this chartering arrangement.

This arrangement, which implies that PROPECHE SARL has to declare the catches made as French catches and must comply with the obligation of completing the Statistical Documents, as well as carrying out tagging of the fish, has resulted in the collection of the following catch results:

National measures

Some licenses are granted by the representative of the State of the islands to fishing vessels that have requested them. The license given indicates the possibility of catching tunas only to avoid a high by-catch. In effect, the local vessels have a limited radius of action and carry out their activity close to the island. The major part of the activity is carried out, mostly using fixed gear, on crustaceans and the cod present in the large schools of New Foundland.

The vessels are required to submit catch reports and they often also have observers on board. Taking into account the limited size of the islands, all the landings are subject to monitoring, as well as all the products exported.

Section 4: Inspection Schemes and Activities

France has numerous administrative control mechanisms and many of these are present in St. Pierre and Miquelon (Maritime Affairs, French National Police and Customs Police). These regularly carry out campaigns to monitor fishing, both at sea and on land. Particular importance is given to the landings of tunas at the port of St. Pierre. The “Procès verbaux” that may be made to this effect are transmitted to the judicial administration.

Summary of controls carried out in 2005

The controls at landing carried out in St. Pierre & Miquelon have not shown any infraction. The French authorities are keen to verify the adequate reporting of the catches and regulatory size. An unloading at a local canning factory has generated an export operation. Furthermore, four transshipment operations took place at the port of St. Pierre in 2005 (4 ports of call of Japanese tuna vessels for a total of 132 t of products and 1,415 tunas).

The Statistical Documents are routinely monitored.

ANNUAL REPORT OF GHANA[1]

Part I (Information on Fisheries, Research and Statistics

Section 1: Annual Fisheries Information

The Ghanaian tuna industry comprises mainly the skipjack (*Katsuwonus pelamis*), yellowfin (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*). Baitboats and purse seiners fishing off the EEZ of Ghana exploit these tuna species. The fleets also exploit other minor tuna-like species. The total number of vessels registered to fish for tuna resources within the EEZ of Ghanaian waters is 37, comprised of 25 baitboats, 8 purse seiners and 4 longliners. Gross tonnages of the baitboats and longliners range from 250-500 while those of purse seiners are from 400-1000.

1.1 Resources

The tunas grouped under the large pelagics occurring in Ghanaian waters are part of a large community in the entire east central Atlantic Ocean. Skipjack tuna has been the most abundant in the catches over the past decade followed by yellowfin and bigeye tuna, respectively **(Table 1)**. Tuna baitboats use anchovy (*Engraulis encrasicolus*) as the main bait for their operations. In addition, both fleets use numerous Fish Aggregating Devices (FADs) in capturing the resources. Purse seiners collaborate with baitboats in harvesting the resources, often sharing the catch.

Section 2: Research and Statistics

The Marine Fisheries Research Division of the Ministry of Fisheries (MFRD) is the Government agency responsible for tuna research and statistics in Ghana. Catches for 2005 rose to 82,225 t from 62,740 t in 2004 **(Table 2)**. This increase of about 32.5% can be attributed to the increase in effort mainly in terms of the number of FADS deployed (in the fishery by both purse seiners and baitboats). On average, each vessel now employs 50-100 FADs, which hitherto was about 10-20 each in the late 1990s. Purse seiners contributed over 52% of the overall catch in 2005. Skipjack landings were 66%, yellowfin 24%, bigeye 3% and other minor tunas 7%. Four (4) longliners were registered in 2005.

Port sampling of the three major species of tuna was carried out from Tema to determine size composition and length frequency distribution to be used for stock assessment purposes. Data (Task I, Task II and Task III) for 2005 were duly forwarded to ICCAT. ICCAT logbook recovery improved to about 65% in 2005 with the help of the Japan Data Improvement Project (JDIP), which is aimed at streamlining data collection in conformity with recent innovations in the fishery. Size ranges of tunas caught generally during 2005 are shown in **Table 3**.

2.1 Statistics improvement

The fishing pattern for tunas over the past decades in Ghana has led to a more intense sampling scheme initiated by ICCAT in recent years aimed at improving the collection and analysis of catch data from the fishery. Various workshops have been carried out and reports prepared aimed at improving tuna statistics in Ghana (SCRS/2000/121; SCRS/2001/100; SCRS/2004/035). The AVDTH program used by the EC purse seine fleet fishing in the Atlantic Ocean was finally adopted in 2005 to be employed in processing and checking tuna data obtained from the surface fleets fishing in Ghana. A training workshop on the new AVDTH software was organized in October 2005 for selected staff of MFRD and will be continued in 2006. Data for 2006 from the various fleets will be incorporated in the new program. It is envisaged that a homogenous catch reporting system for the fishery in the eastern and western Gulf of the Atlantic would then be comparable and meaningful for any stock assessment programs in the future. This program is being funded from the JDIP and the ICCAT Data Fund.

2.2 Billfish Program

Beach sampling of billfishes continued off the western coast of Ghana. Catch data for 2005 were submitted accordingly **(Table 4)**.

[1]Original report in English.

Table 1. Landings (t) of tunas by Ghana in 2004 and 2005.

Gear/Species	*Yellowfin*		*Skipjack*		*Bigeye*	
	2004	*2005*	*2004*	*2005*	*2004*	*2005*
Baitboat	9,944	11,296	24,633	23,168	4,983	1,303
Purse seine	5,194	8,537	8,968	31,155	1,961	1,029

Table 2. Ghanaian landings (t) and fleet size, 2000- 2005.

Year	*Ghana production*	*Flag*		*Gear*		*Fishing potential*	
		Ghana	*Foreign*	*BB*	*PS*	*BB*	*PS*
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	25	9
2003	65,153	65,153	0	31,702	33,451	26	10
2004	62,742	62,742	0	45,093	17,649	25	10
2005	82,226	82,226	0	39,204	43,002	25	8

Table 3. Size (cm) ranges of tunas in 2005.

Gear	*Skipjack*	*Yellowfin*	*Bigeye*
Baitboat	31-60	31-80	33-73
Purse seine	34-62	32-118	35-100

Table 4. Ghanaian billfish catches (t) in 2005.

Species	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total*
Atlantic sailfish	46.5	151.4	34.2	32.2	32.2	40.8	9.6	0.2	8.6	32.6	63.5	90.0	541.8
Blue marlin	35.1	37.4	58.6	78.4	56.8	62.7	23.7	0.00	53.4	51.0	172.5	129.4	759.0
Swordfish	4.58	6.09	9.28	3.98	6.48	8.14	2.31	0.53	3.96	6.21	2.51	0.54	54.66
White marlin	0	0	0	0	0	0.79	0	0	0	0	0	0	0.79

*Revised 27/9/06.

ANNUAL REPORT OF GUATEMALA[1]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

Section 2: Research and Statistics

Research has been carried out on shortfinger anchovy (*Anchoa lyolepis*), oriented especially towards its management. However, the position of this species in the food chain is noted, which is of interest to ICCAT as concerns its interaction with the species covered by the Convention. This research has been conducted with financing from the *Fondo Para el Sistema Arrecifal Mesoamericano (*Fund for the Mesoamerican Reef System).

Parte II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

In accordance with the pertinent provisions of the General Law on Fishing and Aquiculture (Decree No. 80-2002 of the Congress of the Republic) and the Regulation of the General Law on Fishing and Aquiculture (Ministerial Agreement No. 223-2005 of the Executive Branch), the management measures adopted by the regional fishery management organizations in which the Republic of Guatemala is a Contracting Party are considered, *ipso iure*, incorporated in the current legal legislation concerning this subject. Therefore, the same rigorous control is applied for their compliance as for those measures that are directly contemplated in the Law and its Regulations. Thus, when it is deemed necessary, a specific decree does not have to be issued through a Ministerial Agreement to implement these conservation and management measures adopted by ICCAT. Instead, these are considered already current merely because they have been approved by means of a Resolution or Recommendation.

A more detailed General Law on Fishing and Aquiculture for tuna fishing in the Atlantic Ocean is being developed, for the purpose of adapting it to the ICCAT measures

3.1 Implementation by Resolution and Recommendation, by groups

3.1.1 Closed seasons

With regard to bluefin tuna, Guatemala does not have a longline fleet to regulate nor does it fish in the Mediterranean.

3.1.2 Data and minimum size

As concerns swordfish, Guatemala does not have any longline fleet to regulate nor does it fish in the areas described in the pertinent regulations.

There are no reported catches of tropical tunas below the minimum size of 3.2 kg.

For the tuna fisheries that the Guatemalan purse seiners exploit in the Atlantic, there are no reported overages of catches, since neither yellowfin nor skipjack tunas are under quotas. In the case of bigeye tuna, there is a reported incidental catch within the limits indicated in the pertinent recommendation **(Table 1)**.

Guatemalan vessels carry fishing logbooks on board, which are transmitted electronically to the fishing authority.

3.1.3 Capacity limits

Guatemalan vessels have not increased the level of effective fishing effort on yellowfin tuna in the Atlantic.

[1]Original report in Spanish.

Management measures continue to be in force on bigeye tuna, as regards compliance with the incidental catch limits by purse seiners.

3.1.4 Statistical Documents

With regard to swordfish, Guatemala does not have a fleet that actively fishes for this species.

As concerns bigeye tuna, Guatemala does not import or export this species. Bigeye tuna are not actively fished because Guatemala does not have a catch quota, except for the limit on the incidental catch.

3.1.5 Other measures related to individual species

Guatemala complies with the measures concerning the reduction in landings of blue marlin and white marlin, in spite of its being a Contracting Party since only a few years ago.

With regard to Mediterranean swordfish, Guatemala does not fish in the area nor is any effort directed at this species. Guatemala also does not use longline or driftnet gears in those waters or in other waters under the authority of ICCAT.

3.1.6 Trade sanctions

Guatemala does not import Atlantic bigeye tuna or its products in any form Bolivia or from Georgia.

3.1.7 VMS

Guatemala has taken a formal decision, by means of a Ministerial Agreement, to implement a vessel monitoring system (VMS). This has been delayed for economic reasons, given Guatemala's minor activity in the Convention area.

3.1.8 General

Guatemala does not have any Atlantic ports that receive landings or where transshipments of species under ICCAT mandate take place. Up to now, no arrangements to send national fishing inspectors have been made with other States in whose ports Guatemalan vessels unload their catches, as stipulated in paragraph 7 of the *Recommendation by ICCAT for a Revised ICCAT Port Inspection Scheme* [Rec. 97-10].

Guatemalan flag vessels that fish in the ICCAT Convention area are authorized to carry out fishing and they have the necessary documents on board. There have not been any reports of possible infringements committed by those vessels or that they fish without the necessary authorization in waters under the sovereignty or jurisdiction of other coastal States. However, if such were the case, these would be investigated and sanctioned, in accordance with the General Law on Fishing and Aquiculture and its regulatory provisions. In the past, Guatemala has monitored its fleet by means of on-board observers. However, from now on, such monitoring will be done by VMS. Guatemala maintains a registry of the national vessels authorized to fish in the Atlantic; it does not have any chartered foreign vessels. The vessels carry external markings in accordance with the FAO regulations.

There are no reported IUU fishing activities by Guatemalan flag vessels or by foreign flag vessels that fish, unload, set their cages or transship at national ports.

Guatemala does not have any large-scale flag tuna longliners (LSTL) or transshipment vessels that are authorized to receive those transshipments. Therefore, it has not been necessary monitor transshipments, as indicated in the *Recommendation by ICCAT Establishing a Program for Transshipment by Large-scale Longline Fishing Vessels* [Rec. 05-06], or to file any report, as stipulated in paragraph 6 of its Annex 3.

Section 4: Inspection Schemes and Activities

In November 2005, maritime and fishing inspection was carried out on two purse seine vessels that Guatemala has in the Atlantic Ocean.

This inspection was carried out by the maritime authority of the Ministry of National Defense, Maritime Department, by an Inspector authorized by the port authorities of Quetzal, the port of registry of those vessels, in coordination with the fishing authority of the Ministry of Agriculture, Livestock and Food, Management Unit for Fishing and Aquiculture.

The pertinent sections on fishing in the General Law on Fishing and its Regulations were reviewed and the fishing permits on board were renewed. The result was satisfactory.

Table 1. Guatemalan tuna catches (t).

Species / Area	*Catch limit*	*Catches*	*Estimated catch over /under catch limit*	*Estimated catch over 15% tolerance of fish < 3.2 kg.*
Bigeye		998	Incidental catch	N/A
Yellowfin		2,906		
Skipjack		6,389		

ANNUAL REPORT OF THE REPUBLIC OF GUINEA[1]

Youssouf Hawa Camara[2]

Guinean fishery resources accessible to industrial fishing are mainly exploited by foreign fleets, particularly those of the European Community. Access to these resources is based on obtaining fishing licenses from Department of Fishing. There are five types of licenses, according to the resources targeted, as follows:

- License for fishing pelagic species
- License for fishing demersal species
- License for fishing cephalopods
- License for fishing prawns
- License for tuna fishing

This report discusses the activity of the tuna vessels in the Guinean EEZ for the period from January 1 to December 31, 2005. The data presented are from the summarized reports transmitted to the *Direction Nationale de la Pêche Maritime*-DNPM (National Directorate of Maritime Fishing) by the various tuna vessels that fished in Guinean waters in 2005.

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

In Guinea, the tuna fishery is exclusively industrial and foreign. It is dominated by European Community tuna vessels, particularly French and Spanish vessels that land their catches at Dakar, Abidjan or Las Palmas.

While there is no specialized artisanal fleet, some tuna species and small tunas (all species mixed) are regularly landed by artisanal fishers.

In 2005, there were 31 tuna fishing licenses issued, but only six tuna vessels flying Spanish flag actually fished in Guinean waters (according to the catch reports received at the National Directorate of Maritime Fishing.

The reported catches of the Spanish freezer tuna vessels in the EEZ in 2005 amounted to 108 tons. These catches, which were mainly comprised of yellowfin tuna *(Thunnus albacares*), were far less than those reported in 2003 **(Table 1)**.

Section 2: Research and Statistics

2.1 National Program on Research and Statistics

Although the tuna vessels land at the autonomous port of Conakry, there is no data collection on the fishing activity of these vessels. Data on the catches are transmitted to the DNPM via the European Community Delegation in Guinea.

There is also no national research program on tunas.

However, a data collection scheme particularly centered on the artisanal fishery of rays and sharks has been operational since 2004 at the *Centre National des Sciences Halieutiques de Boussoura*-CNSHB (National Center of Fishing Sciences of Boussoura).

Measures are being implemented for the regular monitoring of the activity of the tuna vessels in Guinean waters.

[1] Original report in French
[2] Centre National des Sciences Halieutiques de Boussoura (CNSHB), BP 3738/39, Conakry. Rép. de Guinée; youssoufh@hotmail.com

Table 1. Tuna catches (t) in the Guinean EEZ in 2005, by vessel.

Tuna vessel name	*Flag*	*Species*		*Total catch (t)*
		Yellowfin	*Skipjack*	
Almadraba Uno	Spanish	6	0	6
Almadraba Dos	Spanish	50	0	50
Kurtzio	Spanish	9	0	9
Matxikorta	Spanish	43	0	43
Total		**108**	**0**	**108**

ANNUAL REPORT OF JAPAN[1,2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

1.1 Types of fisheries

Longline is the only tuna-fishing gear deployed by Japan at present in the Atlantic Ocean. Two other fishing types, baitboat and purse seine, halted fishing activities 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 commercial tuna fishermen as well as biological data. The final coverage of the logbook from the Japanese longline fleet operating in the Atlantic has been very good (90-95%). To reach this level, however, it takes almost two to three years after the completion of a respective calendar year. The current coverage, which completed collation in electronic form for 2004 and 2005, is estimated to be about 86% and 48%, respectively. Since some trips made by the Japanese longline boats often last longer than 12 months, the coverage for the latter part of 2005 is much lower than the earlier part of that year. Because of the low coverage in 2005, it seems difficult to obtain a reliable total catch amount by raising logbook data. Therefore, the same values of 2004 were repeated as the total catch for 2005 and the sample data (not raised) were used to express geographic distribution of catch and effort in 2005. Information for total raising of catch and effort statistics was collected up to 2003. Since information on total effort in 2004 was not available, and which is needed to calculate the raising factor for 2004, total effort of 2003 was conveniently incorporated in the raising process for 2004 statistics.

With regard to the implementation of conservation measures on North Atlantic swordfish, the Fisheries Agency of Japan (FAJ) instructed its fishermen to retain only dead fish and to release all the swordfish caught alive in the North Atlantic (north of 5°N) starting in August 2004. At the same time, FAJ requested fishermen to submit the release information in a designated format.

1.3 Fishing effort trends

The number of the Japanese longliners which operated in the Atlantic in 2004 was estimated at 222 (**Table 1** and **Figure 1**). The number in 2002 was the lowest since 1989 but those in 2003 and 2004 recovered slightly. In 2004, there were 31,600 fishing days, which was 90% of the average value for the last decade, suggesting that the fleet has operated a lesser amount of time in the Atlantic in recent years.

The annual geographic distribution of longline fishing effort in 2004 and 2005 (**Figure 2**) showed that fishing effort was exerted in a wide area of the North Atlantic, from south of Iceland to the central tropical waters, between Africa and South America, as well as in the waters along the African coast 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, hardly any fishing effort was observed in waters off southern America. Seasonal distribution (**Figure 3**) clearly indicated a high concentration of fishing effort in areas such as the south of Iceland, off the east coast of North America as well as the inter-subtropical areas between 20°N and 20°S. In the previous two areas, fishing had taken place from the fourth quarter to the first quarter, while the tropical fishing grounds are fished for all year round.

1.4 Catch trends

The 2004 catch of tunas and tuna-like fishes (excluding sharks) in the Atlantic Ocean and the Mediterranean Sea by the Japanese fishery is estimated to be 29,819 t (**Table 2**). Although the total amount of fishing effort in 2004 was 90% of the average effort in the last 10 years, as mentioned above, the total catch excluding discards and

[1]Original report in English.
[2]National Research Institute of Far Seas Fisheries, Fisheries Research Agency, 5 Chome, 7-1, Orido, Shimizu-ku, Shizuoka-shi, Shizuoka Pref., 424-8633, Japan.

sharks in 2004 was only 81% of the average catch for the same years (**Table 3**). The most important species was still bigeye tuna, representing nearly 60% of the total tuna and tuna-like fish catch in 2004. The next dominant species was yellowfin tuna which comprised 20% in weight, and the third species was bluefin tuna (10.5%). The remaining species in the catches were mainly albacore, blue marlin and swordfish. The decline of catch in recent years was mostly due to a decrease in the bigeye catch. In 2004, the bigeye catch was 72% of the average catch amount (**Table 3**). Bluefin catches decreased slightly (84%) and southern bluefin and swordfish catches showed the most apparent decline, representing 11% and 63%, respectively. On the other hand, yellowfin and albacore catches increased considerably, with 147% and 131%, respectively.

The area breakdown of catch by species is also shown in **Table 4** for the recent two years (2003-2004). The 2001 to 2003 swordfish catch did not occur in the North Atlantic as all catches of this species are being discarded since February 2000. The amount of annual dead discards of swordfish was estimated to be 598, 567, 319 and 263 t for 2000-2003, respectively (**Table 3**).

Albacore and yellowfin increased both in the North and South Atlantic. For bigeye, the catch increased in the North Atlantic but decreased in the South Atlantic.

The geographic distributions of catches, by species, are shown in **Figure 4** (bluefin tuna), **Figure 5** (bigeye tuna), **Figure 6** (swordfish) and **Figure 7** (blue marlin). In general, the distributions for bigeye tuna coincide with the geographic pattern of fishing effort between 40°N and 40°S. In contrast, catches of bluefin tuna and blue marlin were limited to north of 40°N and the inter-tropical area between 30°N and 20°S, respectively. These patterns are shown more clearly in **Figure 8**, and indicate the geographic distribution of catch composition by species.

1.5 New developments or shifts in the fishery

No new developments or changes have been observed in recent years. However, there has been a general decline in the total amount of fishing effort in the Atlantic in recent years although there appears to be a slight up-turn in effort thereafter. This decline has continued since 1996 and occurred in the bigeye fishing area located in the tropical and subtropical waters. This change seems to be caused by the shift of some of the fleet to other oceans due mainly to the lower CPUE of bigeye tuna.

Section 2: Research and Statistics

The NRIFSF is 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 intersessional workshops of the Standing Committee on Research and Statistics (SCRS).

2.1 Fishery data

The NRIFSF provided near final 2004 catch, catch/effort and partial size frequency data (Task I, II and biological sampling) of the longline fishery to the ICCAT Secretariat. The compilation of the same data for 2005 is in progress but appears to be somewhat behind schedule. Due to reorganization of the tuna longline industry, data collection for total raising, which the longline industry had compiled, has been suspended since 2005 (from 2004 statistics).

In accordance with the 1996 ICCAT recommendation on the bigeye tuna observer program and the 2000 recommendation on a swordfish observer program, nine observer trips on longline boats in the Atlantic were conducted between August 2005 and February 2006. A total of 507 fishing days were monitored. Pop-up tagging was also conducted during these trips, and two bluefin and four bigeye tunas were released. All tags have already popped off. This year's activities, which have already started, will be conducted on a similar scale as in the past. A total of seven trips are scheduled between August 2006 and January 2007.

2.2 Tuna biology and stock assessment

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

This year, the NRIFSF and other affiliated scientists participated in the following ICCAT related meetings, in addition to the regular SCRS meetings: Workshop on Swordfish Stock Structure (Heraklion, Greece, March

13-15, 2006), Inter-sessional Meeting of the Tropical Species Working Group (Sete, France, April 24-28, 2006), Billfish Stock Assessment Session (Madrid, Spain, May 15-19, 2006), Bluefin Tuna Stock Assessment Session (Madrid, Spain, June 12-18, 2006), Data Preparatory Meeting for Atlantic Albacore (Madrid, Spain, July 3-7, 2006), and the ICCAT Atlantic Swordfish Stock Assessment Session (Madrid, Spain, September 4-8, 2006).

In total, eight papers were presented to the above meetings: Butterworth *et al.* (2006), Chow (2006), Senba and Yokawa (2006), Takeuchi *et al.* (2006), Uosaki (2006), Yokawa (2006a), Yokawa (2006b) and Yokawa (2006c).

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

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

3.1.1Catch reporting by radio

The FAJ requires all tuna vessels operating in the Atlantic Ocean to submit the following catch information every 10-day period (early-, middle- and late-period of a month) by radio or facsimile to FAJ. In addition, all tuna vessels operating in the designated Atlantic bluefin tuna habitat area are required to report their catches in real time:

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

3.1.2 Implementation of the Vessel Monitoring System (VMS)

All Japanese longline vessels operating in the Convention area are equipped with on-board satellite tracking devices (VMS) that started to be installed in 1992. Those Japanese longline vessels are also required to report their positions through VMS in accordance with the relevant ICCAT Recommendation.

3.1.3 Catch quotas management

i) Catch quotas

The FAJ sets catch quotas for western and eastern Atlantic bluefin as well as for northern and southern Atlantic swordfish, blue marlin, white marlin and bigeye tuna, respectively, by a Ministerial Order in accordance with the relevant ICCAT recommendations. For Atlantic bluefin, all catches are required to be tagged with the designated plastic band distributed to the fishing vessels operating in the bluefin tuna habitat area by FAJ.

ii) Fishing year

The FAJ establishes the "Fishing Year (August to July)" for the purpose of proper quota management for bluefin tuna, swordfish, blue marlin, white marlin and bigeye tuna. The 2005 quotas for these tunas were applied to the 2005 fishing year which started on August 1, 2005 and ended on July 31, 2006.

iii) Bluefin catches in the central Atlantic Ocean

For 2003, 2004 and 2005, the 2002 ICCAT Resolution as amended by 04-08 calls for CPCs not to increase their catches by large-scale tuna longline vessels from the 1999/2000 level in the central Atlantic Ocean. For 1999 and 2000, the Japanese bluefin catch in the central Atlantic Ocean was 1,144 t and 974 t, respectively. For 2003, 2004 and 2005, the catch was 390 t, 457 t and 441 t, respectively.

3.1.4 Number of fishing vessels

The FAJ has submitted a list of all the tuna fishing vessels that are licensed to fish for tuna and tuna-like species in the Convention area, based on the 2002 *Recommendation by ICCAT the Establishment of an ICCAT Record of Vessels Over 24 Meters Authorized to Operate in the Convention Area* [Rec. 02-22].

Since 1998, the FAJ has limited the number of vessels actually fishing for bigeye tuna in the Convention area to 245, by means of the mandatory check in/out reporting system via radio as well as VMS based on the 2004 recommendation on the bigeye tuna conservation measures for fishing vessels larger than 24 meters length overall. Since 2005, the limit of the number of vessels has been reduced to 235, in accordance with the *Resolution by ICCAT to Authorize Catch Limit Adjustments in the Bigeye Tuna Fishery* [Res. 05-03].

3.2 Minimum size limits

In accordance with ICCAT recommendations, the FAJ prohibits the catch of undersized fish, with an exemption of a certain percentage of tolerance, by a Ministerial order. The catch prohibition of undersized bluefin was established by a Ministerial order on April 2, 1975 and the FAJ amended this Ministerial order several times to cover undersized bigeye, swordfish, etc. The latest amendment of this order was in August 2006 to implement the 2005 *Recommendation by ICCAT on the Yellowfin Size Limit* [Rec. 05-01].

All the Japanese pole and line vessels ended their operations in the Convention area to comply with 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

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 during the first half of a year.

3.4 National Observer Program

Based on the 2002 *Recommendation by ICCAT Relating to the Rebuilding Program for North Atlantic Swordfish* [Rec. 02-02], the FAJ has implemented a national observer program of vessels operating in the North Atlantic. For 2005, the national observer program covered over 10 percent (10.3%) of the total number of fishing vessels operating in the North Atlantic Ocean. Similarly, the program covered about seven percent (6.9%) of the total number of fishing vessels operating in the entire Atlantic Ocean in accordance with the 2004 *Recommendation by ICCAT on a Multi-Year Conservation and Management Program for Bigeye Tuna* [Rec. 04-01].

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

Japan has prohibited the import of Atlantic bigeye tuna and its products in any form from Bolivia and Georgia since July 10, 2003 and July 28, respectively, in accordance with ICCAT recommendations.

Japan conducts DNA examination against imported tunas to prevent false import.

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

From September 1, 1993, the Japanese government started collecting BTSDs for frozen product in accordance with the 1992 *Recommendation by ICCAT Concerning the ICCAT Bluefin Tuna Statistical Document Program* [Rec. 92-01]. In addition, from June 1, 1994, the Japanese government started collecting statistical documents for fresh product in accordance with the 1993 *Recommendation by ICCAT Concerning the Implementation of the ICCAT Bluefin Tuna Statistical Document Program for Fresh Products* [Rec. 93-03].

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

From July 28, 2004, the Japanese Government started collecting information on farmed bluefin tuna product in accordance with the 2003 recommendation.

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

From July 1, 2002, the Japanese government started collecting BETSDs for frozen product in accordance with the 2001 *Recommendation by ICCAT Concerning the ICCAT Bigeye Tuna Statistical Document Program* [Rec. 01-21].

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

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

From January 1, 2003, the Japanese government started collecting SWOSDs for fresh and frozen product in accordance with the 2001 *Recommendation by ICCAT Establishing a Swordfish Statistical Document Program* [Rec. 01-22].

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

3.9 Implementation of the Positive Listing Measure

Based on the 2002 *Recommendation by ICCAT Concerning the Establishment of an ICCAT Record of Vessels Over 24 Meters Authorized to Operate in the Convention Area* [Rec. 02-22], the Japanese Government started the Positive Listing Measure on November 14, 2003. The species and product type currently covered by the measure are frozen bluefin tuna, frozen bigeye tuna and frozen swordfish. If tunas were caught by large-scale fishing vessels (LSFVs) not entered into the record, their import is not permitted by the Japanese Government.

Since November 22, 2004, the Japanese government has implemented the Positive Listing Measures on Farming Facilities based on the 2003 recommendation.

Section 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 patrol vessels to the North Atlantic during the 2005 fishing season. These vessels also observed fishing activities of other nations' fishing vessels.

4.2 Random inspection of landing at Japanese ports

All Japanese tuna fishing vessels that land their catch 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 minimum size limits.

4.3 Management of transshipment at foreign ports

Prior permission from 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 of transshipments, and conducts inspection of landings at Japanese ports when longline vessels or reefers return to Japanese ports.

Section 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 of 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 aforementioned catch report includes the daily information of a 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 Measures to reduce incidental catches of sea turtles, seabirds and sharks

The FAJ issued administrative guidance and conducted educational programs for fishermen to use fishing gears and other tools to reduce the incidental catch of sea turtles, seabirds and sharks.

For sea turtles, the FAJ is conducting a pilot program to use circle hooks to reduce the incidental catch of sea turtles by Japanese longline vessels. When Japanese longline fishing vessels operate in the high latitudes of the southern hemisphere where interactions between seabirds often occur, the use of a Tori-pole is required to avoid seabirds from approaching the hooks and bait when they are launched. In other areas, fishermen are also encouraged to use the device. In 2001, Japan established the National Plan of Action (NPOA) for the Conservation and Management of Sharks and for Reducing the Incidental Catch of Seabirds in Longline Fisheries. In 2003, Japan reported on the assessment of implementation of Japan's NPOA to the FAO Committee on Fisheries (COFI). Japan also submitted a revised NPOA for the Conservation and Management of Sharks at the 26th COFI Meeting in 2005.

5.4 Collection of trade data

The Ministry of Finance collects trade data, such as quantity, value and 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, etc.) and the status of products (e.g. frozen, fresh and chilled). Japan also improved its import statistics in 1997 and 1998 regarding swordfish to collect more accurate import data on this fish species.

5.5 Effort limitation

The numbers of longline vessels which can operate in the western Atlantic North of 35 degrees North and the Mediterranean have been limited to 45 and 18, respectively, in the 2005 fishing year. Furthermore, the FAJ requires all the longline vessels operating in the northern part of the east Atlantic Ocean to submit an advance notice to the FAJ of their planned operations, which enables the FAJ to instruct the relevant fishing vessels to shift fishing grounds, if necessary. The number of longline vessels fishing for bigeye tuna has been limited 245 in 2005 in accordance with recommendation on a multi- year conservation and management program for bigeye tuna.

5.6 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 operation 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 in operations which may diminish the effectiveness of international conservation measures. When Japan implemented its fleet reduction program, the Federation of Japan Tuna Fisheries Co-operative Association resolved that the exporting of Japanese longline vessels be prohibited in 1999. In support of this industrial initiative, the government partially financed the industry to scrap second-hand tuna longline vessels so that they would not become a source of IUU fishing vessels through export.

5.7 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 the 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.

5.8 Non-purchase guidance

In accordance with the resolution calling for further actions against IUU fishing activities adopted in 1999, the FAJ: (i) urged importers, transporters and others concerned to refrain from engaging in transaction and transshipment of tuna and tuna-like species caught by the IUU fishing vessels, (ii) informed the general public of

IUU fishing activities and urged them not to purchase fish harvested by the IUU fishing vessels, and (iii) since December 1999 urged manufactures and business people to prevent their vessels and equipment/devices from being used in IUU fishing operations. With respect to (i) and (ii), the FAJ has implemented the Positive Listing Measure since November 2003.

5.9 Scrapping of IUU vessels

Implementing the Japan-Chinese Taipei Action Programs to eliminate the IUU fishing vessels, the Japanese Government budgeted funds for the scrapping of the IUU tuna longline vessels of Japanese origin during 2001-2003. The total amount of the budget for this three-year program was about US$28 million (32.7 billion Japanese yen). Forty-three (43) IUU vessels were scrapped by the end of 2003.

5.10 Legalization of IUU vessels

In accordance with the 2002 *Resolution by ICCAT Concerning Cooperative Actions to Eliminate Illegal, Unreported and Unregulated Fishing Activities by Large-scale Tuna Longline Vessels* [Res. 02-26], Japan consulted with Vanuatu and Seychelles, as well as Chinese Taipei, and established the following new measures in order to dispose of the remaining IUU tuna longline fishing vessels; 69 IUU large-scale tuna longline vessels have been committed to comply with the following:

- Cooperative management schemes to legalize these vessels have been concluded between the fisheries authorities of the flag States (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 licenses from Japan for large-scale longline vessels and to freeze those licenses, were taken for the purpose of reinforcing and complementing the cooperative management scheme mentioned above as well as preventing an increase of overall fishing capacity.

Those 69 vessels will no longer operate in the Atlantic.

5.11 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 fishers, importers, distributors, processors and consumers. One of the main tasks of OPRT is to compile and analyze the import data on tunas and to provide them to OPRT member flag States as feedback for their verification of the reported catch data. Another OPRT task is to inform Japanese retailers and consumers of products caught by IUU fishing vessels. The representatives from the fishers of Japan and Chinese Taipei are the founding members of OPRT. Fishers of Korea, Philippines, Indonesia, China and Ecuador have joined OPRT.

5.12 Experimental study on management of at-sea transshipment

In 2005, the FAJ conducted an experimental study on the management of at-sea transshipment in cooperation with OPRT, reefer companies, fishers and other related organizations. Under this program, OPRT dispatched its observers to three reefer vessels that operated in the Atlantic Ocean and collected information on at-sea transshipment and the effectiveness of the management program.

Table 1. Annual number of Japanese tuna boats that that operated in the Atlantic and Mediterranean, 1981-2005.

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	148	-	-
2000	208	355	171	-	-
2001	199	276	139	-	-
2002	185	243	131	-	-
2003	204	313	154	-	-
2004*	222	316	142	-	-
2005**	222	316	142	-	-
Average (1995-2004)	231	351	152	-	-
2004 average	96%	90%	94%	-	-

* Almost final.
** 2005 values are assumed to be the same as in 2004.

Table 2. Japanese catches (t) of tuna and tuna-like fishes, by type of fisheries, in the Atlantic and Mediterranean, 1981-2005. 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	37,370	-	-	37,370
2001	27,128	-	-	27,128
2002	24,705	-	-	24,705
2003	30,743			30,743
2004*	29,819	-	-	29,819
2005**	29,819	-	-	29,819
Average (1995-2004)	36,885		-	36,885
2004 average	81%		-	81%

* Almost final.
** 2005 values are assumed to be the same as in 2004.

Table 3. Catches (t) of tuna and tuna-like fishes taken by the Japanese longline fishery, 1981-2005.

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	3,523	1,205	1,241	24,605	4,061	954	883	2	83	39	40	734	37,370	-	598	696	38,066
2001	3,083	376	1,467	18,087	2,692	686	335	1	56	9	23	313	27,128	-	567	675	27,803
2002	3,501	1,152	942	15,306	2,105	833	267	2	16	23	28	531	24,705	-	319	898	25,603
2003	3,068	1,931	997	19,572	2,754	924	442	0	33	29	63	928	30,743	-	263	1,100	31,843
2004[3]	3,123	101	1,368	17,064	5,924	1,209	522	3	30	73	72	331	29,819	-	0	1,495	31,314
2005[4]	3,123	101	1,368	17,064	5,924	1,209	522	3	30	73	72	331	29,819	-	0	1,495	31,314
Average (1995-2004)	3,722	957	1,042	23,595	4,019	1,912	870	1	53	39	40	635	36,885	-	-	1,221	38,106
2004 average	84%	11%	131%	72%	147%	63%	60%	196%	56%	188%	181%	52%	81%			122%	82%

[1] Blue marlin and black marlin were not separated until 1993.
[2] Sailfish and spearfish were not separated until 1993.
[3] Almost final.
[4] 2005 values are assumed to be the same as in 2004.

Table 4. Area breakdown of Task I catches (t) taken by the Japanese longline fishery for 2003 and 2004. ICCAT area definition is used for tunas and billfishes. For other species, north and south, and east and west are separated at 5°N and 30°W, respectively. Mediterranean Sea is separated from both west-east and north-south area division.

2003[1]

SPECIES	*WEST*	*EAST*	*NORTH*	*SOUTH*	*MEDIT*	*TOTAL*
Bluefin	57	2,695	2,752	0	316	3,068
Southern bluefin	0	1,931	0	1,931	0	1,931
Albacore	598	399	682	315	0	997
Bigeye	5,127	14,445	6,234	13,338	0	19,572
Yellowfin	755	1,999	1,269	1,485	0	2,754
						0
Swordfish[2]	147	777	0	924	0	924
White marlin	17	16	21	12	0	33
Blue marlin	121	321	148	294	0	442
Black marlin	0	0	0	0	0	0
Sailfish	8	21	9	21	0	30
Spearfish	41	22	40	23	0	63
						0
Other sharks	87	125	111	100	0	211
Other fishes	47	882	72	856	0	928
Total	7,266	24,261	11,896	19,630	317	31,843

[1] Almost final.
[2] Discards in the North Atlantic are not included.

2004[3]

SPECIES	*WEST*	*EAST*	*NORTH*	*SOUTH*	*MEDIT*	*TOTAL*
Bluefin	470	2,015	2,485	0	638	3,123
Southern bluefin	0	101	0	101	0	101
Albacore	648	719	868	500	0	1,368
Bigeye	5,565	11,498	7,948	9,116	0	17,064
Yellowfin	943	4,982	2,251	3,673	0	5,924
Swordfish[4]	334	873	574	632	3	1,209
White marlin	11	19	19	11	0	30
Blue marlin	89	433	163	359	0	522
Black marlin	0	3	1	2	0	3
Sailfish	3	70	10	63	0	73
Spearfish	42	30	44	28	0	72
Blue shark	441	803	1,035	209	1	1,245
Other sharks	102	148	155	95	0	250
Other fishes	48	283	102	229	0	331
Total	8,696	21,977	15,655	15,018	642	31,314

[3] Almost final.
[4] Discards in the North Atlantic are not included.

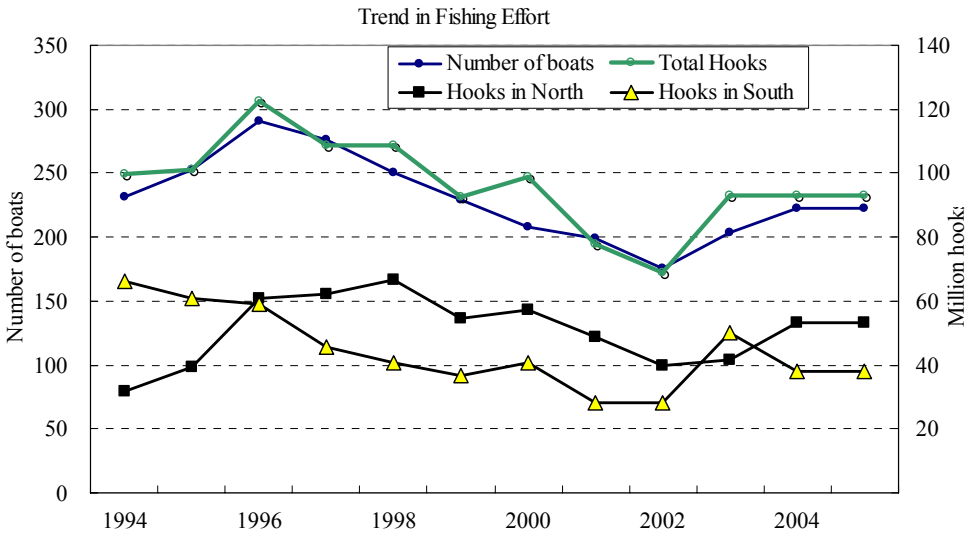

Figure 1. Trends in fishing effort (number of boats that operated and number of hooks used) exerted by the Japanese longline fishery, 1994-2005. The 2005 values repeated the figures of 2004.

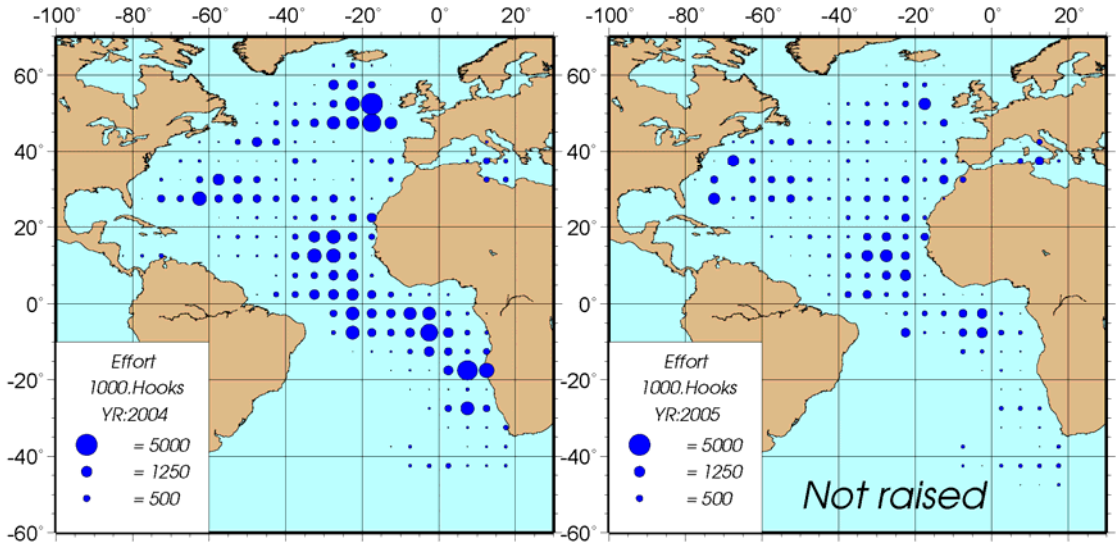

Figure 2. Geographic distribution of Japanese longline effort (in number of hooks) in the Atlantic, for 2004 (left) and 2005 (right). The right figure was based on unraised data, thus caution is required when comparing the two panels.

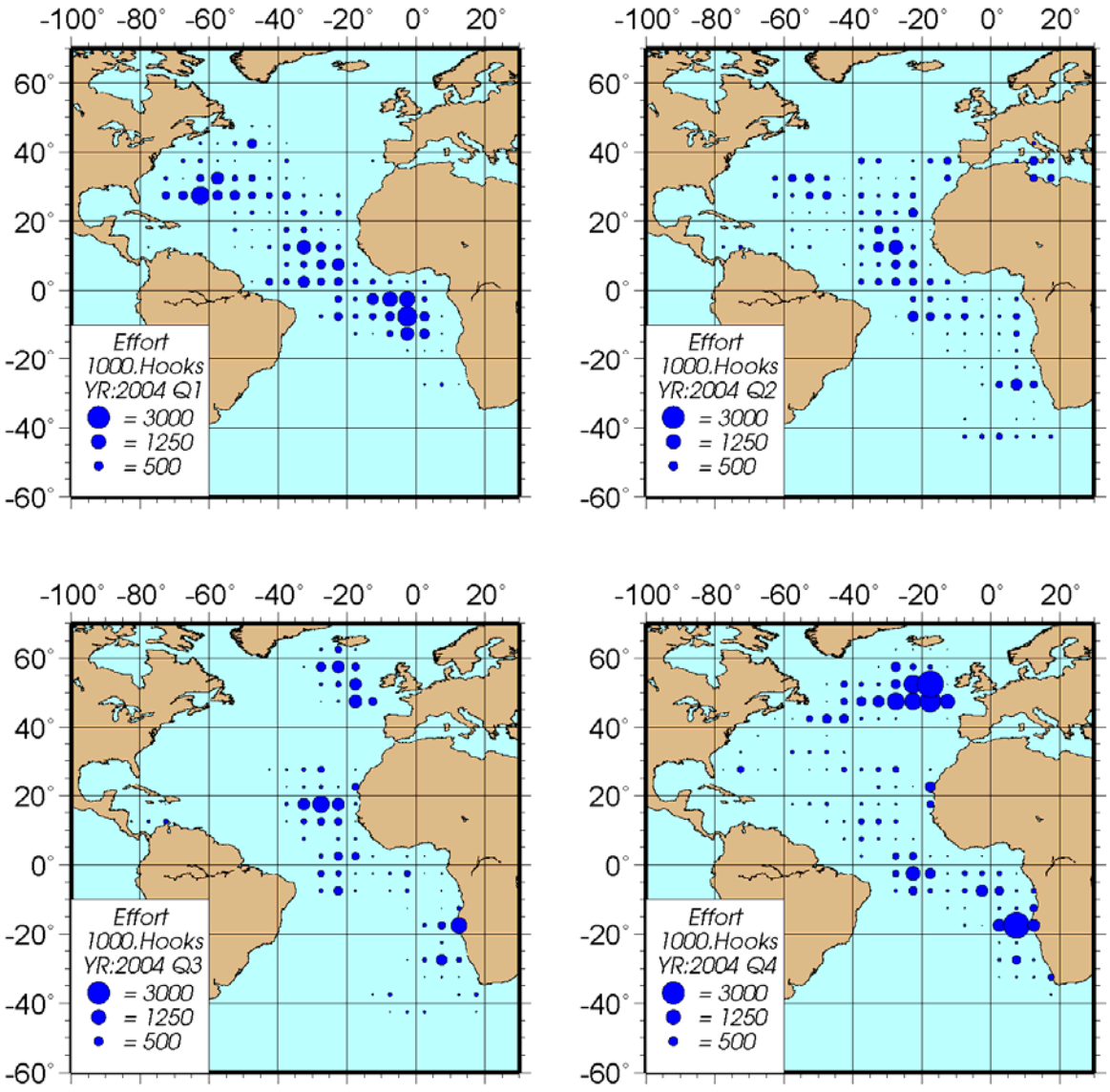

Figure 3. Quarterly distribution of Japanese longline effort (in number of hooks) in the Atlantic for 2004. All panels were based on raised data.

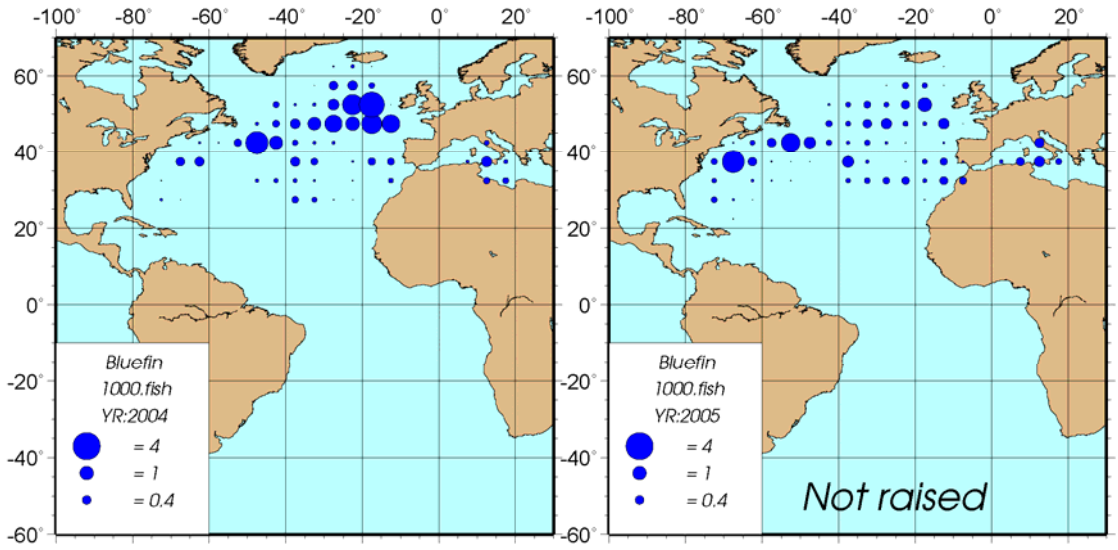

Figure 4. Geographic distribution of the bluefin catch (in number) in the Atlantic in 2004 (left) and 2005 (right). The right figure was based on unraised data.

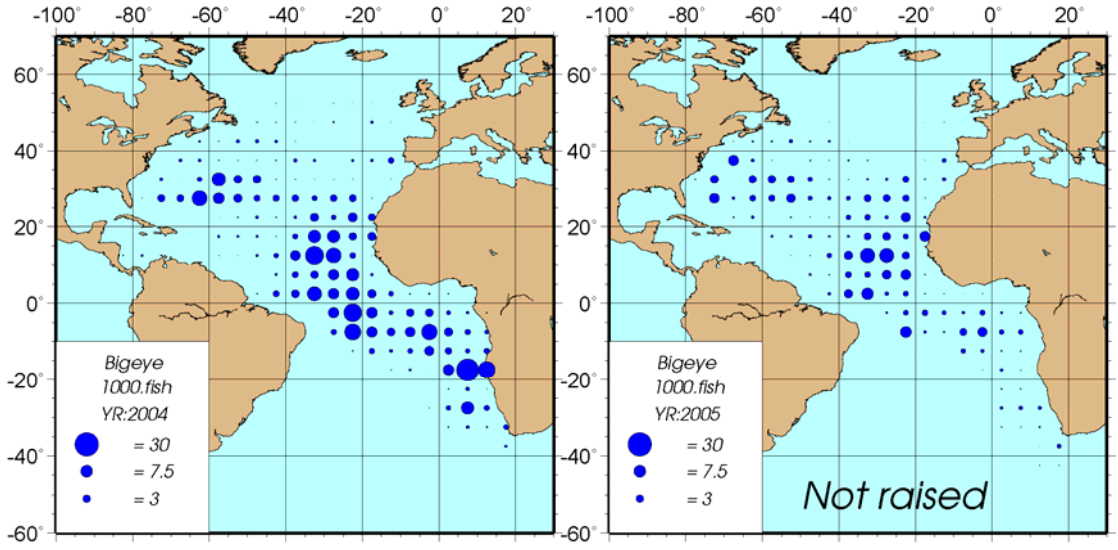

Figure 5. Geographic distribution of bigeye catches (in number) in the Atlantic in 2004 (left) and 2005 (right). The right figure was based on unraised data.

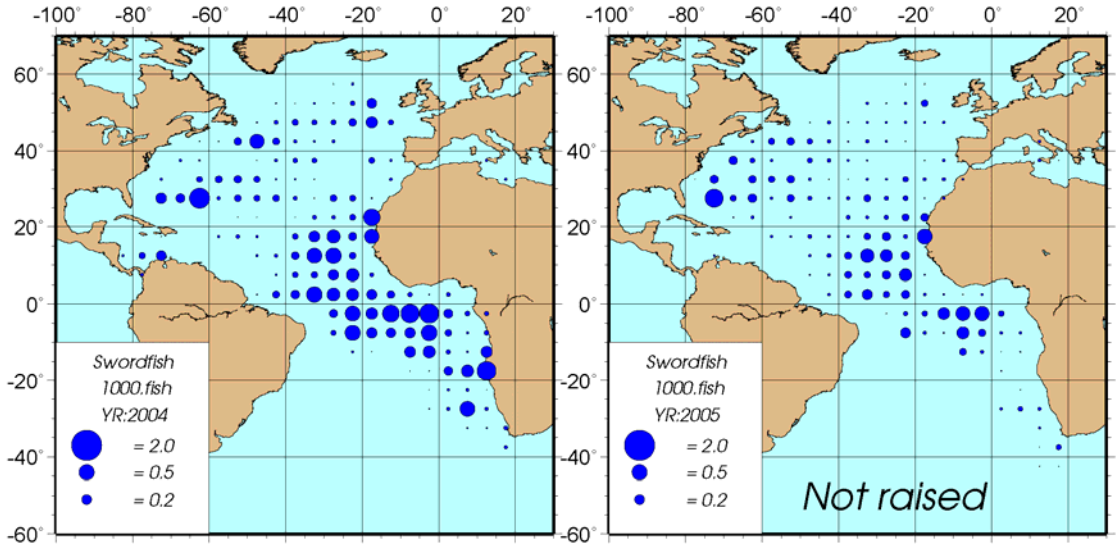

Figure 6. Geographic distribution of swordfish catches (in number) in the Atlantic in 2004 (left) and 2005 (right). The right figure was based on unraised data.

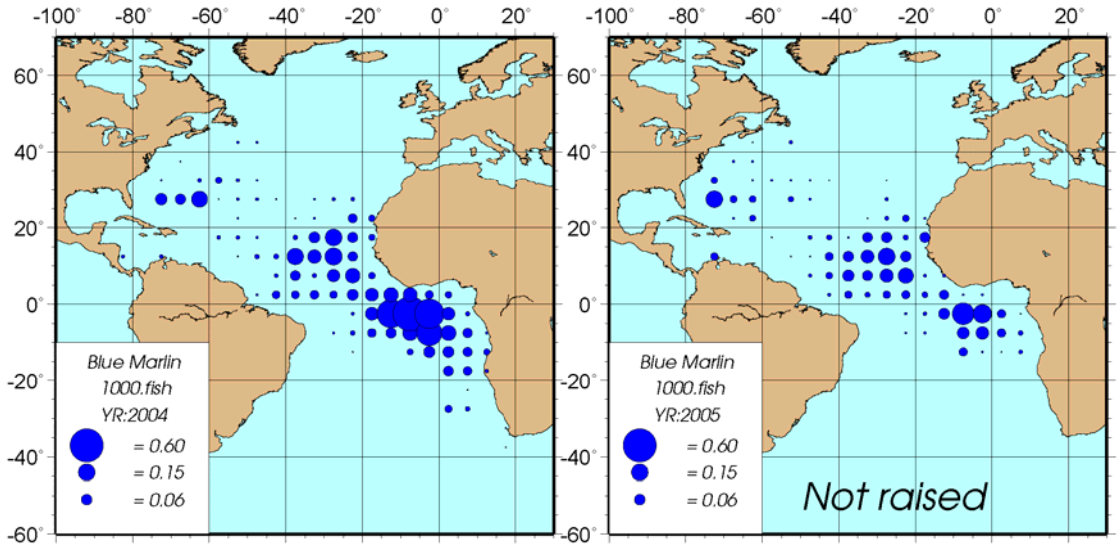

Figure 7. Geographic distribution of blue marlin catch (in number) in the Atlantic in 2004 (left) and 2005 (right). The right figure was based on unraised data.

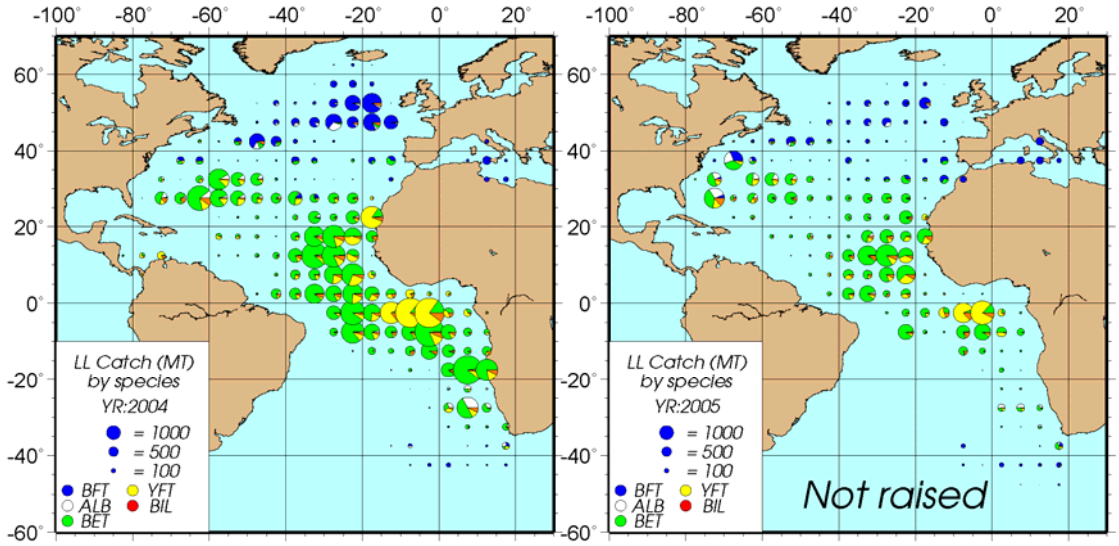

Figure 8. Species composition in the Japanese longline catch in weight for 2004 (left) and 2005 (right). Species are categorized into five groups: BFT (bluefin and southern bluefin), ALB (albacore), BET (bigeye), YFT (yellowfin) and BIL (swordfish and all billfishes). The right figure was based on unraised data.

ANNUAL REPORT OF KOREA[1]

Seon-jae Hwang, Doo Hae An, Soon-Song Kim,
Dae-Yeon Moon and Jeong-rack Koh[2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

Tunas in the Pacific and Indian Oceans have been the most important target species for Korean distant-water fishing industries. Since the mid-1980s, the annual catches of tunas and tuna-like species in the Atlantic have gradually declined **(Table 1)**. In the 1990s, the average number of Korean tuna longline vessels deployed in the Atlantic was less than 10 per year, with an average annual catch of 1,700 tons (t). Since the mid-1990s, 54 longliners were registered for the IOTC area, but shifted between the Indian and Atlantic Ocean, depending on fishing conditions. Korean fishing licenses are managed based on gear types, not by fishing grounds, enabling switches in fishing grounds by longliners. The recent decline in catches since 1999 **(Table 1)** has been mainly due to the shift of fleet to the Indian Ocean to catch southern bluefin tuna (SBT) and to the Mediterranean Sea for bluefin tuna (BFT).

Recently, bigeye and yellowfin tuna have been the most important species for the Korean tuna longline fishery because of their higher commercial value on the "sashimi" market. In 2005, the two species accounted for most of the catch by longline (44% and 39%) from the Atlantic. To catch the two species, Korean longliners operated in the northwest and southwest (10°-60°W and 5°N-10°S; **Figure 1**). The total catches in 2005 included 1,146 t of bluefin tuna that were caught by chartered Turkish purse seiners in the Mediterranean Sea, and which were reported by Korean observers on board.

Section 2: Research and Statistics

The National Fisheries Research and Development Institute (NFRDI) of Korea monitors and compiles data on catches and fishing effort of the tuna longliners and purse seiners charted by Turkish fishermen in the Atlantic Ocean. The required Task I and Task II data have been provided to the ICCAT Secretariat.

2.1 Observer program

In 2002, the Korean Government started observer programs to monitor distant-water fisheries, including those for tuna. The purpose of the program is to comply with the requirements of the relevant regional fisheries bodies. Before the official observer program was launched, NFRDI scientists had occasionally been on board commercial tuna vessels to collect catch statistics and biological samples of tunas. In the past 10 years, Korean observers were dispatched 11 times for the tuna fisheries, mostly for purse seiners and longliners in the Pacific Ocean.

In 2005, two observers were on board the charted Turkish purse seiners to monitor bluefin tuna fishing in the Mediterranean Sea. In 2006, two observers were dispatched for bluefin tuna fisheries. One observer was on the Korean tuna longline vessels catching bluefin tuna in the EEZ of Algeria, and the other observer was on the charted Turkish purse seiners to monitor bluefin tuna fishing in the Mediterranean Sea. The results of the observer program for the Mediterranean Sea in 2005-2006 will be reported later.

2.2 Data reporting system

The NFRDI has established a new database system for efficient analysis of fisheries data. The old data files will be corrected and verified. Consequently, minor corrections in the Korean fishery statistics are likely in the near future.

[1]Original report in English.
[2]National Fisheries Research and Development Institute, Busan, Korea.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

To implement the recommendations adopted by the ICCAT, the Korean Government introduced these to its domestic regulations, including the minimum size limits for bigeye, yellowfin, bluefin tuna and swordfish. To protect the spawning stock of northern bluefin tuna in the Mediterranean Sea, a new domestic regulation was implemented in 1995.

Table 1. Nominal catch (t) of tuna and tuna-like fishes by the Korean longline and purse seine fishery in the Atlantic Ocean, 1986-2005.

Year	*No. of vessels*	*BFT*	*YFT*	*ALB*	*BET*	*SBT*	*SKJ*	*SWO*	*BUM*	*WHM*	*SAI*	*Others*	*Total*
1986	28	(156)	1,818	694	6,084	-	11	82	96	71	16	1,093	9,965
1987	29	(1)	1,457	401	4,438	-	6	75	152	27	21	1,048	7,625
1988	29	(12)	1,368	197	4,919	-	3	123	375	19	15	782	7,801
1989	33	(45)	2,535	107	7,896	-	6	162	689	135	33	944	12,507
1990	17	(20)	808	53	2,690	-	-	101	324	81	41	240	4,338
1991	9	(229)	260	32	801	-	-	150	537	57	30	267	2,134
1992	8	(101)	219	-	866	-	-	17	38	1	1	321	1,463
1993	4	(573)	180	-	377	-	-	-	19	2	1	308	887
1994	4	684	436	-	386	-	-	-	-	91	1	27	1,625
1995	4	663	453	-	423	-	-	-	61	1	-	114	1,715
1996	16	683	381	-	1,250	-	-	26	199	37	6	156	2,738
1997	12	613	257	5	796	10	-	33	70	24	1	115	1,924
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
2002		-	7.8	-	87.3	-	-	1.5	-	-	-	-	97
2003	3*	-	209	5	143	-	-	24	-	11	-	10	402
2004	13	700	984	37	629	-	-	70	-	40	-	147	2,607
2005	13	1,146	675	101	770	-	-	87	-	7	-	109	2,895

( ): Estimated by ICCAT Secretariat (ICCAT Report 1994, Vol. 2).
* : Estimated by Korea's distant water fishery information system.

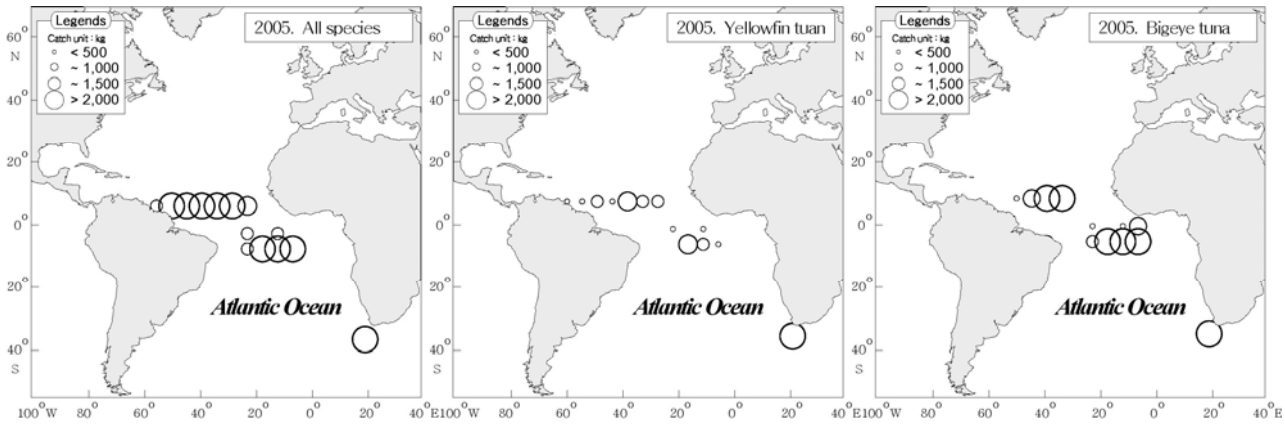

Figure 1. Catch distribution of Atlantic tuna and tuna-like species by the Korean longline fishery in 2005. (The bluefin tuna catch in the Mediterranean Sea is not shown.)

ANNUAL REPORT OF MEXICO[1]

Part I (Information on Fisheries, Research and Statistics

The Mexican fishery for tuna in the Atlantic Ocean is carried out in the Exclusive Economic Zone, including the southern region of the Gulf of Mexico. In the Gulf of Mexico, the Mexican tuna fishery is carried out throughout the year by a high seas longline fleet, whose vessels have an average draft of 22 m, a carrying capacity of 15 t, and a maximum autonomy of 30 days. The fishing effort of this fleet is directed at yellowfin tuna (*Thunnus albacares*), but an incidental catch is observed of other highly migratory species, such as other tunas, billfishes, sharks, among others.

In the last five years, the number of vessels has varied, with approximately 32 vessels fishing in the Gulf of Mexico, and an average of 404 cargo fishing vessels. As regards the catches of yellowfin tuna (*Thunnus albacares*), a decrease has been observed in the last three years, with reported catches of 1,133 t, 1,362 t and 1,207 t en 2002, 2003 and 2004, respectively. The major catches of this species are obtained in the summer months, when the highest fishing yields are observed. Among the species that are caught incidentally, the following are noteworthy: (a) other species of tunas such as bluefin (*Thunnus thynnus*), bigeye (*Thunnus obesus*), skipjack (*Katsuwonus pelamis*) and blackfin tuna (*Thunnus atlanticus*); (b) billfishes and similar species, such as swordfish (*Xiphias gladius*), sailfish (*Isthiophorus albicans*), blue marlin (*Makaira nigricans*) and white marlin (*Tetrapturus albidus*). In addition, an incidental catch of shark species has been observed, mainly oceanic whitetip (*Carcharhinus longimanus*), blacktip (*C. limbatus*) and shortfin mako (*Isurus oxyrinchus*).

The data used in this report were provided by the *Programa Nacional para el Aprovechamiento del Atún y Protección del Delfín*-PNAAPD (National Program for the Use of Tuna and Protection of Dolphins), obtained through its national observer program in the Gulf of Mexico, whose coverage rate is 100% of the fishing trips.

On the other hand, it should be noted that Mexico continues to strengthen its participation in the scope of the organization through the implementation of actions aimed at the adequate compliance of the regulations established within the framework of ICCAT, such as the improvement and timely submission of data and the Statistical Document Program.

Finally, in 2005, Mexico emphasized its commitment to work in the scope of the Commission to adopt measures and methods aimed at responsible fishing by implementing actions aimed at attaining maximum sustainable catches, to support measures aimed at the precautionary approach, regulation of fleet capacity and the fight against illegal, unregulated and unreported fishing. Likewise, concern was expressed that the criteria for the allocation of catch quotas have not been applied, the accumulation of unused quotas, the mail vote, and the establishment of trade measures to promote compliance of adequate implementation of the regulatory measures, among others.

Section 1: Annual Fisheries Information

In 2005, there were 30 vessels registered for fishing activity, and these carried out a total of 383 fishing trips. During these fishing trips, there was a reported catch of 1,050 t of yellowfin tuna, which represented 72% of the reported catch in 2005. **Table 1** shows the yellowfin tuna catches in the Gulf of Mexico by the Mexican fleet from 1995 to 2005.

A total of 3,342 sets were made, in which 2,094,242 hooks were used. The geographic distribution of longline fishing effort in 2005 **(Figure 1)** shows that the major part of the fishing effort is exerted in the western part of the Gulf of Mexico, in particular, off the coast of Veracruz. However, there is also a tendency of major concentration of fishing effort in the southwestern part, as well as in the central part of the Gulf of Mexico.

Yellowfin tuna represent 94% of the total catch of tuna species in the Gulf of Mexico. The highest catches of this species are made during the summer months and in early autumn. The tuna species caught incidentally were: blackfin tuna *(T. atlanticus*), 1%; bluefin tuna *(T. thynnus*), 1%; skipjack tuna *(Katsuwonus pelamis*), 1%. Other tuna species that were also caught incidentally are: bigeye (*T. obesus*), Atlantic bonito (*Sarda sarda*) and some species of small tunas.

[1]Original report in Spanish.

In addition to the above, billfish and similar species were caught incidentally and represented 16% of the reported catch. The most abundant species in the by-catches were: white marlin (*Tetrapturus albidus*) with 1,500 fish caught, sailfish (*Isthiophorus albicans*) with 3,090 fish caught, swordfish (*Xiphias gladius*) with 1,126 fish, and blue marlin (*Makaira nigircans*) with 2,510 fish.

As concerns the incidental catch of sharks, there were 976 sharks caught, of which oceanic blacktip (*Carcharhinus limbatus*) represented 31% of the catch, Atlantic sharpnose (*Rhizoprionodon terraenovae*) 18%, shortfin mako (*Isurus oxyrinchus*) 13%, and threshers (*Alopias* spp.) 11%; the remainder of the sharks represented 27% of the reported catch.

Section 2: Research and Statistics

Close collaboration was maintained with the program of on-board scientific observers, which continued to have a 100% coverage rate. The objective of the national program is to collect data on catch statistics (target and by-catch), size, fishing effort, gear characteristics, etc.

In 2005, Mexico participated regularly in scientific meetings related to tuna fishing with longline in the Gulf of Mexico. In March, preliminary work was carried out on the standardization of fishing effort applied to longline tuna fishing in the Gulf of Mexico by the Mexican and U.S. fleet. A MexUs-Gulf meeting was held (cooperation program with the United States), where various issues related to the fishery for yellowfin tuna and its incidental catch were discussed.

Close collaboration with the SCRS continued in 2005, through the exchange of information on the tuna fleet, fishing effort, and data on the catch of yellowfin tuna catches and its by-catch.

The major studies carried out in 2005 in the framework of the priority research of the *Instituto Nacional de la Pesca*, INP (National Institute on Fishing) were:

- Improvement of database on bluefin tuna caught by longline in the Gulf of Mexico, by time-area strata.

- Research on fishery management, through:
  - Spatial analysis of fishing effort of the tuna fleet.
  - Analysis of yellowfin stock structure.
  - Time-area analysis of by-catches.
  - Workshops on releasing sea turtles caught incidentally.

- Participation in courses to train scientific observers on board longline vessels.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

3.1 Compliance in the west Atlantic bluefin tuna and North Atlantic swordfish fisheries

As concerns compliance with the quota allocated to Mexico for these species, it should be noted that in 2005 there were 10 t of bluefin tuna and 41 t of swordfish caught. These catches were below the quotas of 25 t and 110 t, respectively, allocated by the Commission.

In regard to the regulations adopted by ICCAT, the Mexican law (NOM-023-PESC-1996) establishes limits on the incidental catch of bluefin tuna and swordfish, as well as measures aimed at their conservation. Furthermore, the law establishes the minimum size of bluefin tuna (30 kgs minimum or 115 cm. fork length) and these fish should be released in good condition for survival. On the other hand, the law establishes that the incidental catch should not exceed 20% (this 20% not only includes bluefin tuna, but also swordfish, sailfish, marlins, among others) of the nominal catch obtained during a calendar year.

Likewise, in its commitment to carry out responsible fishing, the regulation is still in effect to achieve recovery of the species, avoiding catches directed at the bluefin tuna spawning stocks in the Atlantic in the spawning areas of the Gulf of Mexico.

3.2 Statistical monitoring program

Besides the law NOM-023-PESC-1996, which establishes that all the bluefin tuna landings destined for export must present documents that accredit the legal origin of the fish and must be accompanied by the ICCAT Bluefin Tuna Re-export Certificate. In 2005, the competent authorities were informed of the changes in these forms, as well as the changes made in the Re-export Certificates for swordfish and bigeye. It should also be noted that there are no exports of bluefin tuna from the Atlantic area, since the catch is minimal and it is an incidental catch (12 t, on average).

The seals and signatures of the civil servants authorized to issue the Re-export Certificates of the aforementioned species, were updated.

3.3 Improvement in the sport fishery statistics

Sport fishing in Mexico is carried out exclusively on a total of nine species, six of which pertain to billfishes (four different marlin species, sailfish and swordfish) and three billfish-like species (allis shad, pez gallo and dolphinfish), within an area of 50 nautical miles from the base line from where the territorial waters are measured.

As concerns the improvement of data collection on this fishing activity, work was carried out in 2005 to modernize, update and expand the Sport Fishing Statistical Manual which is published on the CONAPESCA web page and where information can be found on the number of permits, by federative entity, by vessel, cost of the permits, permits for time periods and vessel category, among other data.

In 2005, the number of the sport fishing vessels in the Gulf of Mexico and Caribbean Sea was 882, and about 6,760 permits were granted.

3.4 Registry of vessels that fish or transport tunas in the Convention area

With regard to the vessel registry, in 2005 the refining and updating continued on the national vessel registry of tuna vessels that fish in the Atlantic. In this sense and in compliance with that agreed at the 14th Special Meeting of the Commission in New Orleans in 2004, a list was provided to the Commission of vessels between 15 and 24 m in length that operate in the Atlantic as well as the vessels over 24 m length. The registry shows 27 vessels of these characteristics.

3.5 Measures for the conservation of sharks

With regard to ICCAT Recommendation 05-05 which requires the CPCs to provide information annually on the implementation of measures to reduce the mortality of shortfin mako *(Isurus oxyrinchus),* in 2005 the fleet that fishes in the Atlantic used circular hooks which permits selective fishing and prevents the incidental catch of sharks.

Further, besides the National Plan for the Conservation of Sharks implemented in Mexico since 2004, work was carried out in 2005 on the development of the Official Mexican Law No. 029-PESC-2004 which, among other provisions, establishes the use of selective systems that avoid the incidental catch of sharks. Further, in directed catches, this law mandates a reduction in the catch of neonatals and juveniles, establishes closed seasons or regulation of fishing activities in specific geographic areas, the use of logbooks and improvement in the catch reports by species, establishment of specific areas to protect reproduction and/or spawning, and establishes on-board observer programs, among others.

Secction 4: Inspection Schemes and Activities

In 2005, Mexico reinforced the monitoring, control and surveillance, through the following means:

- More control over the granting of permits and licenses.

- Refining and updating of the national inventory of vessels (National Fishing Registry), which includes the list of persons who can license, grant permits or authorize fishing activities.

- Reinforcement of verification of the legal origin of the fishing products, through the arrival notice[2] and its verification at the port.

- Increase in the operations of inspection and surveillance in national jurisdictional waters, by Conapecsa suface vessels and the Secretariat of the Navy of Mexico.

- Continuity of the Observer Program: 100% of the tuna longline fishing trips in the Gulf of Mexico have an observer on board.

- Implementation of the Fishing Guide: This is an auxiliary tool for inspection and surveillance activities concerning fishing and aquaculture, to fight against poaching and the illegal movement of fishing products.

- Strengthening of participation in international and regional organizations that promote MCS, such as the International Network on Monitoring, Control and Surveillance, FAO (IUU Plan), IATTC and ICCAT, among others.

- In compliance with the ICCAT Recommendation 04-11 concerning the implementatioan of the Recommendation 03-04 on VMS, which establishes the need to implement a Vessel Monitoring Scheme in the ICCAT Convention area starting from June 1, 2005, it should be mentioned that satellite monitoring systems have been installed on 236 vessels in the Gulf of Mexico and Caribbean Sea (including tuna vessels over 24 m).

Section 5: Other Activities

Fishing capacity

With regard to fishing capacity, Mexico has made efforts to limit an increase in the tuna fleet in the Atlantic, maintaining strict control on permits and licenses. For this reason, the high seas fleet (vessels over 24 m) has not increased, but on the contrary, it has decreased (in 2004 there were three vessels in operation and in 2005, there were only two vessels in operation).

Table 1. Total catch (in t) and sampling coverage in the longline fishery for yellowfin tuna (*Thunnus albacares*) in the Gulf of Mexico.

	1995	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Total catch (t)	1,126	771	826	788	1,283	1,390	1,084	1,133	1,362	1,207	1,050
Sampling rate	100%	100%	ND	100%	100%	100%	100%	100%	100%	100%	100%
Number of fish	27,504	8,097	5,040	8,074	ND	24,266	22,693	32,461	36,875	33,684	29,48

ND= No data available.

[2]In accordance with Article 35 of the Fishing Law, the "arrival notice is the document in which the competent authority is informed of the catches obtained, by species, during a fishing day or a fishing trip".

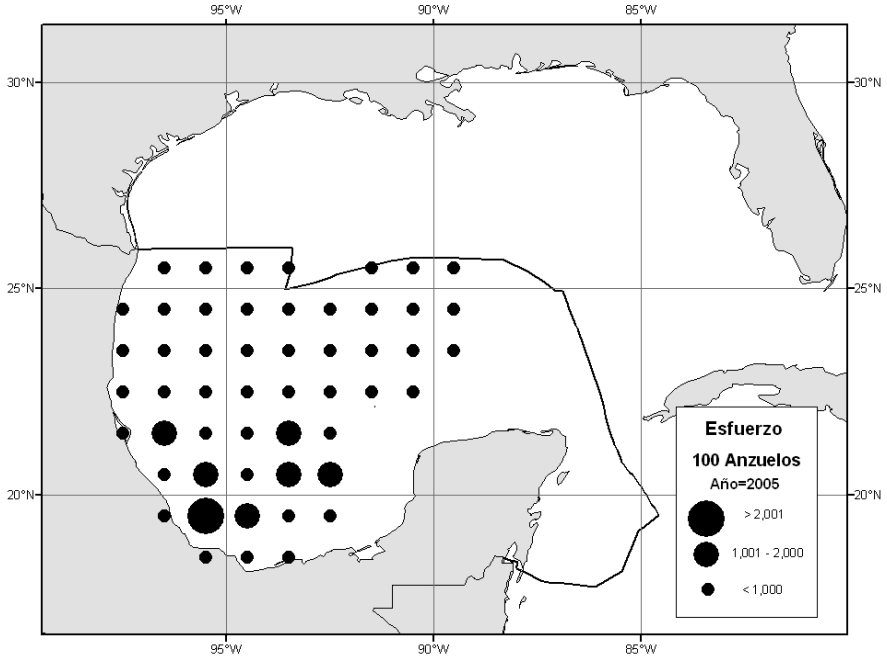

Figure 1. Geographic distribution of effort of the Mexican longline fleet (no. of hooks/100) in the Gulf of Mexico in 2005. The map was prepared using the total number of hooks concentrated by 1x1º squares.

ANNUAL REPORT OF MOROCCO[1]

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

Part I (Information on Fisheries, Research and Statistics)

The Moroccan maritime fishing sector is very active and continues to contribute towards financing the national economy. Tuna fishing which is an important component of this sector due to the volume of its investments and its development monitored by the authorities constitutes a multi-disciplinary activity that starts with artisanal fishing and extends to industrial activities.

Moreover, Morocco's geographic and climatic characteristics make it an area where large pelagic species must pass on their migrations between the Atlantic and Mediterranean.

Section 1: Annual Fisheries Information

1.1 Tuna fishing

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

The landings are comprised of various species ranging in size from 30 to 250 kg for the major tunas and smaller sizes for the minor tunas.

Swordfish continue to be landed at the Mediterranean ports, in particular, at the maritime district of Tangier, Nador and El Hoceima. In recent years, the ports of southern Morocco, notably Dakhla, have seen a marked increase in the quantities of swordfish landed.

As concerns bluefin tuna, the traps continue to be the major gear to catch this species since this gear targets large-size fish.

Albacore, yellowfin and bigeye tunas are caught by small boats, mainly artisanal vessels and coastal longliners.

Small tunas are found in the landings of the artisanal and coastal fishing vessels at all the ports of the Kingdom of Morocco.

1.2 Fishing areas

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

The major swordfish fishing grounds are located in the Mediterranean. However, the development of a fishery in the south Atlantic in Tan-Tan south of Dakhla has been observed.

1.3 Landing ports

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

1.4 Fishing methods

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

[1] Original report in French.

[2] Ministère de l'Agriculture, du Développement Rural et des Pêches Maritimes, Département des Pêches Maritimes.

[3] Institut National de Recherche Halieutique (Centre de Tanger).

1.4.1 Trap

This gear mainly targets bluefin tuna and small tunas. In 2005, thirteen (13) traps were set in national waters, one of them in the Mediterranean, but it was not operative. The active period of the traps is the same as in previous years, i.e., between the months of April and July.

1.4.2 Hand line

This gear is used mainly by an important community of artisanal fishers that have a fleet of a hundred artisanal vessels (less than 7 m length and < 2 t GRT).

This fishing activity targets large-size bluefin tuna and sometimes bigeye tuna in the southern regions. This fishing is carried out practically the entire year, with a two to three month halt in the activity each year.

1.4.3 Purse seine

This fishing technique is utilized by purse seiners that only fish tunas occasionally and as by-catch. This activity is mostly carried out in the Atlantic and the species caught, mainly large tunas, show lower sizes and weights lower than fish caught by the other fishing methods, such as trap. In general, their weight ranges from 30 to 60 kg.

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

1.4.4 Drifnet

Driftnet is a fishing gear which is essentially used to fish swordfish in the Atlantic and Mediterranean by longline type vessels during the migrations of this species along the Moroccan coasts.

It is important to note that the majority of these are small-sized vessels (14-16 m LOA) and their main base ports are Larache, Tangier, Nador and El Hoceima.

With the entry into force of new measures taken within the framework of the National Plan of Action aimed at the progressive and gradual eradication of this fishing gear, some decline in the use of this gear has been noted. Besides, and in accordance with the provisions adopted by the General Fisheries Commission for the Mediterranean establishing the length of this gear at 2.5 km, a draft decree establishing this length is currently being finalized.

1.5 Tuna farming

Tuna farming and, in particular, that of bluefin tuna, is an activity which is starting to develop in Morocco. Currently, only one unit of this type has been authorized to carry out this activity in the Atlantic. However, the promoters have not yet started their activities due to logistical problems linked to the supply of raw materials.

It should be noted that the agreement reached by the Department of Maritime Fisheries with these promoters, in the form of specifications, includes all the provisions adopted by ICCAT regarding this activity.

1.6 Catches

National fishery statistics on tunas and tuna-like species are given in **Table 1**.

1.6.1 Bluefin tuna fishing

Bluefin tuna catch data, by gear and area, for the 1996-2005 period are given in **Table 2**.

1.6.2 Swordfish fishing

Data on swordfish catches, by gear and by area, for the 1996-2005 period are shown in **Table 3**.

1.6.3 Fishing for small tunas

Data on the catches of small tunas, by gear, for 2005 are given in **Table 4.**

1.6.4 Other species

Sailfish, blue marlin, bigeye tuna, albacore tuna and yellowfin tuna catches in 2005, by gear and by area, are shown in **Table 5**.

The development of the catches (in t) of dogfish and sharks for 1996-2005 is reported in **Table 6**, for information only.

It should be noted that the following species are present in Moroccan waters: *Heptranchias perlo, Hexanchus griseus, Centrophorus granulosus, Centrophorus squamosus, Centrophorus uyato, Centroscymnus coelolepis, Centroscymnus crepidater, Dalatias licha, Deania calcea, Etmopterus spinax, Scymnodon ringens, Squalus acanthias, Squalus blainvillei, Squatina aculeata, Squatina squatina, Squatina oculata, Eugomphodus taurus, Odontaspis ferox, Alopias vulpinus, Cetorhinus maximus, Carcharodon carcharias, Isurus oxyrinchus, Lamna nasus, Galeus melastomus, Scyliorhinus canicula, Scyliorhinus stellaris, Galeorhinus galeus, Mustelus asterias, Mustelus mustelus, Carcharhinus leucas, Carcharhinus longimanus, Carcharhinus obscurus, Prionace glauca, Sphyrna lewini, Sphyrna mokarran, Sphyrna zygaena.*

Section 2: Research and Statistics

In the framework of maritime research, the *Institut National de Recherche Halieutique*-INRH (National Institute of Fishing Research), through its Regional Centers in Tangier and Nador, continued their research programs on tunas and tuna-like species in 2005. These programs focused mainly on the following two aspects:

The first aspect of these research and monitoring programs concerns the study of the biology of the swordfish and bluefin tuna fisheries, in particular, the analysis of the stock structure of the landings, the estimation of biological parameters, such as size-weight relation and sex-ratio by size, which is carried out through a biological sampling program established and implemented at the major landing ports of these species in the North Atlantic, the Strait of Gibraltar and the Mediterranean.

The second aspect of these programs is aimed at the collection and analysis of information on the fishing activities of the fishing fleet and the traps targeting tunas, as well as estimating and analyzing the catch indicators of these fisheries, particularly in terms of the catch, fishing effort and the index of abundance (CPUE). This work is carried out through surveys of the professionals and the administrative authorities involved in the management of these fisheries. Document SCRS/2005/111 provided some results obtained from these research programs.

It is important to note that during the 2006 fishing season a new biological sampling program was initiated on bluefin tuna discards caught in the traps set in the Moroccan North Atlantic area. The objective of this program is to fill the gaps in biological information on this species which are due to the difficulties of working at sea. This will also result in determining the stock structure of the bluefin trap catches through a series of morphometric measurements of different parts of the body of the fish. This mainly involves measurements of fork length, from the head and the pre-gill cover, to establish relationships for the conversion of the length of the head or the pre-gill cover of the fish to the corresponding fork length and to reconstruct the stock structure from these measurements.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

3.1 Minimum size limits

In accordance with ICCAT Recommendations, the Department of Maritime Fishing prohibits the catch of under-sized fish in accordance with the terms of a ministerial decree that amends and supplements the decree of October 3, 1988, which establishes the minimum market size of species fished in Moroccan waters.

3.2 Limit on fishing effort

In application of Circular No. 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. 001 of February 1, 2005, which establishes the conditions for granting and extending the authorizations for reconversion, reform and replacement of fishing vessels, permits making some technical changes to the active fishing vessels.

Section 4: Inspection Schemes and Activities

4.1 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 the technical measures, and limits on catch 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 consists of verifying the characteristics of the fishing gear (monitoring of conformity of the gear and the mesh size in relation to the target species and the geographic area), inspection of fishing activities (logbooks, legality of the fishing activity with regard to the fishing period and 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 as follows:

4.1.1 At-sea monitoring

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

The resources available to the controllers 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 is compliance with the technical measures and regulations in force.

With regard to the traps, the constant presence of an observer is noted, 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.

4.1.2 Land-based monitoring

This is carried out by delegates from the Department of Maritime Fishing, officers from the National Office of Fishing and by representatives of the team 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 verified by the authorities that monitor highway traffic, and sales records.

In addition to these procedures, the Department of Maritime fishing has a practical scheme in place since June 2004 to determine the origin of the swordfish caught in the North Atlantic and the Mediterranean.

This program, entitled the "Scheme to Monitor and Identify the Origin of Swordfish Catches by Moroccan Fleets" has resulted in improved refining of the catch data on this species, particularly catches by the vessels carrying out fishing in these areas, and on the location of the catches.

This scheme is not meant to revise the current monitoring scheme on swordfish fishing activities, which is carried out efficiently, but to expand it by methods that will result in determining the exact origin of the swordfish catch.

These measures are also integrated within the framework of the application of the provisions of the National Plan of Action to eradicate the use of driftnets and the reconversion of the fleets that use them.

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

Within the framework of rational management of the fishing resources and with an aim towards assuring better monitoring of the fleet activity over a wide geographic area, the Department of Maritime Fishing has created a structure for the utilization of data transmission systems by satellite, using GPS as well as 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 mechanisms have been implemented to complete the electronic systems already in place by the authorities in charge of monitoring fishing activities.

These measures are included in the National Plan of Action to prevent, combat and eliminate illegal, unreported and unregulated fishing which the Ministry of Maritime fishing has developed during the course of this year.

Finally, it should be recalled that the Ministry of Maritime Fishing is responsible for and coordinates these activities at the National Monitoring Center for Fisheries.

Section 5: Other Activities

5.1 Trade data

With regard to exports, crosschecking is carried out in collaboration with the services of the Office of Exchange and the Customs Administration, the State authority in charge of promulgating measures related to the regulation of these exchange operations by authorizing, in a general or particular manner, the transfers to foreign destinations and in overseeing the repatriation of the assets necessarily transferable (income from exports of goods and services), which are under the Ministry of Economy and Finance, in order to verify the amounts declared for export and to crosscheck them with the amount of currency repatriated.

All these procedures have been implemented to reinforce further the provisions of monitoring of the trade operations of the tuna species.

Table 1. Statistics on tuna catches for 2005 (kg).

Species	*Total*
Yellowfin tuna (YFT)	182,660
Albacore (ALB)	178,331
Bigeye tuna (BET)	518,995
Bluefin tuna (BFT)	2,497,239
Atlantic black skipjack (LTA)	42,376
Skipjack tuna (SKJ)	1,893,914
Atlantic bonito (BON)	1,449,063
Frigate tuna (FRI)	110,786
Plain bonito (BOP)	133,056
Swordfish (SWO)	2,856,500
Blue marlin (BUM)	12,065
Atlantic sailfish (SAI)	14,746
Others	19,455
Total	**9,909,186**

Table 2. Data on bluefin tuna catches, by gear and by area, for the 1996-2005 period.

BFT	*Gear*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Atl	Trap	699	1,240	1,615	852	1,540	2,330	1,670	1,305	1,098	1,518
Atl	PS	323	828	692	709	660	150	884	490	855	871
Atl	LL	0	0	0	0	0	0	0	02	8	16
Atl	Gill	13	0	34	30	28	17	11	00	0	00
Med	Hand	541	455	634	600	650	195	407	570	597	80
Med	Gill	30	17	18	6	6	9	14	20	0	00
Med	PS	0	0	0	0	0	0	0	170	222	12
Med	LL	0	0	0	0	0	0	0	0	0	00
Med	Trap	15	63	35	30	39	307	0	0	0	00
Tot-Atl		1,035	2,068	2,341	1,591	2,228	2,497	2,565	1,797	1,961	2405
Tot-Med		586	535	687	636	695	511	421	760	819	92
Total		**1,621**	**2,603**	**3,028**	**2,825**	**2,923**	**3,008**	**2,986**	**2,557**	**2,780**	**2497**

Table 3. Data on swordfish catches, by gear and by area, for the 1996-2005 period.

SWO	*Gear*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Atl	Trap	7	5	2	13	3	7	4	7	3	0
Atl	PS	98	10	10	11	22	9	1	1	1	0
Atl	Gill	322	13	179	60	51	243	64	98	76	9
Atl	LL	35	239	0	35	38	264	154	223	255	325
Med	LL	273	245	323	259	205	754	1,149	1,670	1,954	1,801
Med	Gill	2,461	4,653	2,905	2,979	2,503	2,266	2,230	1,629	1,299	722
Med	PS	0	0	0	0	0	4	0	0	0	0
Med	Hand	0	0	0	0	0	0	0	0	0	0
Med	Trap	0	2	0	0	0	2	0	1	0	0
Tot-Atl		462	267	191	119	114	523	223	329	335	334
Tot-Med		2,734	4,900	3,228	3,238	2,708	3,026	3,379	3,300	3,253	2,523
Total		**3,196**	**5,167**	**3,419**	**3,357**	**2,822**	**3,550**	**3,602**	**3,629**	**3,588**	**2,857**

Table 4. Data on small tunas catches, by gear, for 2005.

Species	*Gear*	*Atl. black skipjack (LTA)*	*Atl. bonito (BON)*	*Skipjack (SKJ)*	*Frigate tuna (FRI)*	*Plain bonito (BOP)*	*Total*
Atl	Trap	00	163	00	19	02	184
Atl	Hand	00	246	198	12	01	457
Atl	Gill	00	400	420	13	00	833
Atl	LL	00	535	387	10	13	945
Atl	PS	33	67	888	07	116	1,111
Med	Trap	00	00	00	00	00	00
Med	Hand	00	06	00	09	00	15
Med	Gill	00	15	00	05	00	20
Med	LL	00	11	01	20	00	32
Med	PS	9	06	00	16	01	32
Tot-Atl		33	1,411	1,893	61	132	3,530
Tot-Med		9	38	1	50	1	99
Total		**42**	**1,449**	**1,894**	**111**	**133**	**3,629**

Table 5. Catches of sailfish, blue marlin, bigeye tuna, albacore and yellowfin tuna catches, by gear and by area, 2005.

2005	*Gear*	*Sailfish (SAI)*	*Blue marlin (BUM)*	*Yellowfin tuna (YFT)*	*Albacore (ALB)*	*Bigeye tuna (BET)*
Atl	Trap	00	00	00	00	00
Atl	PS	00	00	00	00	00
Atl	Gill	00	00	00	00	00
Atl	LL	15	12	183	178	519
Med	LL	00	00	00	00	00
Med	Gill	00	00	00	00	00
Med	PS	00	00	00	00	00
Med	Hand	00	00	00	00	00
Med	Trap	00	00	00	00	00
Tot-Atl		15	12	183	178	519
Tot-Med		00	00	00	00	00
Total		**15**	**12**	**183**	**178**	**519**

Table 6. The development of dogfish and shark catches for the 1996-2005 period (t).

Year	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Catches	2,866	1,256	2,245	2,130	3,460	2,200	2,161	2,923	2,996	3,501

Table 7. Summary of catches, by area and by species (kg).

Species	*Atlantic*	*Mediterranean*	*Total: Atl + Med*
Bluefin tuna	2,405,005	92,234	2,497,239
Bigeye tuna	518,995	0	518,995
Swordfish	334,500	2,522,000	2,856,500
Albacore	178,331	0	178,331
Yellowfin tuna	182,660	0	182,660
Blue marlin	12,065	0	12,065
Sailfish	14,746	0	14,746
Small tunas	3,530,139	99,056	3,629,195
Others	3,564	15,891	19,455
Total	**7,180,005**	**2,729,181**	**9,909,186**

ANNUAL REPORT OF THE PHILIPPINES[1]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

Philippine waters have been a major tuna producer in the western and central Pacific Ocean since the early 1970s with the successful development of purse seine fishing in conjunction with the use of "payaos" (anchored fish aggregating devices). In recent years, about 250,000 t of tuna or about 10% of the western and central Pacific tuna catch has been attributed to the domestic fisheries of the Philippines.

Most of the tuna catch is taken by purse seine, ring net and handline gears with a variety of other artisanal gears also in use such as multiple handline, mini-longline.

The Philippine tuna fisheries are divided into two sectors, the municipal and commercial sectors. The municipal fisheries involves vessels of less that 3 GRT and the commercial sector has vessels of more that 3 GRT which are prohibited to fish in municipal waters 15 kilometers from the shoreline. The commercial sector takes the majority of the catch of oceanic tunas (201,550 t in 2003, or 70% of the official tuna catch). The municipal sector takes similar quantities of oceanic and neritic tunas using handline as the predominant gear.

Since the mid-1980s larger purse seine vessels operated by Philippine companies have fished in neighboring countries under access, joint venture agreements or local companies, with most of their catch being landed in Philippine ports for processing. With the implementation of the Philippine Fisheries Code in 1998 providing for incentives for Philippine fishing vessel operators to fish further in the Philippine EEZ and beyond, this has encouraged the Philippines to venture in other oceans like the Atlantic and Indian Oceans, not to mention the western and central Pacific Ocean. A number of fishing companies taking advantage of the incentives provided several longline fishing vessels through outright purchase or through lease purchase agreements.

Section 2: Research and Statistics

The Bureau of Agricultural Statistics (BAS) of the Department of Agriculture is the agency mandated to collect/gather official fisheries statistics, among others. However, the Bureau of Fisheries and Aquatic Resources is the government agency collecting and collating data insofar as those reported by all Philippine fishing vessels operating in the Atlantic, Indian, western and central Pacific Oceans are concerned. These data are all reported to ICCAT, IOTC, WCPFC and CCSBT, respectively.

In 2005, the catches of tuna and tuna-like species in the Atlantic by Philippine longline vessels totaled 2,052 t, broken down by species as follows: bigeye (1,743 t), yellowfin (243 t), albacore (61 t) and swordfish (1 t).

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

As a new member of the Commission (2004), the Philippines continue to implement relevant ICCAT conservation and management measures, as well as Philippine fisheries laws and regulations. Before they are allowed to fish in Philippine waters, Philippine fishing vessels are required to secure a Commercial Fishing Vessel and Gear License (CFVGL) and if they want to fish outside Philippine waters they are also required to secure an International Fishing Permit and Certificate from the Philippine Bureau of Fisheries and Aquatic Resources (BFAR). They are also required to keep a daily record of fish catch and spoilage, landing points, and gear, species, quantity and value of fish caught, and those off-loaded for transshipment, sale and/or other disposal. The report is submitted to BFAR for record and validation. Failure to submit this requirement is a ground for non-renewal of the CFVGL and International Fishing Permit.

The Fisheries Code also provides the establishment of a monitoring, control and surveillance system to ensure that the fisheries and aquatic resources in Philippine waters and adjacent waters and also in the Oceans where Philippine fishing vessels are operating are judiciously and wisely utilized and managed on a sustainable basis.

[1] Original report in English.

The Philippines just entered into a Memorandum of Agreement with Bluefinger to provide the required vessels monitoring system for the Philippines. It is hoped that this will be set-up in the near future.

The Philippine National Tuna Industry Council (NTIC), a council created by the Department of Agriculture composed of Government and Private sector as a forum to discuss issues and concerns of the tuna industry, approved the Philippine Tuna Management Plan in July 2005. The management options provided for in the Plan are, among others: control of fishing capacity, control of catch of immature fish through regulation of net mesh size, limitation of Fish Aggregating Devices (FADs) by putting a ceiling on the number, etc. All these are being done in view of achieving sustainable catches in areas where Philippine fishing vessels are operating.

3.1 Fisheries Information of Philippine vessels in the Atlantic Ocean

In 2005, there were 18 Philippine flagged fishing vessels that were authorized to fish in the ICCAT Convention area (the list of vessels has already been provided to ICCAT). However, at the 2004 ICCAT Commission meeting held in New Orleans, the Philippines were authorized for eight vessels to fish in the area at any given time.

3.2 Tuna Statistical Document Programs

The Philippines has implemented the ICCAT Tuna Statistical Document Program for bluefin, bigeye and swordfish since July 2002. The Philippines are also submitting the same statistical documents to IOTC, CCSBT, and WCPFC, although the latter have no regulation yet on the matter.

ANNUAL REPORT OF RUSSIA[1]

Part I (Information on Fisheries, Research and Statistics)

In Russia work relevant to research on tunas and tuna-like species is carried out by the Atlantic 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 to tuna catch vessels operations. The statistical data in this report are presented on the calendar year basis.

Section 1: Annual Fishery Information

No specialized purse tuna fishery was carried out in 2005 or the first half of 2006 due to repairs and modernization of purse seiners.

The trawl fishing fleet caught 202 t of tunas as by-catch: 139 t of bullet tuna *(Auxis rochei)*, 63 t of frigate tuna *(Auxis thazard*) in the central eastern Atlantic. The catch of Atlantic bonito (*Sarda sarda*) amounted to 79 t. The tuna by-catch in 2005 was comparable to that of 2004 (191 t). The by-catch of Atlantic bonito increased by 63 t as compared to 2004.

In January-March and June-October 2005 two experimental cruises were carried out on the longline fishing vessel "Askele" in the equatorial Atlantic Ocean. According to the observers data the tuna catch was 4.1 t: 3.5 t of yellowfin tuna *(Thunnus albacares)*, 0.6 t of bigeye tuna *(T. obesus*), 18.4 t of sharks (17.5 t of *Prionace glauca*), and 3 t of other fish species. The catch per unit effort attained 38 kg per 100 hooks for all species.

Section 2: Research and Statistics

In 2005 and the first half of 2006 observers collected data on catches of tunas and tuna-like species on-board trawlers within the EEZ of Mauritania and Morocco, and on-board the long-line fishing vessel "Askele". The species and length composition of tunas and the proportion of total fish catches were determined. In the longline fishery biological analysis, including fish length measurements, information on weight and sex, gonads maturity stages and stomach fullness, were carried out. The material was collected from 624 fish, including 69 tunas, 206 sharks, and 82 other fish species.

Research on Atlantic black skipjack (*Euthynnus alletteratus*) was carried out in the eastern Atlantic Ocean using material collected from 1959 to 1998 by various fishing gears (purse seine, trawl and rods). Sampling was carried out off the coast of western Africa at 30ºN to 20ºS. Observations were carried out during the entire year. The preliminary data obtained resulted from 16,000 fish measurements and 7,000 biological analyses were processed.

The morphological differences in tuna species in the central eastern and southeastern Atlantic Ocean were revealed. The reproduction period of black skipjack from these areas is extended in time, however, and is characterized by pronounced seasonal patterns associated to the warm season of the year.

Mass spawning of black skipjack in the central eastern Atlantic Ocean occurs mainly in the first half of the year. Near the Liberian coast, spawning begins in January, while in the Sierra-Leone EEZ it runs from February to June. In the Senegalese EEZ spawning was recorded from April-May to July-August. The mass spawning of black skipjack in the southeastern Atlantic Ocean occurs basically in the second half of the year. In April-May an increase in fish in a pre-spawning stage of gonad maturity was observed. Spawning in the EEZs of Gabon and São Tomé & Principe was observed in June-August. Spawning was recorded in October-December near the coast of Angola. In September tuna spawning probably occurs in Congo's EEZ. Taking into account these differences it is reasonable to assume that black skipjack in the central eastern and southeastern Atlantic Ocean belong to different populations.

Research concerning the functional structure of pelagic oceanic and semi-oceanic sharks distribution areas was continued at AtlantNIRO (Litvinov, 2006) on retrospective and new data. In the process of inspecting markets to the south of Dakar, Dr. F. Litvinov, a scientist of AtlantNIRO revealed a considerable catch of juvenile semi-

[1] Original report in English.

oceanic shark (*Sphyrna lewini*). Species such as *Prionace glauca, Carcharhinus longimanus, C. falciformis, Isurus paucus, I. oxyrinchus, Sphyrna lewini, S. zygaena, S. mokarran. Sphyrna zygaena* have been caught with gillnets from the artisanal fishery vessels at depths of about 100 m and these catches remain unreported. This fishery is well developed in West African coastal countries. Young sharks of many pelagic species live in the coastal waters during the first years of life. Therefore, this fishery poses a serious threat to the state of many fish stocks. Stock damage caused by this fishery may be much higher than in adult shark fisheries in the oceanic zone. The international protection of these young shark aggregations is required.

For the purpose of understanding blue shark (*Prionace glauca*) stock structure, two methods of teeth shape analysis (the method of area indices and the method of linear discriminatory analysis) were developed at AtlantNIRO. The results of 114 shark jaws analyzed revealed two different shapes of teeth in the lower jaw, awl and knife-shaped. Both shapes are observed in males and females. In general, awl-shaped teeth are more typical in males and knife-shaped in females. The teeth of mature males becomes thinner and longer. These changes are related to a specific character of shark behavior during the mating period, which subsequently results in segregation of food niches and separate living habitats for males and females of many shark species (Litvinov, 2003; 2006).

Analysis methods proposed may be used to study intra-species structure on the basis of researching the variable form of teeth, as well as other skeletal forms and external structures such as bones, scales, body spots, etc. For the first time ever a formula to study blue shark teeth has been described in detail on the basis of countless information comprising numeric data on teeth shape measurements.

Section 3: Implementation of ICCAT Conservation and Management Measures

In the experimental longline fishery for tunas and tuna-like species, ICCAT requirements and recommendations concerning the ban on the fishing of species under quotas and the restriction of young yellowfin and bigeye tuna catches were applied. To improve the quality of statistics, observers on trawl vessels operating in the Convention area collect data on by-catch of tunas and tuna-like species on an annual basis. Catch statistics and biological data were collected in experimental tuna fishing carried out in 2005 on board the long-line vessel “Askele”.

ANNUAL REPORT OF SENEGAL[1]

Youssouph Diatta[2], Siiy Ndao[3] et Taïb Diouf [4]

Part I (Information on fisheries, research and statistics)

Section 1: Annual Fisheries Information

Senegal has a 718 km maritime coastline with an exclusive economic zone (EEZ) of approximately 60,000 km^2 and 400 km^2 of continental waters. This situation has favored the development of important types of artisanal and industrial fishing targeting all pelagic as well as demersal species. This report focuses on the exploitation of tuna and tuna-like species in the Atlantic.

1.1 The industrial fishery

Tuna fishing is mainly centered on three species: yellowfin tuna (YFT-*Thunnus albacares*), skipjack tuna (SKJ-*Katsuwonus pelamis*) and bigeye tuna (BET-*Thunnus obesus*). These species are caught by:

- a Dakar-based baitboat fleet (BB), where all the catches are landed, and
- a longline fishery (LL) that targets bigeye and yellowfin. However, no catches were made in the Atlantic in 2005.
- Some catches were made in the Senegalese EEZ by foreign fleets based at Dakar (French and Spanish baitboats and purse seiners). These catches amounted to 6,165 t, which is relatively low as compared to 2004, when 8,576 t were caught. This drop in catches is due to the decline in the number of vessels.

Table 1 presents the catches by species, fishing effort and catch-per-unit-of-effort (CPUE) of Senegalese baitboats from 1991 to 2005 (there were no boats in 1992). **Table 2** presents the major characteristics of the Senegalese flag vessels in 2005. **Table 3** shows the number of active vessels. **Figure 1** shows the seasonal variation of the Senegalese baitboat catches in 2005. The catches vary according to the effort and the season. The period between March and October seems to be a favorable period for the fishery, with an increase in catches in spite of a drop in effort, although there is an inverse phenomenon during the cold season. **Figure 2** shows the time-area variation in the catches.

1.2 The artisanal fisheries

The artisanal fisheries mainly catch small tunas by hand line, troll and seine (Atlantic black skipjack (LTA-*Euthynnus alletteratus*), West African Spanish mackerel (MAW-*Scomberomorus tritor*), Atlantic mackerel (SSM-*Scomber japonicus (maculatus))* plain bonito (BOP-*Ocinopsis unicolor*) and Atlantic bonito (BON-*Sarda sarda*),wahoo (WAH-*Acanthocybium solandri*), frigate tuna (FRI-*Auxis thazard*), as well as billfishes: swordfish (SWO-*Xiphias gladius*), Atlantic blue marlin (BUM-*Makaira nigricans*) and sailfish (SAI-*Istiophorus albicans*). The landing statistics of these species from 1996 to 2003 are given in **Table 4**. These catches vary according to species and from one year to another.

1.2.1 Development of the artisanal fleet

A census of the canoes and the infrastructures linked to artisanal fishing carried out from October 21 to 25, 2002 showed the results that are shown in **Table 5**. These canoes generally measure between 6 and 18 m. The largest are found on the long coast. Depending on the type of fishing, the canoes that fish with seine are the largest with an average length of 18 m, those that fish with surrounding gillnets are usually about 16 m, those that fish with hand line and with ice are about 12 m, and those that fish with hand line generally measure from 7 to 9 m, and finally the canoes with hand line and driftnet measure around 8 m. The types of fishing carried out vary depending on the origin of the canoe.

[1] Original report in French.
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1.3 The sport fishery

This fishery targets billfish, sailfish and swordfish during the fishing season which lasts from May to November. In Senegal, the sport fisheries are well monitored at two large fishing centers, in Dakar and in Mbour. **Table 6** presents the catch, effort and CPUE of sailfish and billfish from 1996 to 2004. The table also shows that the major sport fishing season, in which the highest catches are reported, is generally from June to August. **Table 7** shows that the number of fish released in higher than the number of fish landed. It should be noted that the majority of the catches are reported in number and that no sampling is carried out on these species except for the catch records. For this reason, the tables cannot be used by ICCAT.

However, this year funds were made available to improve monitoring of the artisanal and sport fisheries (improvement in data collection in the artisanal fishery and improvement of the statistical data coverage of the sport fishery). The results of this work will be included in the report for 2007.

1.4 The canneries

Tuna fishing is closely linked to the canning industry, where development has had many contrasts in recent years. At present only two canneries are in operation (SE-SNDS and PFS), but they do not operate regularly.

In 1999, two canneries out of three were closed. In 2000, the three canneries were working but illegally. In 2003, 2004 and 2005, two canneries were operational. **Table 8** shows the variation in tonnage landed from 1998 to 2005.

Section 2: Research and Statistics

Regular scientific monitoring is carried out by the *Centre de Recherche Océanographique de Dakar Thiaroye*-CRODT (Center for Oceanographic Research of Dakar Thiaroye). This monitoring includes the collection of statistics on catch and fishing effort. This scheme is based on a detailed daily survey by tuna vessel captains at each landing, supplemented by the catches from various sources (factories, boat owners, port manifests, and the *Direction des Pêches Maritmes*-DPM (Directorate of Maritime Fishing). This work is carried out at the fishing port of Dakar for the industrial fishery where four technicians are based (three in charge of the surveys and one for data entry). The overall information collected is compiled, coded and entered into a computer, and then later centralized after processing, verification and correction. Data management is carried out in collaboration with the *Institut de Recherche et Développement*-IRD (Institute for Research and Development) and the *Instituto Español de Oceanografía*-IEO (Spanish Institute of Oceanography).

As regards, the artisanal fishery, the data collection system is carried out according to the same procedure but at various landing sites and by various samplers.

For the sport fishery, each year catch data on billfishes are collected at the sport fishing centers.

To improve fishing statistics, sampling is also carried out during the unloadings at port, in the factories and at the landing sites. With regard to the industrial fishery, 136 multi-species size samples were made on Senegalese baitboats. This sampling was carried out by a team of three interviewers at the port of Dakar.

Tags are usually recovered from boat owners and collected and sent to the ICCAT Secretariat each year for entry to a database. However, in these last three years no tag has been recovered.

This system results in obtaining the necessary data for a rational management of the fishery. These activities are financed by the IRD, the IEO, and ICCAT.

Part II (Management and implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

In order to implement the ICCAT recommendations, Senegal takes all the measures to regulate the tuna fishery. A monitoring, control and surveillance scheme of all the fishing activities has been established. Port inspection and identification of any vessel that carries out illegal fishing activities is also carried out. All these measures assure that the fishing resources are appropriately managed.

Section 4: Inspection Schemes and Activities

Senegal has a port inspection scheme in place. All the national as well as foreign landings are subject to monitoring and inspection.

Table 1. Catches, by species, effort and catch-per-unit-effort (CPUE) of Senegalese baitboats, 1991 to 2005.

Year	*Purse seine catches (t)*				*Effort (fishing days)*	*CPUE (t/day)*			
	YFT	*SKJ*	*BET*	***Total***		*YFT*	*SKJ*	*BET*	***Total***
1991	79	309	10	**398**	73	1.08	4.23	0.14	**5.45**
1992									**0.00**
1993	13	42	5	**60**	27	0.48	1.56	0.19	**2.22**
1994	6	59	11	**76**	40	0.15	1.48	0.28	**1.90**
1995	20	18	60	**98**	74	0.27	0.24	0.81	**1.32**
1996	41	163	84	**288**	91	0.45	1.79	0.92	**3.16**
1997	208	455	204	**867**	176	1.18	2.59	1.16	**4.93**
1998	251	1679	676	**2606**	511	0.49	3.29	1.32	**5.10**
1999	834	1479	1473	**3786**	572	1.46	2.59	2.58	**6.62**
2000	252	1506	1131	**2889**	697	0.36	2.16	1.62	**4.14**
2001	295	1271	1308	**2874**	512	0.58	2.48	2.55	**5.61**
2002	447	1053	565	**2065**	395	1.13	2.67	1.43	**5.23**
2003	279	733	474	**1486**	370	0.75	1.98	1.28	**4.02**
2004	668	1323	561	**2552**	691	0.97	1.91	0.81	**3.69**
2005	1301	4874	721	**6896**	1236	1.05	3.94	0.58	**5.57**

Table 2. Characteristics of Senegalese tuna vessels in 2005.

Nationality	*Name of vessel*	*License No.*	*Storage*	*Fishing type*	*GRT*	*Gear*	*Length (m)*	*Width (m)*	*Fish holds (m)*	*Engine (hp)*	*Owner*
Senegalese	CDT Biame Thiaw	Dak 1124	Freezer	Pel h	160	BB	30.80	7.15	3.70	1300	Dakar Thon
Senegalese	PDT Magatte Diack	Dak 1123	Freezer	Pel h	160	BB	30.70	7.15	3.70	1150	Dakar Thon
Senegalese	PDT Matar Ndiaye	219	Freezer	Pel h	302.3	BB	32.92	8.52	4.25	900	Sert SA
Senegalese	Ramatoulaye	Dak1141	Freezer	Pel h	288,4	BB	36.75	8.52	3.4	950	Sénégalaise de pêche
Senegalese	Lio 1	Dak1143	Freezer	Pel h	293	BB	39.55	8.2	4.2	815	Tunasen SA
Senegalese	Lio 2	Dak1144	Freezer	Pel h	293	BB	39.55	8.2	4.2	815	Tunasen SA
Senegalese	Robaleira	Dak 1129	Freezer	Pel h	284.6	LL	48.80	8.20	3.60	1320	Viera mar

Table 3. Number of active vessels, 1991 to 2005.

Year	*Baitboat (BB)*	*Longline (LL)*	*Year*	*Baitboat (BB)*	*Longline (LL)*
1991	1	0	1999	4	0
1992	0	0	2000	6	0
1993	1	0	2001	2	0
1994	2	0	2002	2	0
1995	3	0	2003	4	1
1996	2	0	2004	3	1
1997	2	0	2005	6	1
1998	3	0			

Table 4. Monthly landings (t) of tunas and billfishes by the artisanal fishery, 1990 to 2003.

Species	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*
Scomber japonicus	2489	967	1849	1340	1297	2417	1692	2234	1931	1348	2772	1936	8869	11951
Orcynopsis unicolor	16	20	41	29	16	63	60	5	14	24	14	28	6	7
Scomberomorus tritor	1220	520	1225	1019	939	1614	1318	831	521	477	778	408	584	532
Acanthocybium solandri		0	2	64	0	0	1	0	1	5	0	0		7
Euthynnus alletteratus	4184	2955	3137	3913	4238	3560	1972	2732	3371	1396	3336	4969	2659	4400
Sarda sarda	525	597	345	171	814	732	1012	1279	2187	2555	286	545	621	196
Katsuwonus pelamis	5	288	2	0	0	2	1	2	6	2	7	6	287	45
Thunnus obesus		3		9	1	0	0		2	2	0	0	3	5
Auxis thazard	94	4	0	33	10	0	0	0	0	7	0	4	0	13
Thunnus albacares	2	20	23	8	1	1	1	0	1	0	3	0	25	3
Istiophorus albicans	1040	466	860	462	162	167	240	550	257	231	782	953	240	673
Makaira nigricans	1	4	8		9		2	5	0	0		11	24	32
Xiphias gladius	0	6	5	0	1	1	0	0	3	2	242	2	17	2
Total	**9575**	**5850**	**7498**	**7049**	**7487**	**8557**	**6298**	**7638**	**8293**	**6050**	**8220**	**8862**	**13335**	**17865**

Table 5. Breakdown of the number of canoes from 2003 to 2004, by fishing zones.

No. of canoes	*2003*		*2004*	
	With motor	*Without motor*	*With motor*	*Without motor*
Dakar	2378	130	2551	625
Thies	2510	61	1566	876
St. Louis	158	-	173	-
Fatick	1167	211	774	421
Ziguinchor	764	1862	770	1740
Louga	21	119	92	38
Total	**6985**	**2383**	**5926**	**3700**

Long coast = St. Louis-Louga.
Short coast = Thies except Kayar.
Cape Verde = Dakar.
Casamance = Ziguinchor.

Table 6. Catch, effort and catch-per-unit-effort of sailfish from the sport fishery in Dakar, 1996 to 2000.

Year	*Month*	*Effort (in no. of trips)*	*Sailfish*		
			Catches (in number)	*CPUE (in number by trip)*	*Released (in number)*
1999	July	107	245	2,29	128
	August	94	185	1,97	98
	September	48	53	1,10	35
	October	87	107	1,23	57
	November	14	12	0,86	10
	TOTAL	**350**	**602**	**1,72**	**328**
2000	June	36	149	4,14	58
	July	98	198	2,02	59
	August	103	207	2,01	63
	September	53	81	1,53	32
	October	33	71	2,15	36
	TOTAL	**323**	**706**	**2,19**	**248**
2001	June	98	78	0,80	32
	July	89	98	1,10	40
	August	73	111	1,52	33
	September	43	85	1,98	31
	October	72	32	0,44	50
	November	41	82	2,00	30
	December	10	15	1,50	4
	TOTAL	**426**	**501**	**1,18**	**220**
2002	June	15	46	3,07	26
	July	59	136	2,31	57
	August	78	169	2,17	99
	September	40	33	0,83	8
	October	72	97	1,35	22
	November	42	30	0,71	11
	TOTAL	**306**	**511**	1,67	**223**

2003	June	38	70	1,84	40
	July	81	301	3,72	191
	August	83	212	2,55	129
	September	24	25	1,04	3
	October	100	130	1,30	34
	November	37	70	1,89	25
	TOTAL	**363**	**808**	**2,23**	**422**
2004	June	53	72	1,36	25
	July	95	162	1,71	100
	August	76	149	1,96	76
	September	35	62	1,77	17
	October	109	198	1,82	99
	November	19	46	2,42	24
	TOTAL	**387**	**689**	**1,78**	**341**

Table 7. Catches, in number, of sailfishand billfishes caught by the sport fishery from 2000 to 2004 at Dakar (Gorée pier).

Year	*Swordfish*		*Billfish*	
	Landed	*Released*	*Landed*	*Released*
2000	123	360	12	26
2001	151	320	18	32
2002	90	180	11	20
2003	210	520	12	15
2004	108	210	15	21

Table 8. Tonnage landed at canneries, from 1998 to 2005.

Cannery	*1998*	*1999*	*2000*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
SE-SNCDS	18000	2900	3300	3300	8700	9300	10000	6790	26653
PFS	8900	12000	7900	7900	7000	8700	6300	2547	3822
INTERCO	1100	4700	1600	1600	2200	460	-	-	-
Total	**28100**	**19700**	**12800**	**12800**	**17900**	**18460**	**16300**	**9337**	**24475**

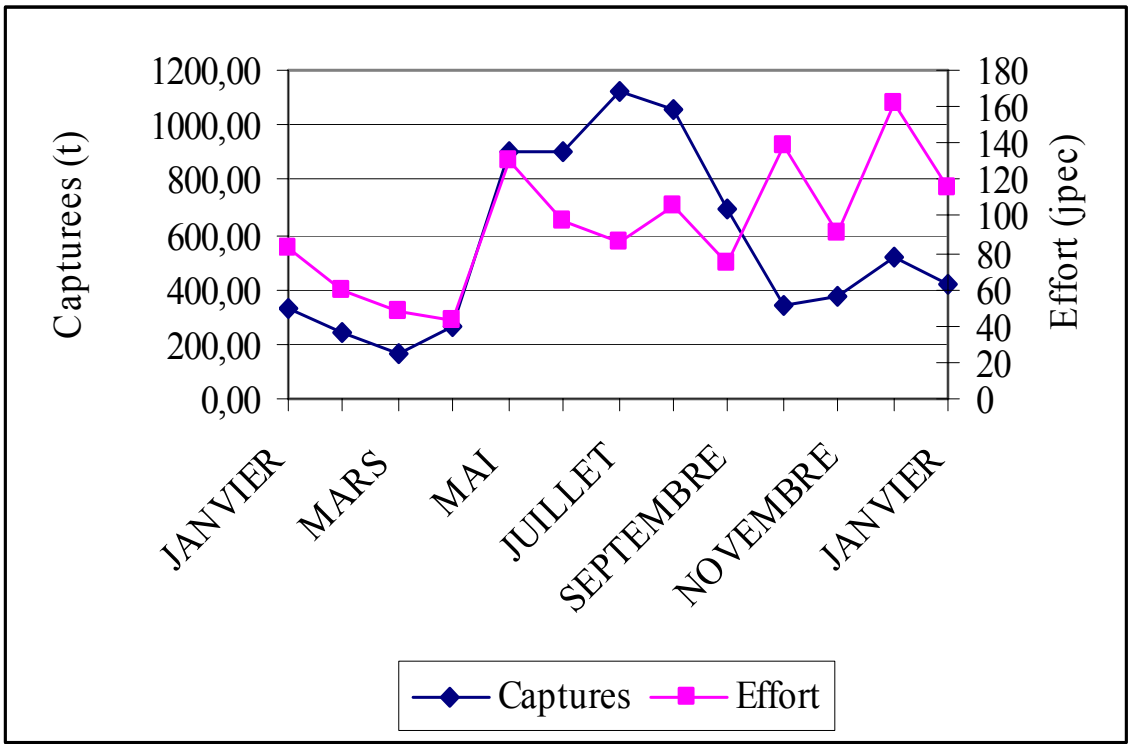

Figure 1. Seasonal variation in Senegalese baitboat catches, based on fishing effort in 2005.

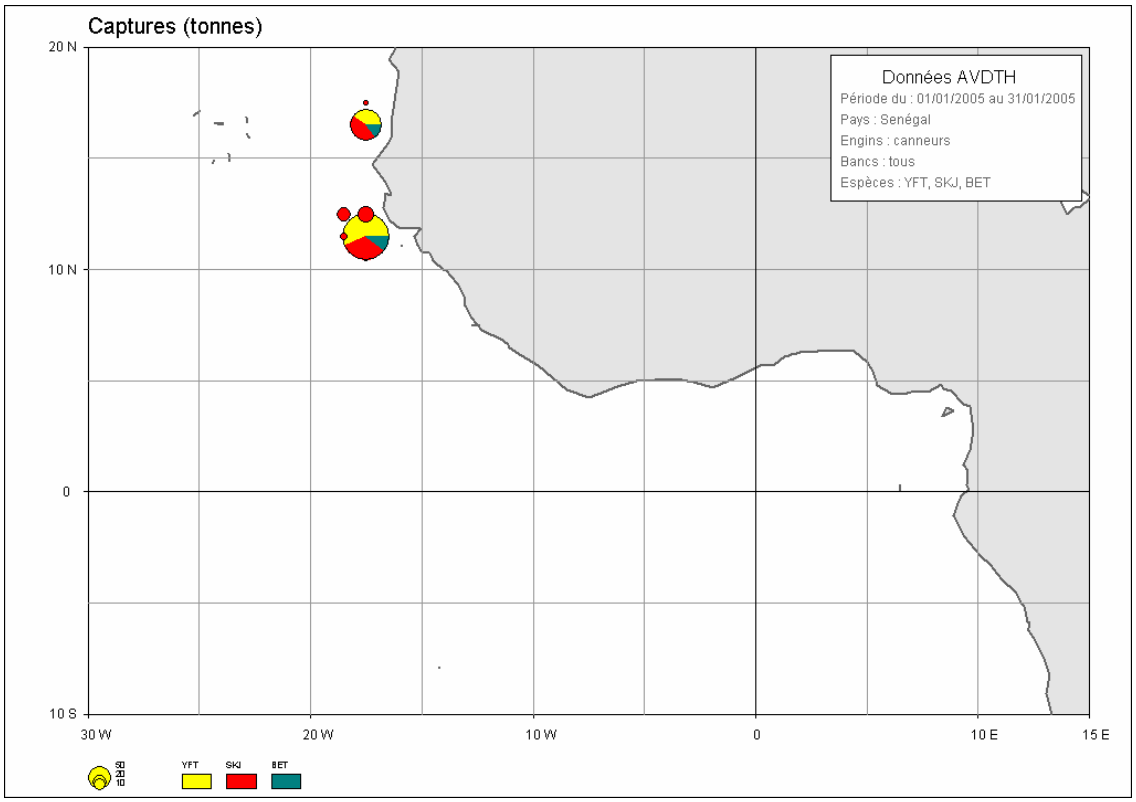

Figure 2. Time-area distribution of Senegalese baitboat catches in 2005.

ANNUAL REPORT OF SOUTH AFRICA[1]

Craig D. Smith[2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

1.1 Poling, rod and reel, and sport fishery

Poling has been used to target juvenile albacore in near-shore waters of South Africa since the 1970s. The fishery generally operates between September and May along the west coast of South Africa. The bulk of albacore, including those caught by longline vessels, are exported for canning. Although annual albacore landings have fluctuated around 55,000 t round weight there has been a decreasing trend since 1998. Annual fluctuations in catch appear to be strongly influenced by foreign exchange rates and the availability of albacore in inshore waters. The number of active vessels in this fishery decreased by 19% from 116 vessels in 2004 to 94 in 2005, which resulted in a decrease in fishing effort from 3,370 sea days in 2004 to 2,844 sea days in 2005 **(Table 1**). Reported catches (round weight) remained similar to 2004 at 2,856 t. The total catch is the lowest on record and is an indication of poor availability of albacore in inshore waters in 2005, particularly in the first half of the year. Nominal CPUE was 1,004 kg/day^{-1} and improved by 15% compared with that of 2004 and is likely due to improved reporting in preparation for long-term right allocations. The poling fleet also reported 300 t of yellowfin, 1 t of bigeye, and further 407 t of unspecified tuna of which 92% is most likely albacore. Mean albacore FL decreased from 85.0 cm in 2004 to 75.7 cm in 2005 **(Figure 1)**, and is the lowest annual average on record.

The rod and reel component of the poling fishery continued to develop in response to the high abundance of large (> 40 kg) yellowfin in inshore waters of southern South Africa since 2003. The number of rod and reel vessels reporting catches increased from 16 in 2004 to 25 in 2005. Total reported yellowfin catch (dressed weight) increased from 218 t in 2004 to 543 t in 2005, largely as a result of increasing effort (357 sea days in 2004 compared with 866 in 2005; **Table 1**). Nominal yellowfin CPUE was 627 kg.day^{-1} and was similar to that of 2004. The total reported albacore catch (dressed weight) for rod and reel vessels also increased (288 t; **Table 1**), but the nominal CPUE declined from 563 kg.day^{-1} in 2004 to 332 kg.day^{-1}, possibly due to increased targeting of yellowfin. There were no reported catches of tuna with handline for 2005.

The sport fishery also operates in the vicinity of Cape Town and targets albacore and yellowfin using rod and reel from small fishing vessels (5-8 m). Although not quantified, catch and effort in the sport fishery in 2005 was likely to be high, particularly due to the high abundance of yellowfin in the coastal waters of the southern Cape.

1.2 Tuna/swordfish longline fishery

The long-term (10 year) rights allocation process for tuna/swordfish longline fishing sectors that was initiated in 2004 was concluded in March 2005. Seventeen (of 20) swordfish-directed rights were allocated and 26 (of 30) tuna-directed rights were allocated. Due to unfavorable foreign currency exchange rates, and high fuel and freighting costs, only eight swordfish-directed and 12 tuna-directed vessels were active in 2005. The tuna-directed vessels were operated under foreign charter, with ten vessels from South Korea and two from the Philippines. The highest catch (dressed weight) for the longline fleet was reported in 2005 with > 3,500 t landed **(Figure 2)**. However, as South Africa straddles the Atlantic and Indian Oceans and better catch rates were obtained in the Indian Ocean most of the fishing effort in 2005 (82%) was conducted in the Indian Ocean. As a result only a small catch was reported from the Atlantic Ocean.

Total reported effort decreased by 15% from 816,000 hooks in 2004 to 688,000 hooks in 2005 **(Table 1)**. The yellowfin catch increased by more than ten-fold from 15 t in 2004 to 168 t in 2005. Bigeye, albacore and blue shark reported catches remained similar to the previous year at 194 t, 55 t, and 43 t, respectively. Swordfish catches declined from 210 t in 2004 to 141 t in 2005. Shortfin mako sharks catches also declined from 28 t in 2004 to 7 t in 2005 **(Table 1)**. Substantial changes in nominal CPUE occurred for yellowfin and swordfish. Yellowfin CPUE increased from 22 kg/1000 hooks^{-1} in 2004 to 244 kg/1000 hooks^{-1} in 2005. Nominal CPUE for swordfish declined from 305 kg/1000 hooks^{-1} in 2004 to 205 kg/1000 hooks^{-1} in 2005. Comparisons of nominal

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CPUE are difficult, as fleet characteristics have changed annually since the start of the fishery. However, there is concern with regard to swordfish, as catch rates have continually declined since the start of the fishery in 1997 **(Figure 3)**.

Size frequency distributions are presented for swordfish **(Figure 4)**, bigeye **(Figure 5)**, and yellowfin tuna **(Figure 6)**. The mean lengths were 169.7 cm LJFL for swordfish, 139 cm FL for bigeye, and 141 cm FL for yellowfin. In comparison to the previous year, mean lengths were similar for yellowfin and bigeye tuna. Although swordfish mean length decreased in comparison with that of 2004 it was still similar to that of previous years.

1.3 Shark longline fishery

The shark longline fishery comprised two distinct components, namely a demersal shark longline and a pelagic shark longline component. The demersal shark longline component mainly targets soupfin and hound sharks in shallow coastal waters, whereas the pelagic shark longline component mainly targets mako and blue sharks offshore in the open ocean. Of the 23 shark longline rights allocated in 2002, only nine vessels were actively targeting pelagic sharks in 2005.

Although fishing effort increased in the Atlantic Ocean from 91 000 hooks in 2004 to 120 000 hooks in 2005 the bulk of the fishing effort was still concentrated in the Indian Ocean. Catches (dressed weight) of mako and blue shark increased to 102 t and 75 t, respectively, in 2005 **(Table 1)**. Nominal CPUE increased for blue sharks (625 kg/1000 hooks^{-1}), but decreased for makos (850 kg/1000 hooks^{-1}). Given the global concern regarding the stock status of pelagic sharks the Department of Environmental Affairs and Tourism (hereafter referred to as the Department) adopted the "Precautionary Approach" in developing South Africa's tuna and swordfish longline fishing sectors, i.e., the Department agreed not to issue any further fishing rights for pelagic sharks. Pelagic sharks will in future be managed solely as a by-catch in the tuna and swordfish fishing sectors.

Section 2: Research and Statistics

2.1 Poling, rod and reel, and sport fishery

Skippers in the poling fishery have been required to complete daily logs of catches since 1985. Daily logs indicate quantity of catch by species by area. Reporting is a problem in this fishery with as much as 35% of catches not being reported in some years. Customs and Excise records are generally a more reliable estimate of total albacore landed as almost all albacore is frozen whole and exported (with the exception for 2005 when reported catch exceeded exported figures; **Table 2**). The problem with export figures is that it reflects the total albacore landed by all South African fishing sectors. This problem is minimized by subtracting known albacore catches of the longline and rod and reel fishing sectors from the export figure to obtain a more accurate estimate of total albacore landed by the poling fishing sector. Like the poling fleet, the rod and reel fleet is also required to complete daily logs of catches. Reporting of catches is better than that of the poling fleet and coverage is estimated at >90%. There is no coverage of by-catch or discarded catches, but these are expected to be low given the fishing techniques used. There was no statistical system in place to record sport catch and effort.

Routine port sampling trips are undertaken to obtain length frequencies of albacore landed by the poling fleet. Port sampling was increased from three trips in 2004 to seven trips in 2005, with 1,182 albacore measured. Currently there is no port sampling for rod and reel and sport fishing sectors.

2.2 Tuna/swordfish longline fishery

Skippers in the tuna/swordfish longline fishery have been required to complete daily logs of catches since 1997. The US trade statistics provides a useful means of verifying reporting levels of the longline fishery as most of South Africa's swordfish is exported to the United States of America. After 2001 the comparison between reported catch statistics and U.S. trade statistics were very similar, indicating good reporting for this sector in recent years **(Table 3)**. Reporting is considered to cover more than 90% of all swordfish, yellowfin and bigeye catches made by this sector.

Since 1998, South Africa has implemented an on board observer program for the longline fishery. This program was developed to monitor changes in fishing techniques, assess compliance with permit conditions, validate CPUEs, provide swordfish biological material and length frequencies of target and by-catch species, and to determine discard levels. The intended observer coverage was 20% of all domestic fishing trips and 100% of all

foreign charter fishing trips. Fifteen percent (15%) observer coverage of 75 domestic trips and 80% of 28 foreign charter trips were achieved in 2005. The increase in observer coverage greatly increased the sample size of fish measured. The observer program also indicated that the longline fishery, in general, grossly under-reports albacore and all by-catch species, including escolar, oilfish, dorado, birds, turtles, and sharks. Finning of sharks, particularly blue shark, has decreased substantially with only a few incidental reports. Although live and dead discards are recorded these are not reported to ICCAT as the official reporting form only makes provision for weights, which is not possible to obtain when dealing with live releases and mauled fish. Through the observer program it was estimated that 1.6% of swordfish caught were under the legal size limit of 119 cm LJFL, which amounts to 1,050 kg of undersize swordfish caught in total in the Atlantic Ocean.

2.3 Shark longline fishery

Permit holders in the shark longline fishery are also required to complete daily logs of catches. Levels of reporting have improved to above 85% as permit holders have tried to benchmark catch performance. Determining the effort in this fishery is problematic as the vessels are permitted to target pelagic and demersal sharks. No size frequencies have been collected from this fishery and neither has any observers been placed on any of these vessels.

2.4 Research

The main focus of large pelagic research in South Africa has been on the life history and stock structure of swordfish in southern African waters. The observer program has been used extensively since 1998 to collect swordfish length frequencies and biological material for age and growth studies, sexing, maturity staging and dietary studies. Sampling is completed with over 2,500 biological samples processed. A further 1,500 tissue samples were collected for genetic studies to better understand the mixing dynamics of swordfish in the boundary region between the Atlantic and Indian Oceans. A pilot tagging program for swordfish, bigeye and yellowfin, using commercial longliners as a tagging platform, was started in 2004. Approximately 300 large pelagics were tagged with one swordfish recapture in the Indian Ocean.

Over 500 dorsal spines of albacore have been collected in 2005, from both the poling and longline fishery, in an attempt to provide age and growth parameters for the southern Atlantic albacore stock assessment to be conducted in 2007.

The Department is also collaborating with WWF and Birdlife SA to assess the impact of longline fisheries on seabirds, turtles and sharks and to investigate various mitigation measures.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

3.1 Closed seasons

[Rec. 96-02], [Rec. 98-07], [Rec. 02-08]: South Africa does not catch bluefin tuna (*Thunnus thynnus thynnus*); hence these management measures are not applicable.

3.2 Data and minimum size

[Rec. 96-14]: Not applicable to South Africa.

[Rec. 97-01]: With the new reduced swordfish size adopted in 2005, undersize swordfish (< 119 cm FL or < 18 kg dressed weight) are confiscated by Fishery Control Officers/Monitors who are required to monitor all discharges of longline vessels fishing on a South African permit.

[Rec. 98-14]: South Atlantic swordfish catches are presented in the ICCAT Reporting Table **(Table 4)**.

[Rec. 01-16]: Task I and II data were submitted to ICCAT on 25 August 2005. The reporting tables for South Atlantic swordfish are included in the ICCAT Annual Report. No revisions of historical data were conducted this year.

[Rec. 03-13]: All tuna pole/rod and reel, tuna/swordfish/shark longline vessels are required to complete a daily log of all fishing activity and meet the standards described in the ICCAT *Field Manual*.

[Rec. 04-08]: Not applicable to South Africa.

Others: All fishing sectors targeting large pelagic species, except for the sport sector, are 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 weight limits for bigeye tuna (3.2 kg), bluefin tuna (6.4 kg), yellowfin tuna (3.2 kg). The swordfish minimum size limits of 125 cm LJFL and a weight of 25 kg were reduced to 119 cm LJFL and a weight of 18 kg in order to minimize dumping at sea. An estimate of the total amount of undersize swordfish caught is reported in the Compliance form.

3.3 Capacity limits

[Rec. 93-04]: South Africa is a developing country, which only started commercial longlining in 1997, and cannot restrict its effort on yellowfin to that of 1992. Furthermore, yellowfin caught in the vicinity of Cape Town are likely to be of Indian Ocean origin.

[Rec. 04-01]: South Africa does not have dedicated bigeye tuna vessels. Rather, bigeye tuna are caught together with yellowfin and swordfish. Nonetheless, South Africa is exempted from this Recommendation, as it is a developing country with a reported bigeye catch in 1999 less than 2,100 t.

3.4 Statistical documents

[Res. 94-05]: South Africa neither imports nor exports bluefin tuna; hence, this Resolution is not applicable.

[Rec. 01-21]: Bigeye tuna statistical documents have been issued since 2003.

[Rec. 01-22]: Swordfish statistical documents have been issued since 2003.

3.5 Other measures relating to individual species

[Rec. 96-09]: Billfishes (excluding swordfish) and sharks are designated as by-catch species in the tuna/swordfish longline fishing sectors and are limited to a combined maximum of 10% of the total tuna and swordfish catch by weight. Longline skippers are also encouraged to release live billfishes.

[Rec. 97-09]: Longline skippers are encouraged to release live billfishes, including blue and white marlins. Less than 1 t of marlins was landed in 2005.

[Rec. 01-11]: South Africa annually reports catch and effort data for mako and blue sharks. Annual length frequencies are also provided. To limit the tuna/swordfish longline fishery impact on sharks permit holders are only allowed a 10% by-catch of sharks by weight. Finning is banned, and skippers are required to land shark trunks and fins simultaneously, with fins not allowed to exceed 8% of trunk weight. Furthermore, in expanding the tuna longline fishery the Department has taken a decision to terminate pelagic shark targeting so that shark catches are adequately controlled.

[Rec. 02-03]: South Africa has not exceeded her swordfish catch limit of 1,070 t for 2005. Only 185.5 t landed.

[Rec. 02-14]: Various bird mitigation measures have been included as permit conditions, such as:

- All longliners are required to deploy a tori line when setting.
- No bright lights are to be used when setting at night.
- Baits are required to be properly defrosted to ensure faster sinking rates.
- Bait and offal are not to be dumped on the same side as hauling.

In addition, scientific observers also collect data on bird mortality rates and provide dead specimens for identification. Awareness programs have been held to educate permit holders/ skippers of detrimental impact longliners have on seabird populations. To encourage responsible fishing permit holders have been given bird posters so as to be able to identify the common species occurring in Southern African waters. In addition, WWF and Birdlife SA have also provided vessels with tori lines and given instructions on how to use them.

3.6 Trade sanctions

[Rec. 02-17], [Rec. 03-18]: South Africa does not import bigeye tuna from Bolivia and Georgia.

3.7 VMS

[Rec. 03-14], [Rec. 04-11]: Any pole, rod and reel, tuna/swordfish/shark vessel, irrespective of size, is required to have a functional VMS (as approved by the Department) in place before a vessel is permitted to embark on any fishing trip.

3.8 General

[Rec. 97-10] (para. 7): Thus far vessels fishing on a South African permit have only discharged in South African ports. However, provisions are made in the permit conditions that if a vessel discharges in another country the permit holder is required to arrange for a South African Fishery Control Officer to monitor the discharge.

[Rec. 99-07]: 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. No statistical system is in place to quantify catches made by the recreational fishery.

[Rec. 01-18]: South Africa does not allow IUU vessels to enter its ports to discharge. In addition, transhipments at sea are not permitted.

[Rec. 02-21]: South Africa is in the process of developing its fishing capacity and as such has chartered 10 vessels from South Korea and two vessels from Philippines in 2005. These vessels were under the control of South African regulations and permit conditions. All vessels were equipped with VMS and were required to take an observer on board on all fishing trips. No transshipments were permitted at sea.

[Rec. 02-22]: All required details of vessels participating in South Africa's tuna/swordfish longline fishing sectors have been submitted to ICCAT.

[Rec. 03-12]: Commercial tuna fishing vessels are authorized by the Department to fish for tuna by means of a permit. The original permit is required to be on board the vessel on all fishing trips. Fishing vessel call signs and names also have to be marked in a specific manner.

[Rec. 05-06] (Annex 3, para 6): South Africa does not permit transhipments at sea; hence, this Recommendation is not applicable.

Section 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 vessel discharges and transshipments. Vessels participating in the South African tuna/swordfish longline and tuna pole fishing sectors are required to notify the local Fishery Control Officer prior to landing. All domestic longline discharges are required to be monitored and inspected by South African authorities. The Statistical Document Program for swordfish, bigeye tuna and southern bluefin tuna was implemented in 2003.

Section 5: Other Activities

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

Table 1. Nominal catch and effort data for the most important species landed by large pelagic fishing sectors in 2004 and 2005.

Fishing sector	*Total reported effort 2004*	*Total reported effort 2005*	*Reported catch by species per year, in dressed weight, except for ALB and poling catches*											
			ALB 2004	*ALB 2005*	*SWO 2004*	*SWO 2005*	*YFT 2004*	*YFT 2005*	*BET 2004*	*BET 2005*	*BSH 04*	*BSH 05*	*SMA 04*	*SMA 05*
Poling	3,370 sea days	2,844 sea days	2873	2856	0	0	140	300	49	1	0	0	0	0
Rod and reel	357 sea days	866 sea days	201	288	0	0	218	543	0	1	0	0	0	0
Handline	92 sea days		96		0		6		0		0		0	
Sport	Unavailable	Unavailable												
Tuna/Swo LL	816,340 hooks	688,839 hooks	52	55	210	141	15	168	196	194	55	43	28	7
Shark longline	91,562 hooks	120,070 hooks	0	0	0.2	2	5	13	0.1	0	43	75	82	102
		TOTAL	**3222**	**3199**	**210.2**	**143**	**384**	**1024**	**245.1**	**196**	**98**	**118**	**110**	**109**

Table 2. Annual albacore landings (t) estimated from baitboat logbooks and customs and excise data, 1985-2005.

Year	*Logbooks*	*Exported*
1985	6697	
1986	5930	
1987	7275	
1988	6570	
1989	6890	
1990	5280	
1991	3410	
1992	6360	
1993	6743	6881
1994	5268	6931
1995	4246	5213
1996	2856	5635
1997		6708
1998		8412
1999		5101
2000		3610
2001		7236
2002		6507
2003		3470
2004	3170	4561
2005	3144	2685

Table 3. Comparison of reported South Afraican swordfish catches (t) vs. U.S. import statistics from South Africa (as reflected by U.S. trade statistics).

Year	*Reported catch*	*U.S. import stats.*
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
2003	807.9	807.9
2004	424	434.2
2005	317	301.1

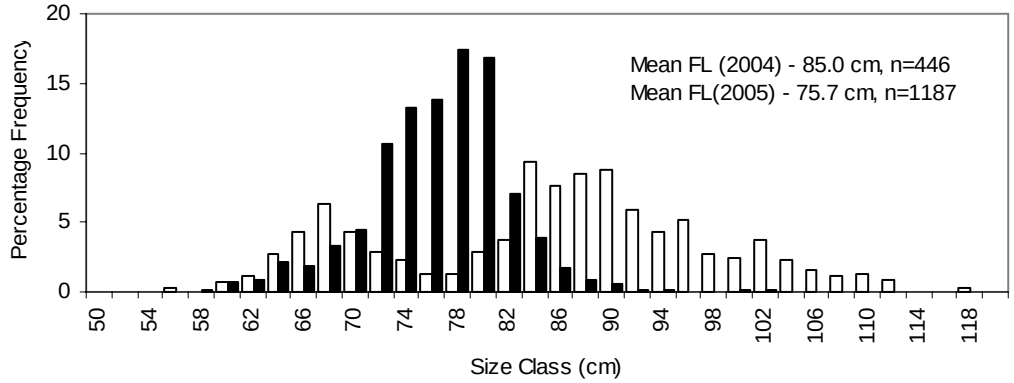

Figure 1. Albacore size frequency for South African poling fleet in the Atlantic Ocean in 2005 (light bars) and 2005 (dark bars).

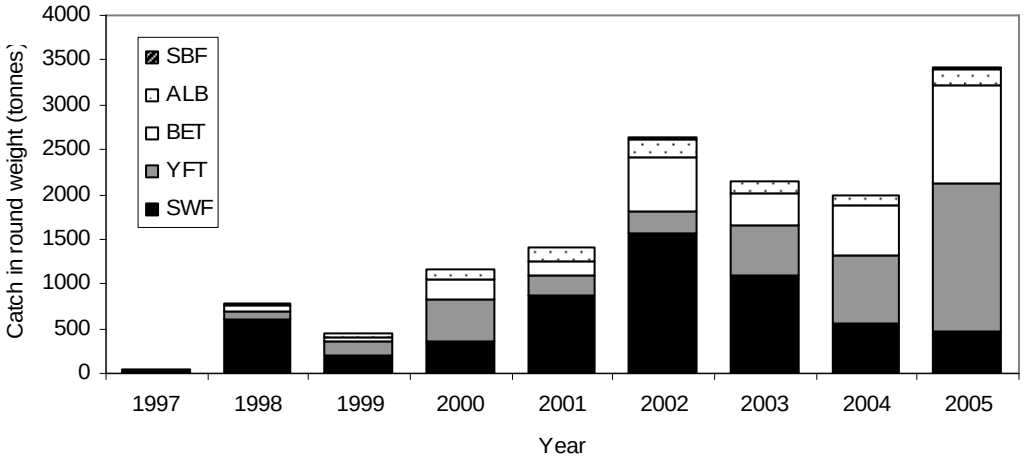

Figure 2. Total reported catch of primary species or South African tuna/swordfish longline fishing sectors in the Atlantic and Indian Oceans since 1997.

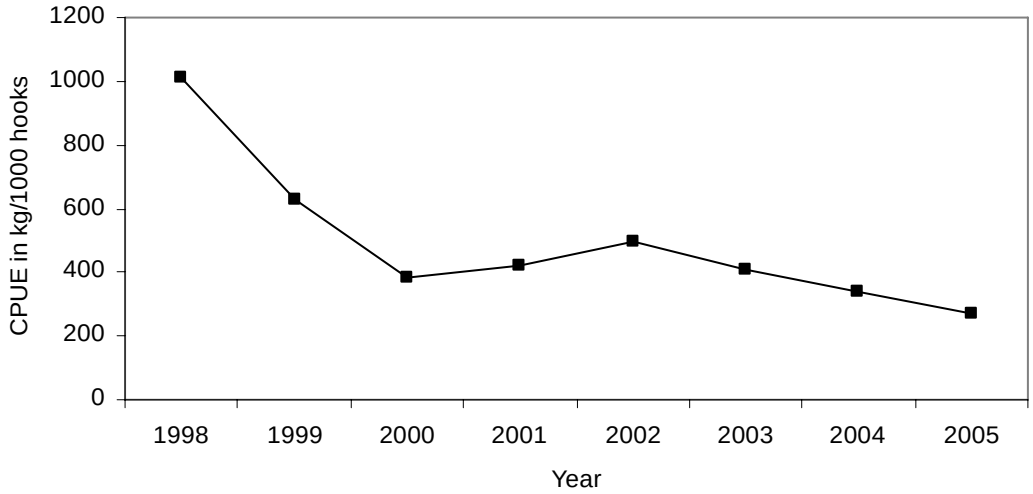

Figure 3. Swordfish CPUE for the South African longline fishery in the Atlantic Ocean from 1998-2005.

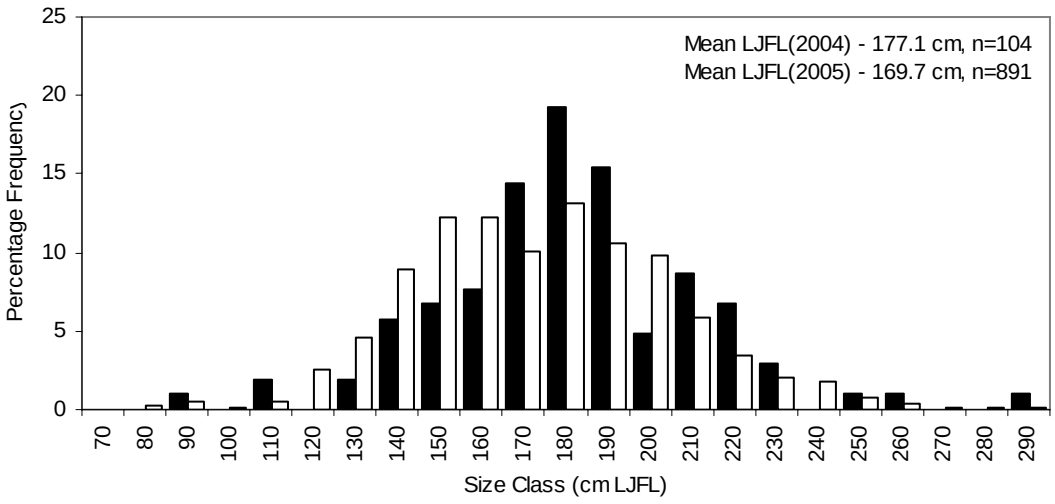

Figure 4. Swordfish length frequency in the Atlantic Ocean in 2004 (light bars) and 2005 (dark bark) for the South African longline fishery.

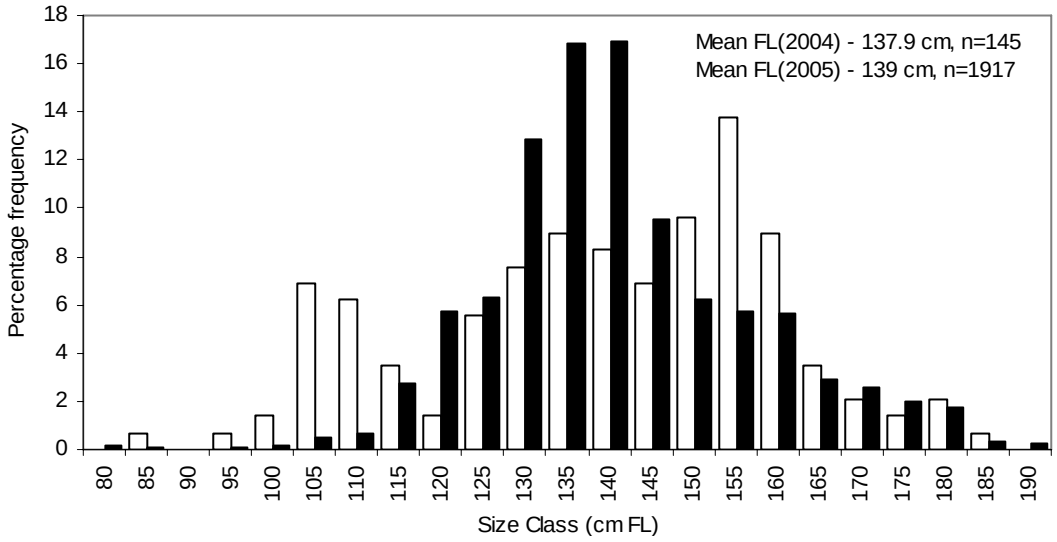

Figure 5. Bigeye size frequency for the South African longline fishery in the Atlantic Ocean in 2004 (light bars) and 2005 (dark bars).

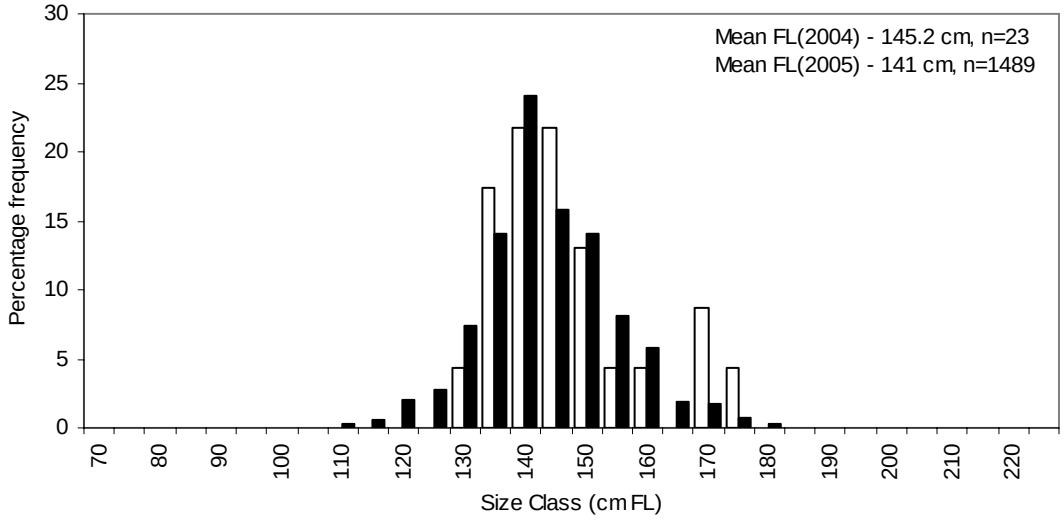

Figure 6. Yellowfin size frequency for South African longline fishery in the Atlantic Ocean in 2004 (light bars) and 2005 (dark bars).

ANNUAL REPORT OF TRINIDAD AND TOBAGO[1]

Louanna Martin[2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

An estimated 5,597 t of tuna and tuna-like species and sharks are reported for the year 2005 for the Republic of Trinidad and Tobago. The catch is estimated from the landings of commercial vessels and three of five major game fishing tournaments held. In the catch of tunas, bonitos, billfishes, Spanish mackerels and sharks, notable quantities of serra Spanish mackerel (*Scomberomorus brasiliensis*), king mackerel (*S. cavalla*), yellowfin tuna (*Thunnus albacares*), smooth-hound shark (*Mustelus* spp.), and swordfish (*Xiphias gladius*) (listed here in descending order of estimated catch) were harvested. There are also notable catches of mixed species of shark and mixed species of tuna which could not be disaggregated (see **Tables 1 and 2**).

The national fishing effort remains stable, coming mainly from just over 1400 artisanal vessels (less than 9 m in length, outboard engines averaging 60 Hp) from which a wide variety of net and hook and line gears are deployed on day trips. The national fleet also includes around 50 semi-industrial vessels (14-23 m in length): 14 longline and approximately 36 multi-gear (gillnets, fish pots, troll lines, live bait handlines, other handlines).

Section 2: Research and Statistics

Trinidad and Tobago is cognizant of the gaps that exist in its data collection programs and is committed to improving the quality of its catch and effort data. In this regard a preliminary reconstruction of Trinidad and Tobago catches for the period 1908-2002 has been completed and initial attempts have been made to improve recent artisanal fishery statistics (1995-2005). Updated Trinidad and Tobago catch statistics will be presented to ICCAT upon reconciliation of the information from these exercises and any other available information. Further we reiterate our intension to present information to ICCAT to facilitate the application of a more appropriate breakdown of our reported billfish catches in order to update the Task I and compliance tables.

At the 2nd Annual Scientific Meeting of the Caribbean Regional Fisheries Mechanism (CRFM) held in March 2006, Trinidad and Tobago attempted a stock assessment of an assumed 'southern Caribbean' stock of king mackerel *(Scomberomorus cavalla)*. The assessment, which was based on length frequency data collected in Trinidad and Tobago between 1996 and 1998, and in 2004, provided two sets of growth models that provided equally good fits to the data set. Both models suggest that the fishery is operating well above the reference point $F_{20\%SPR}$, however, due to the small length frequency sample size available in 2004 and a high level of uncertainty in the analysis, the study concluded that new length data should be collected urgently to clarify the current position of the fishery. Length frequency data collection for king mackerel was resumed in July 2006 with the intension of updating the assessment in 2007.

Trinidad and Tobago also participated in the second meeting of the CRFM Ad Hoc Working Group on Methods, held in June 2006. As previously mentioned, the Working Group aims to review fisheries assessment methods that are suitable for application to Caribbean fisheries and on that basis to develop, test and recommend assessment tools and methods which could be better applied to the types and quality of data collected by CRFM countries.

[1] Original report in English.

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Table 1. Trinidad and Tobago reported catches (t) of Atlantic tuna and tuna-like species and sharks in 2005.

	Tunas and bonitos	*Spanish mackerels*	*Billfish*	*Shark*	*Totals*
Longline (TRI)[1]	314	0.3	112	27	453
Artisanal and semi-industrial multi-gear (TRI)	560	3467	7	1097	5130
Sport fishing tournaments (TRI)	0.1	2	0.2	0[2]	2
Artisanal and semi-industrial multi-gear (TOB[3])[4]	6	4	0	0.3	11
Totals	880	3473	119	1124	5597

Tunas and bonitos = Catches of YFT, ALB, BET, BLF, BON, TUN.
Mackerel = Catches of WAH, KGM, BRS.
Billfish = Catches of SAI, BLM, BUM, WHM, SWO, BIL.

[1] TRI refers to 'Trinidad' and signifies that data are captured under the data collection system based in Trinidad.
[2]'0' indicates that catches were less than 0.05 metric tons.
[3]'TOB refers to 'Tobago' and signifies that data are captured under the data collection system based in Tobago.
[4]Unraised data; sample data only.

Table 2. Trinidad and Tobago reported catches (t) of Atlantic tuna and tuna-like species and sharks for the year 2005 by species.

Tuna and tuna-like species	*Longline (TRI)*	*Artisanal and semi-industrial multi-gear (TRI)*	*Sport fishing tournaments (TRI)*	*Artisanal and semi-industrial multi-gear (TOB)*
Yellowfin tuna YFT	295		0.07	
Albacore ALB	9			
Bigeye tuna BET	9			
Blackfin tuna BLF	0		0	5
Atlantic bonito BON		79		1
Wahoo WAH	0.3		2	3
King mackerel KGM	0	747	0.09	0.4
Sailfish SAI	9			0
Black marlin BLM	0.3			
Blue marlin BUM	5		0.2	
White marlin WHM	5			
N. Atlantic Swordfish SWO	91			
Tunas nei TUN	2	480		
Billfish unclassified BIL	3	7		
Serra Spanish mackerel BRS		2720		0.2
Atlantic sharks	*Longline (TRI)*	*Artisanal and semi-industrial multi-gear (TRI)*	*Sport fishing tournaments (TRI)*	*Artisanal and semi-industrial multi-gear (TOB)*
Thresher shark THR	2			
Bull shark CCE		0.6		
Blacktip shark CCL		12		
Shortfin mako SMA	0.8			
Longfin mako LMA	0.3			
Mako shark MAK	1			
Blue shark BSH	0.6			
Tiger shark TIG	0	0.7		
Nurse shark GNC		2		
Smoothhounds SDV		201		
Hammerhead spp SPN		9		
Mixed species of sharks	22	872	0	0.3

ANNUAL REPORT OF TUNISIA[1]

Abdallah Hattour[2]

Part I (Information on Fisheries, Research and Statistics)

The fishing of large pelagics, specifically bluefin tuna and swordfish, in Tunisian waters continues to be monitored within the framework of a contractual research project between the laboratory of living resources of the *Institut National des Sciences et Technologies de la Mer*-INSTPM (National Institute of Science and Technology of the Sea) and the Ministry of Scientific Research on Technology and Development. A research program is defined which takes into account the ICCAT recommendations aimed at improving knowledge on the Mediterranean fisheries, statistics, fishing, and biological and environmental research.

Parallel to the monitoring of the landings of swordfish and small tunas along the Tunisian coasts by the competent authorities of the services concerned from the *Direction Générale de la Pêche et de l'Aquaculture* (General Directorate of Fishing and Aquaculture), particular attention has been given to the farming activities of bluefin tuna. Thus, the fish are towed from the fishing area to the farming area. Programs for size measurements and sampling of the bluefin tuna catches are becoming more difficult to carry out.

Improved knowledge should contribute inevitably to a common and standardized methodology, to the realization of assessments of the major species and this in turn to better management of their resources, particularly in the Mediterranean.

Section 1: Annual Fisheries Information

The large pelagics are among the most important species of the Tunisian coast. They occupy an important place in the economy and have a high market value and constitute a preferential product for the export market.

In Tunisia, the fishing gears used to catch these species are mainly purse seine and surface longline. Small tunas can be taken as accessory catch with nets, lights and by pelagic trawl. The traps, which constituted the major gear for catching bluefin tuna and small tunas, have been relegated to the last place, and have been abandoned since 2003.

1.1 Fishing zones and fishing seasons

In Tunisia, bluefin tuna are caught mainly by purse seiners, especially in the area bordering Libya, from April to June. In recent years, these vessels compete with French, Spanish and Italian fishers. This fishing area is currently under control of the Libyan authorities, since the Libyan government has decreed the waters of Hakl El Bouri a fishing protected area (72 miles from the Libyan coast). In effect, since the early 1980s, a unique activity has been established affecting the tuna activity of the seiners. These vessels operate from October to March along the Gulf of Gabès and close to the Tunisian-Libyan border, where they catch tunas whose average size varies from 25 to 70 kg, destined exclusively for export. They are then active from May until the end of June following the movement of the spawners where they realize the highest catches. All the catches made are destined for the fish farms that have been active since 2003. The weight of these fish varies from 50 to more than 250 kg.

As concerns swordfish, fishing for this species continues to be carried out all along the Tunisian coast. Small tunas, which have become a secondary target for the purse seiners, are also caught all along the Tunisian coast. The ports of Tabarka, Bizerte, Kélibia, Mahdia and Sfax comprise the major landing ports for these species.

Since 2003, a type of bluefin tuna aquaculture in fish farms, strictly dependent on fishing, has been installed **(Figure 1)**. This activity is highly dependent on the availability of the natural resource of bluefin tuna (purse seine catches) and on the level of demand of this foodstuff by the consuming country(ies).

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The operation of the Tunisian is based on the stocking and fattening of the fish in the cages prior to their sale during the periods of the peaks in production (genetic concentrations) which are generally from November to December. The tunas are transferred from the purse seiners to a specially made transport cage that is towed slowly (1-2 N) to the farm where they are then transferred to the floating cages.

It should be noted here that although this is valid for all the Mediterranean purse seiners, efforts are made to carry out studies or develop an organization whose objective is to increase the catches of the bluefin tuna destined for fattening (working groups, units setup in the fishing area, fishing, common service units, etc.). Evidently, this requirement is going to increase fishing on a stock which is largely over-exploited in spite of the quotas imposed by ICCAT on the countries catching this species.

1.2 The fishing fleet

1.2.1 Longliners

Swordfish fishing has developed considerably in recent years, with a hundred vessels fishing in Tunisian waters. Indeed, many fishing gears contribute to the landings of swordfish (light fishing, net fishing, pelagic trawl, etc.), but the major part comes from longliners whose number of vessels has nearly doubled in the last two years. Many artisanal boats (not officially counted among the vessels targeting swordfish) carry out this activity during the period when these fish aggregate. Fishing effort which was concentrated off the north coast of Tunisia is currently distributed all along the Tunisian coast.

1.2.2 Tuna vessels

In 2005, 53 tuna purse seiners fished tunas along the Tunisian coast. These purse seiners, whose wooden hulls mostly measure between 15 and 38 meters in overall length, have a capacity of 17.98 to 298 tons; diesel engine power varies from 110 to 999 Hp.

The purse seine landings of bluefin tuna currently comprise 97% of the national catches.

1.2.3 Traps

In 2003, only three traps, privately owned, were in operation (Sidi Daoud, Ras Lahmar, and El Haouaria). In 2004, only one trap (Sidi Daoud) operated, with considerable delay on the part of owner. In 2005, none of these traps were set. This fishing is now more present in the collective memory than in practice, following the development of the industrial fishery and the general decline in the fish stocks, due essentially to over-exploitation.

1.3 The catches

1.3.1 Large pelagics

There has been a general increasing trend in the catches of large pelagics since 2001. Since then, the trend has reversed, which is probably due to the shift towards bluefin tuna fishing, which is more profitable than that for small tunas. The catches for 2004 and 2005 are similar to those in 2000 **(Table 1, Figure 2)**.

1.3.2 Swordfish

Catches of this species, which had continued to increase over the years, showed a marked decline in 2003, from about 1,150 t in 2002 to less than 300 t in 2003. Landings then improved and surpassed 1000 t in 2005 **(Table 1, Figure 3)**. Peak landings are obtained during the months from May to September, mainly by the surface longliners.

1.3.3 Bluefin tuna

Landings of bluefin tuna in 2005 were considerably improved over those of previous years. It is noted that the national catch was only 791 t in 2003. The spectacular decline in the catch has been attributed to adverse weather conditions during the month of June when more than 75% of the national landings of this species take place **(Table 1, Figure 4)**. Almost all the bluefin tuna catch is taken by purse seiners which, since 2003, supply the fish farms **(Table 2)**.

1.3.4 Small tunas

Small tuna catches represent important wealth for the country. Furthermore, considering that they represent an important component of the national catches of large pelagics (40 to 70%), these species also contribute effectively to the food supply of the Tunisian population, which appreciates these species for their fair value. It should also be noted that Atlantic black skipjack continue to be in high demand for the industries that can this species.

The following four species are found all year long in the venders' stalls: Atlantic black skipjack (*Euthynnus alletteratus*), Atlantic bonito (*Sarda sarda*), bullet tuna (*Auxis rochei*), and plain bonito (*Orcynopsis unicolor*), which is becoming more and more scarce.

The national catches in recent years are shown in **Table 1** and their development is given in **Figure 5**. The landings of small tunas, by species, are shown in **Table 3**, which clearly show the considerable confusion in the catch reports of the services concerned.

Section 2: Research and Statistics

2.1 Biological parameters

Following the recommendations made during the *Ad Hoc* Joint CGPM/ICCAT Meeting concerning research on large pelagics, a research plan was developed to carry out an annual standardized study on the biological parameters of the most important large pelagic species (bluefin tuna and swordfish) and thus effectively contribute to the assessment work carried out by the ICCAT SCRS working groups.

These parameters concern the size distribution by species, gear and time/area strata, size-weight relationship, reproduction by histological analysis of bluefin tuna and swordfish gonads, and growth studies which result in the development of size-age-weight keys for bluefin tuna as well as swordfish, obtained from spine rings.

The conclusions of the research work in 2005 and previous years were transmitted to the competent authorities and were the subject of the following scientific papers:

- A Master's thesis on the biology of swordfish
- Two end of project studies, one on the bluefin tuna farming activity and the other on the delimitation of bluefin tuna spawning areas.
- Two publications in the in the INSTM Bulletin:

  - 2005: Etude préliminaire de l'estimation de l'âge de l'espadon (*Xiphias gladius*, L.) des eaux tunisiennes. Hattour A. et M.A. Ben Smida *Bull. Inst. Natn. Scien. Techn. De Salammbô, Vol., 2005.*
  - 2005: Préservation de la spécificité d'une ancienne technique de pêche: La madrague tunisienne de Sidi Daoud et sa production de thon rouge (*Thunnus thynnus*, Linnaeus, 1758). Hattour A. *Bull. Inst. Natn. Scien. Techn. De Salammbô, Vol., 2005.*

2.2 Farming activities

The bluefin fattening activity in the Tunisian fish farms has gained importance. In effect, the total amount in the four fish farms went from 1,485 t in 2004 to more than 2,390 t in 2005.

During the course of the 2005 season, the total mass and the number of fish in one of the four fish farms are higher than that in 2004. It should also be noted that the population breakdowns are quite different. The average weights of the fattened fish went from 59 kg in 2004 to 94 kg in 2005, which could be considered positively considered from the exploitation point of view of this species. Further, the fish weighing less than 60 kg exceeded 53% in 2004, while it was 40% in 2005 **(Table 5)**.

The demographic breakdown of the catches in 2005, from sampling that was carried out at the fishing site, shows the following **(Table 6, Figure 6)**:

- Weight classes less than 60 kg represent about 42% of the catches.
- The size at first sexual maturity of bluefin tuna such as defined by Hattour (2000) corresponds to age 4 individuals, with 42 kg for wild-caught tuna and 58 kg for fattened tuna (Hattour, 2005) **(Figure 7)**.
- These same sizes, taking into account the considerations of the International Commission for the Conservation of Atlantic Tunas, would correspond to age 5 fish, with 66 kg for wild-caught tuna (Hattour, 2000) and 95 kg for fattened tuna (Hattour, 2005a) **(Figure 7)**.
- The fattening farm in question caught between 44 and 48% of the bluefin tuna that had not reached the size at first sexual maturity and consequently has not even spawned once.

The size breakdown of bluefin tuna slaughtered after fattening in the four fish farms is shown in **Table 7** and **Figure 8**.

The two peaks in sizes are between 130-140 cm and 215 cm and correspond, using the size-weight relationship of fattened fish (Hattour, 2005) to 57-72 kg and 300 kg, respectively.

The weighted breakdown of fattened fish in the four fish farms confirms or almost confirms the results of monitoring only one farm. The results are given in **Table 8** and depicted in **Figure 9**.

2.3 Location of bluefin tuna spawning areas

The current research program on the identification of the spawning areas of large pelagics in general and bluefin tuna in particular along the Tunisian coast conforms well with the recommendation of the Standing Committee on Research and Statistics (SCRS) of the International Commission for the Conservation of Atlantic Tuna (ICCAT), urging the scientists of the countries that target this resource to carry out studies on bluefin tuna biology and to analyze the influence of environmental factors on this species. Furthermore, in September 2004, a meeting on larval research took place in Gyrnes (Cyprus) developed a proposal aimed studying small tuna larvae using standardized larval survey methods.

The major bluefin tuna spawning areas in the Mediterranean are located around the Balearic Islands and along the Tyrrhenian coast. In effect, the surveys carried out, particularly by the Spanish scientists in the framework of the TUNIBAL larval survey project, have shown that the largest collection of larvae was in the Balearic Sea, which is clearly associated with the surface temperature (24 to 25ºC). Notwithstanding, we believe that the lack of information from the southern basin of the Mediterranean has simply restricted the spawning area of bluefin tuna to the areas indicated above.

2.3.1Objectives and area of the study

The objective of the study is to:

- Define quantitatively the season or the period of abundance of eggs and larvae of large pelagics in the supposed spawning area by 10 meter bathymetric strata.
- Carry out research on the relation between spawning intensity and environmental factors.
- Estimate the mortality rate of the various larval species, particularly for bluefin tuna and small tunas.

In 2005, larval surveys have been carried out particularly in the Gulf of Gabès, together with some extractions in the Gulf of Hammamet and the Gulf of Tunis. This involves a true campaign carried out to the end of 2004 in the Gulf of Tunis and which has resulted in our becoming familiar with a more appropriate technique to better carry out our research **(Figure 10)**.

2.3.2 Results

Because of the severe weather conditions during the period of the research and the limited time of the trip, the number of points of research had to be reduced. As a result, the sampling carried out only corresponds to 51 points.

After carrying out preliminary identification of the eggs and larvae collected, the following results were obtained:

− Larvae

As shown in **Table 9**, 14 of the 51 points studied were positive in confirming bluefin tuna larvae. These points are location in the Gulf of Tunis and in the Gulf of Gabès.

A total of 95 bluefin tuna larvae were collected by Bongo net. Points 14, 9 and 13 of the Gulf of Gabès showed the most important numbers and densities of larvae quite well **(Table 9 and Figure 11)**.

The superficial breakdown of the larvae estimated according to Smith and Richardson (1977) and represented in **Figure 12** indicate that the highest densities are located along the Gulf of Gabès, and decrease as we approach the coast.

- Eggs

According to **Table 10**, 431 bluefin tuna eggs were collected. These eggs are distributed at 21 stations located in the three Tunisian gulfs. The most noteworthy abundance is in the Gulf of Gabès, and particularly at the level of station 10GG **(Figure 12)**.

The superficial breakdown of the eggs according to Smith and Richardson (1977) and represented in **Figure 14** is an image of the breakdown of the larvae. In effect, the highest densities are found throughout the Gulf of Gabès, and these regress as soon as we approach the coast.

Table 1. Development of the landings of large pelagics in Tunisian waters.

Species	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Bluefin tuna	114	1073	975	1997	2523	1617	2147	1992	1662	2263	2184	2493	2528	791	2639	3249
Small tunas	3586	2633	1363	1363	627	1238	1612	1630	2061	2954	3893	5523	3008	2496	3075	2212
Swordfish	176	181	178	354	298	378	352	346	414	468	483	567	1138	288	791	1074
Total large pelagics	3876	3887	2516	3714	3448	3233	4111	3968	4137	5685	6560	8583	6674	3575	6505	6535

Table 2. Bluefin tuna catches, by fishing type, 1990-2003.

	1990	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Purse seine	114	1073	975	1997	2253	1617	2147	1992	1662	2263	2134	2432	2510	740	2386	3245
%	28.1	78.6	81.6	93.7	90	85.2	89.7	90.5	95.2	96.2	97.7	97.6	99.3	93.6	90.4	99.9
Trap	249	243	175	92	169	223	154	95	35	46	13	3	3	5	0,6	0
%	61.3	17.8	14.6	4.3	6.8	11.8	6.4	4.3	2	2	0.6	0.1	0.1	0.6	0	0
Line & coastal	43	50	45	43	81	57	92	113	48	43	37	58	15	46	252,5	4,3
%	10.6	3.7	3.8	2	3.2	3	3.8	5.1	2.8	1.8	1.7	2.3	0.6	5.8	9.6	0.1
Total	**406**	**1366**	**1195**	**2132**	**2503**	**1897**	**2393**	**2200**	**1745**	**2352**	**2184**	**2493**	**2528**	**791**	**2639**	**3249**

Table 3. Catches of small tunas, by species.

Species	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Atlantic black skipjack *(Euthynnus alletteratus)*	333	1113	752	1453	1036	960	657		1222
Bullet tuna *(Auxis rochei)*	32	93	45	15	2300	932	989		1
Plain bonito *(Orcynopsis unicolor)*							3		3
Atlantic bonito *(Sarda sarda)*	611	855	1350	1528	1183	1112	848		985
Small tunas (unclassified)	654	0	807	897	1004	4	0	0	0
Total	1630	2061	2954	3893	5523	3008	2497	3075	2221
Total large pelagics	**3968**	**4137**	**5685**	**6560**	**8583**	**6674**	**3576**	**6505**	**6535**
%	**41.1**	**49.8**	**52.0**	**59.3**	**64.3**	**45.1**	**69.8**	**47.3**	**33.8**

Table 4. Breakdown of the amounts of bluefin tuna tabulated in the fish farms in 2004 and 2005.

Site	*Company*	*2004*		*2005*	
		Local	*Imported*	*Local*	*Imported*
Hergla	TFT	394.6	108.8	580	
	VMT	369		327	57
Salakta	TT	192.7	54.2	196	180
	SMT	366.1		349.3	701
Total		1,322.5	163	1452.3	938
General total		**1,485.5**		**2,390.3**	

Table 5. Variation in the number of fish per weight class during the two fattening periods (2004 and 2005)in one of the Tunisian fish farms.

	Weight glass (kg)			*Total*
Number of fish – 2004 season	*60 <*	*60-120*	*>120*	
	4,200	900	2,700	7,800
%	53.84	11.53	34.61	100
Number of fish – 2005 season	4,328	1,645	4,778	10,751
%	40.25	15.30	44.44	100

Table 6. Variation in the number of fish, by weight classes, for the 2005 season.

Weight class (kg)	*Number of fish*	*Percentage*
<20	0	0
20-40	229	2
40-60	4,539	42
60-80	381	4
80-100	229	2
100-120	114	1
120-140	153	1
140-160	458	4
160-180	534	5
180-200	1,221	11
200-220	610	6
220-240	1,144	11
240-260	381	4
260-280	305	3
280-300	267	2
>300	191	2
Total	**10,757**	**100**

Table 7. Demographic breakdown of bluefin tuna fattened in Tunisia in 2005.

	TFT	*VMT*	*TT*	*SMT*	*Total sampled*	*Total fish extrapolated*
FL (cm)	*No. of fish*	*No. of fish*	*No. of fish*	*No. of fish*	*No. of fish*	
100	2	4			6	45
105	0	2			2	15
110	4	4			8	60
115	8	8			16	121
120	25	27			52	393
125	45	33	131	146	355	2685
130	72	55	182	176	485	3,668
135	50	56			106	802
140	38	58	108	127	331	2,503
145	29	16	55	69	169	1,278
150	35	12	29	42	118	892
155	7	14	22	38	81	613
160	13	10	16	22	61	461
165	21	12	1		34	257
170	20	11			31	234
175	15	16	1	1	33	250
180	13	12			25	189
185	13	9			22	166
190	24	3			27	204
195	17	8	3	3	31	234
200	20	16	2	9	47	355
205	8	6	28	23	65	492
210	13	17	45	48	123	930
215	16	7	76	111	210	1,588
220	20	16	11	119	166	1,255
225	15	17	3	23	58	439
230	20	10	6	15	51	386
235	11	7			18	136
240	6	4	4	13	27	204
245	1	1			2	15
250	2	6			8	60
255	1	2			3	23
260		1	7	11	19	144
265		1			1	8
Sub-total	584	481	730	996	2,791	21,106
Sampled	72,751	61,158	67,700	113,800	315,409	
Total	580,000	379,000	376,000	1,050,262	2,385,262	

Table 8. Weighted breakdown of bluefin tuna fattened in Tunisia in 2005.

Weight class (kg)	*Number of fish*	*Percentage*
<20	0	0
20-40	241	1.1
40-60	6,746	32.0
60-80	4,583	21.7
80-100	1,505	7.1
100-120	461	2.2
120-140	491	2.3
140-160	250	1.2
160-180	189	0.9
180-200	370	1.8
200-220	234	1.1
220-240	355	1.7
240-260	492	2.3
260-280	930	4.4
280-300	1,588	7.5
>300	2,670	12.7

Table 9. Number and density of bluefin tuna larvae in the stations sampled.

Station	*Volume of water filtered (m3)*	*Number of bluefin tuna larvae*	*Density of bluefin tuna larvae /1000 m^3*
04 GG	562.17	3	5
09 GG	573.62	21	36
10 GG	608.63	5	8
12 GG	645.00	1	1,5
13 GG	644.00	14	21
14 GG	649.24	39	60
15 GG	659.58	2	3
16 GG	662.97	4	6
17 GG	491.97	1	2
01 GT	572.26	1	1,7
02 GT	343.86	1	2,9
14 GT	549.79	1	1,8
22 GT	291.13	2	6,8

GG: Gulf of Gabès.
GT: Gulf of Tunis.

Table 10. Number and density of bluefin tuna eggs in the stations sampled.

Station	*Volume of water filtered (m^3)*	*Number of bluefin tuna eggs*	*Density of the bluefin tuna eggs/ 1000m^3*
3GG	443.48418	6	13.5
4GG	562.17618	17	30.2
5GG	571.16286	14	24.5
6GG	540.55728	14	25.9
7GG	659.16450	12	18.2
8GG	611.17902	40	65.4
9GG	573.62148	40	69.7
10GG	608.63562	176	289.0
11GG	685.53108	9	13.1
12GG	645.09102	3	4.65
13GG	644.07366	16	24.8
15GG	659.5884	18	27.2
16GG	662.9796	3	4.5
17GG	492.0000	1	2.0
1GT	572.26500	9	15.7
2GT	549.79830	13	23.6
3GT	580.48866	3	5.1
1GH	587.61018	3	5.1
2GH	514.44504	4	7.7
3GH	577.60614	7	12.1
4GH	441.36468	23	52.1

GG: Gulf of Gabès.
GH: Gulf of Hammamet.
GT: Gulf of Tunis.

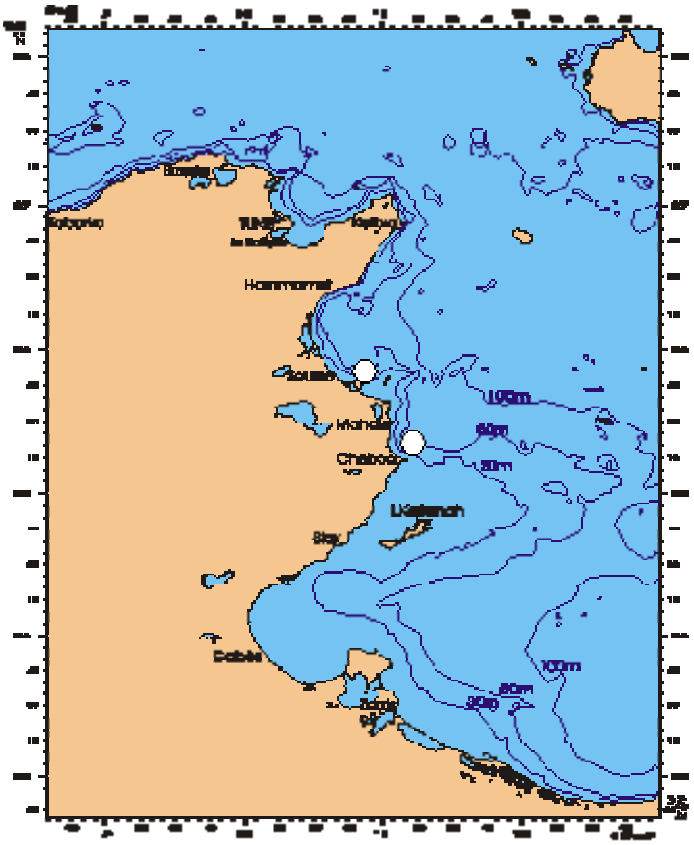

Figure 1. Location of the fish farms.

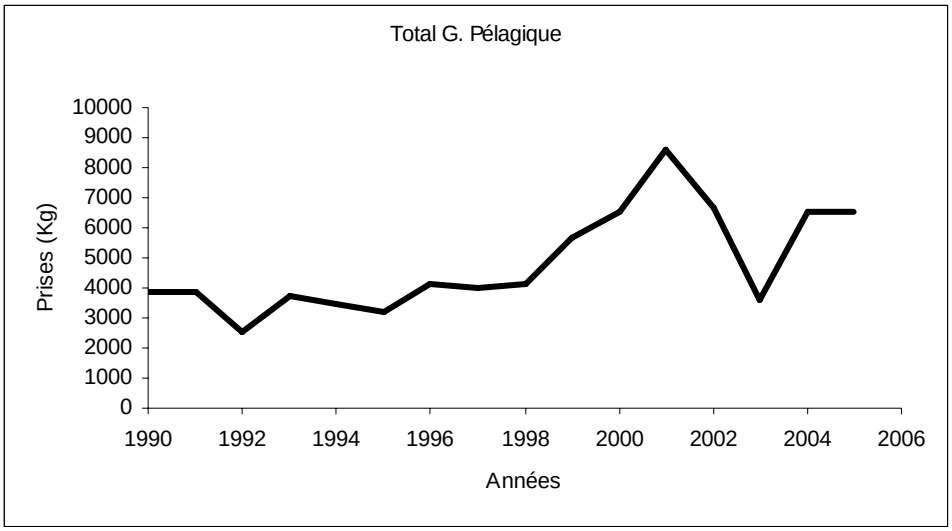

Figure 2. Development of the landings of large pelagics in Tunisian waters.

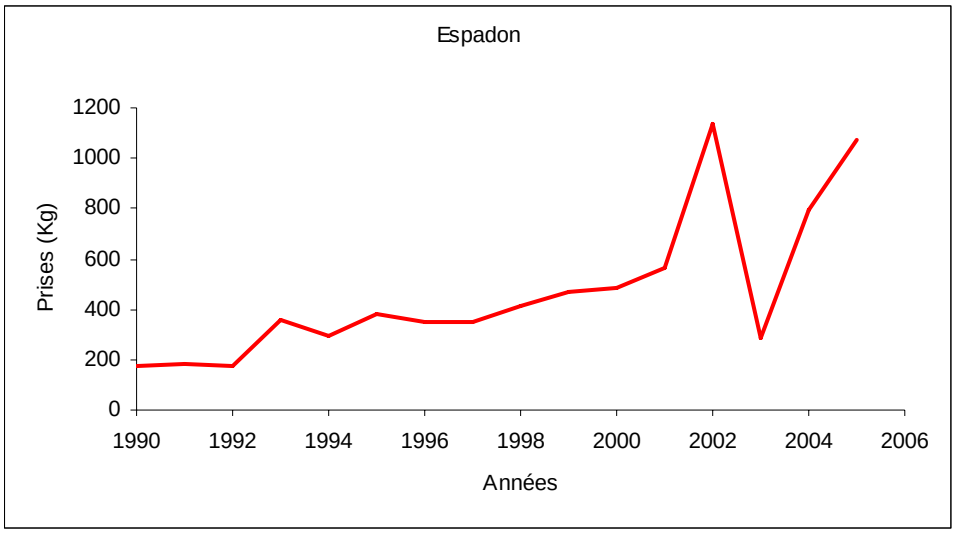

Figure 3. Development of the landings of swordfish in Tunisian waters.

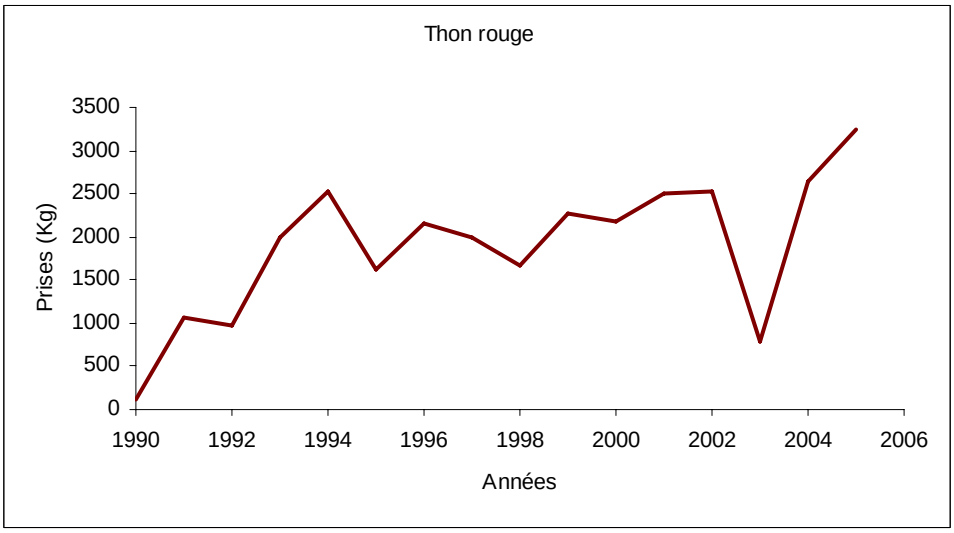

Figure 4. Development of the landings of bluefin tuna caught in Tunisian waters.

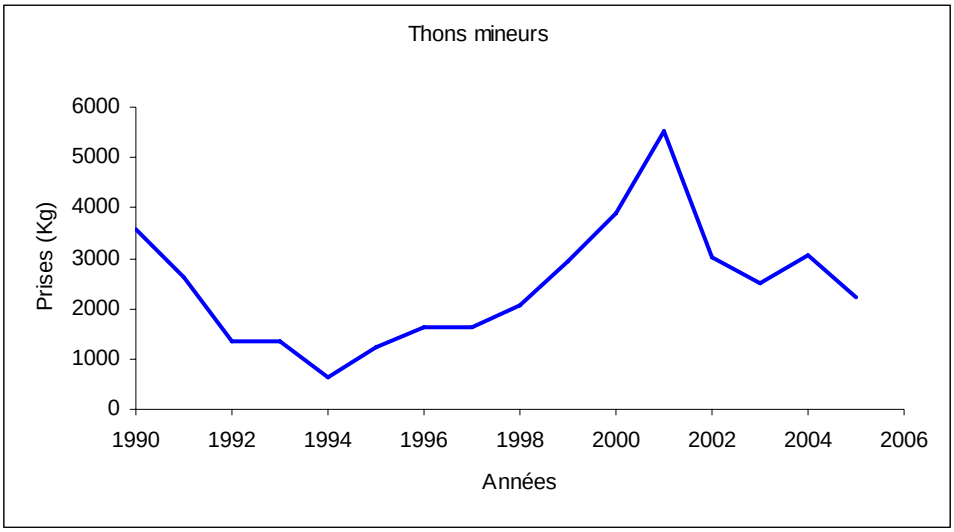

Figure 5. Development of the landings of small tunas caught in Tunisian waters.

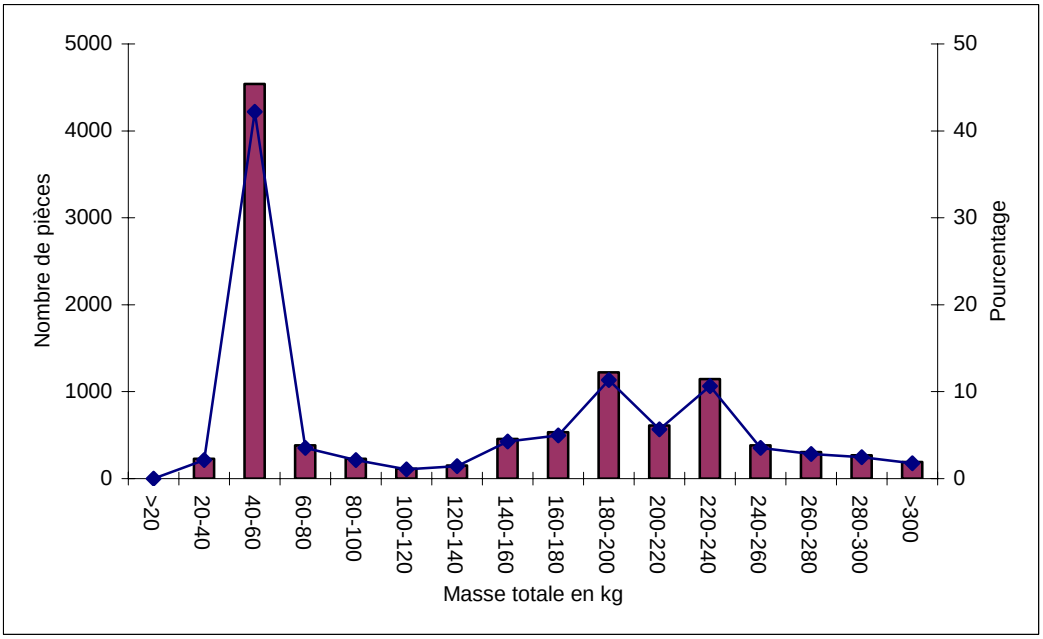

Figure 6. Variation in the number of fish by weight class for the 2005 season in one of the Tunisian fish farms.

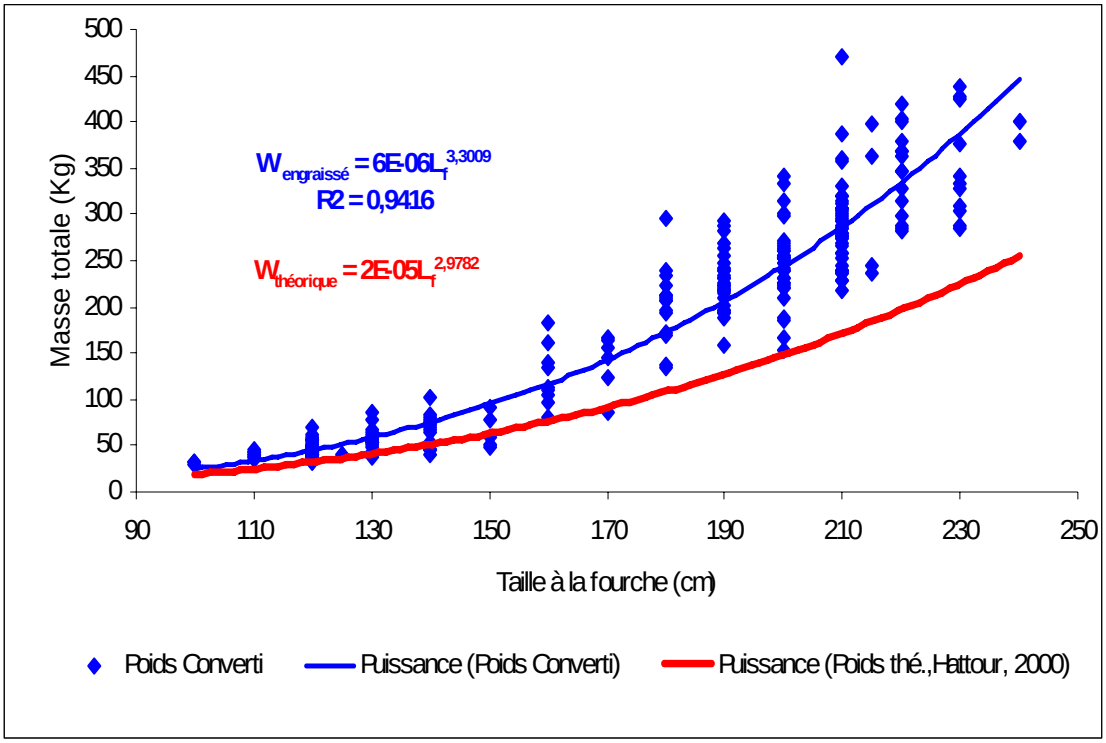

Figure7. Size-weight relationship of fish fattened in Tunisian waters compared to wild-caught fish landed at Tunisian ports (Hattour, 2005).

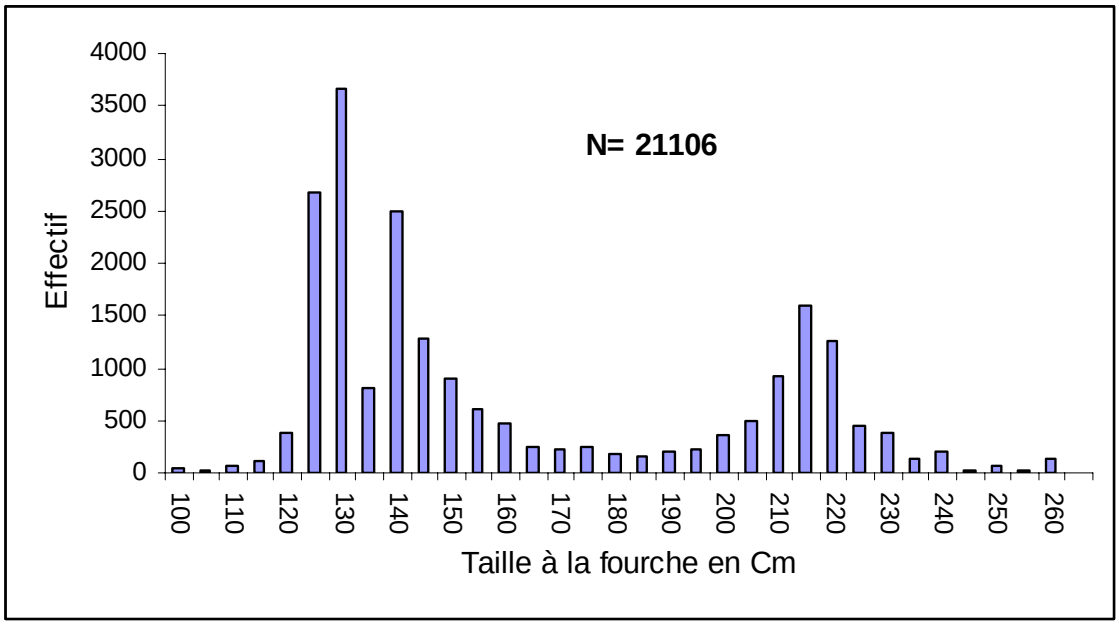

Figure 8. Variation in the fork length of fish fattened in Tunisia in 2005.

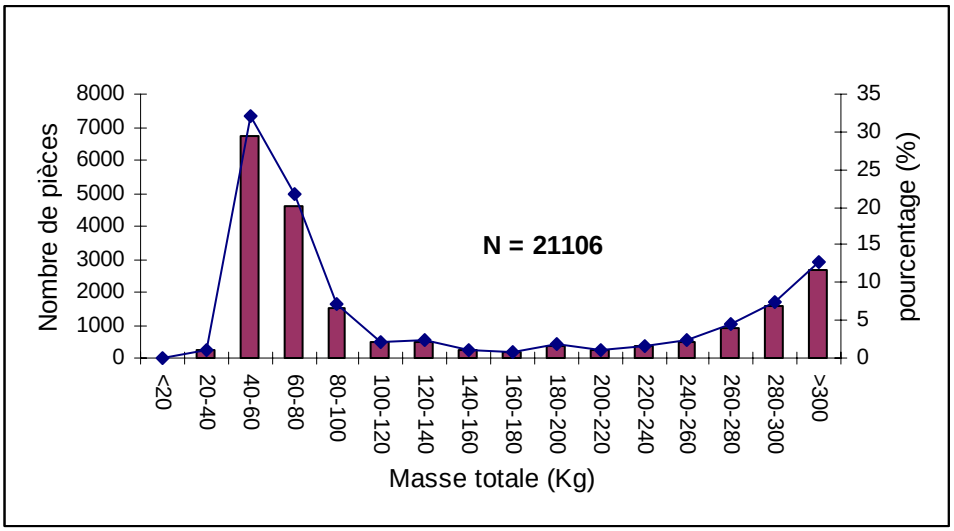

Figure 9. Distribution of the total mass of bluefin tuna fattened in Tunisian and their respective percentages.

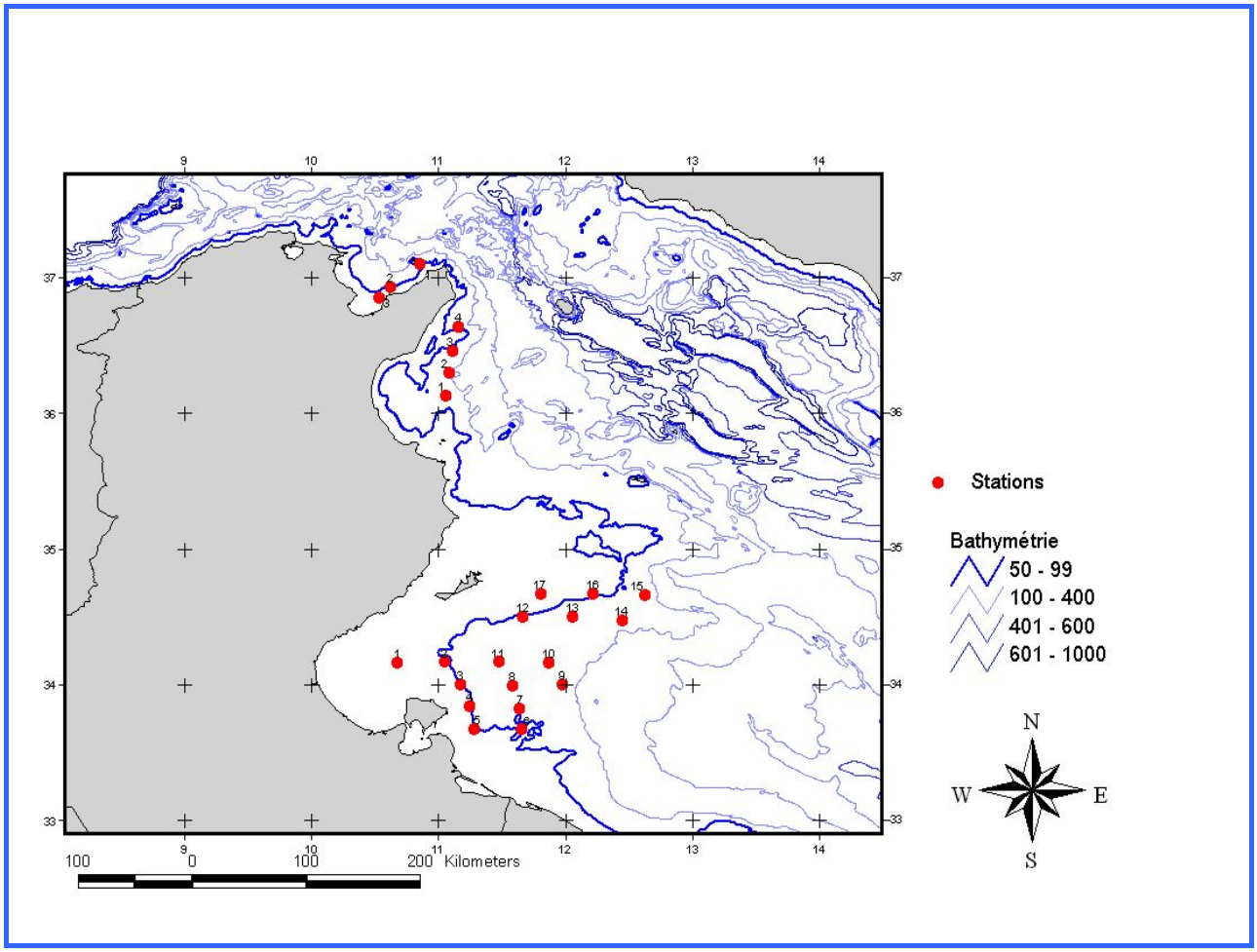

Figure 10. Stations sampled during the course of the 2005 fishing season.

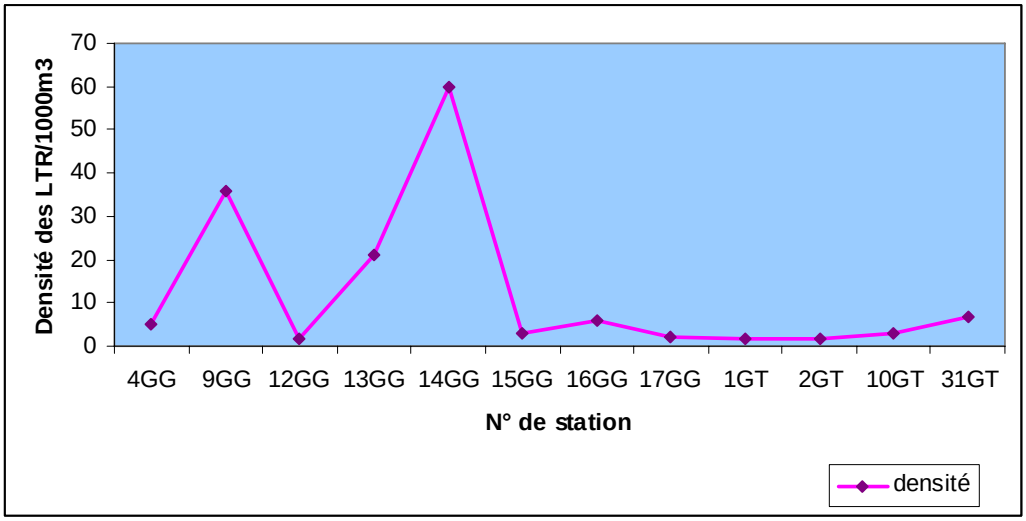

Figure 11. Variation in the density of bluefin tuna larvae (LTR), by station.

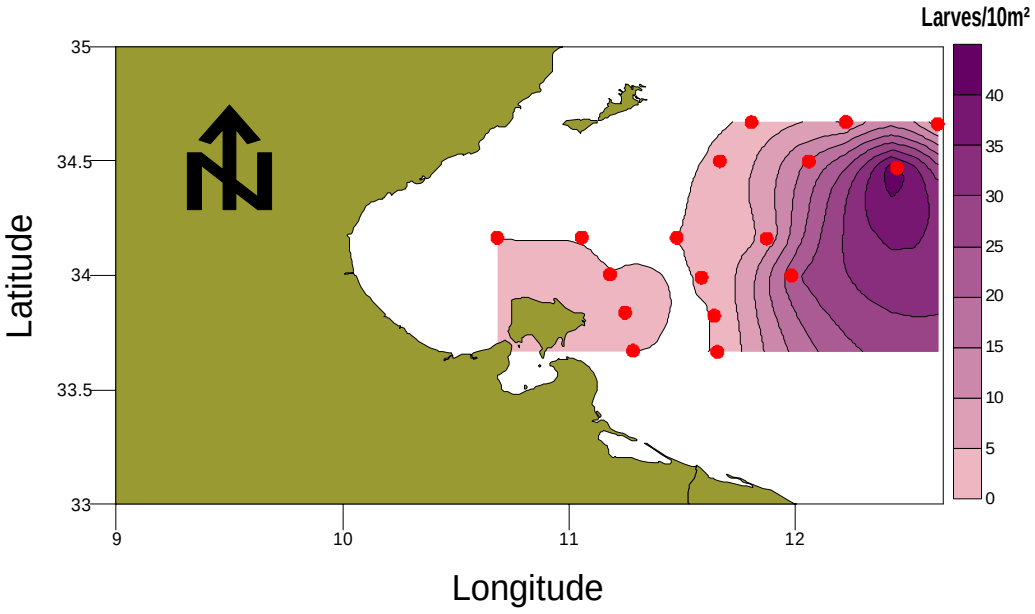

Figure 12. Horizontal breakdown of bluefin tuna larvae in the Gulf of Gabès.

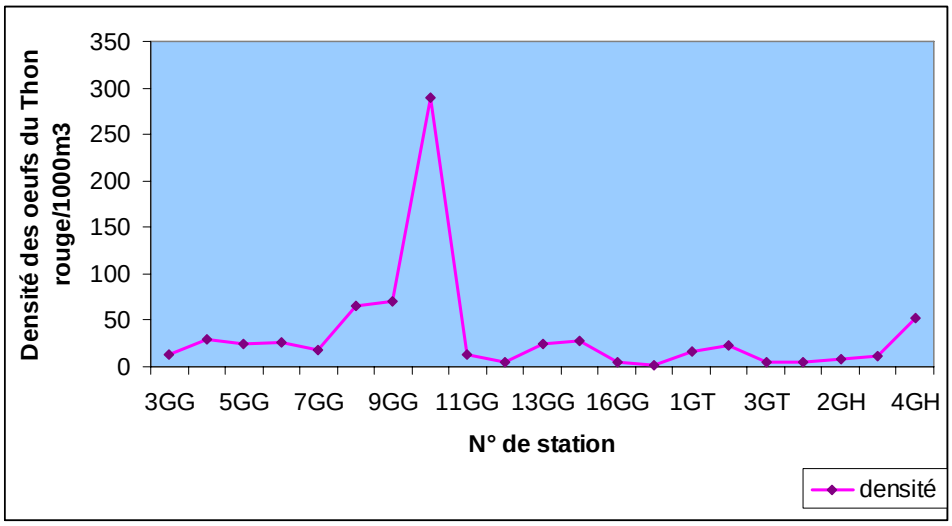

Figure 13. Breakdown of the density of bluefin tuna eggs, by station.

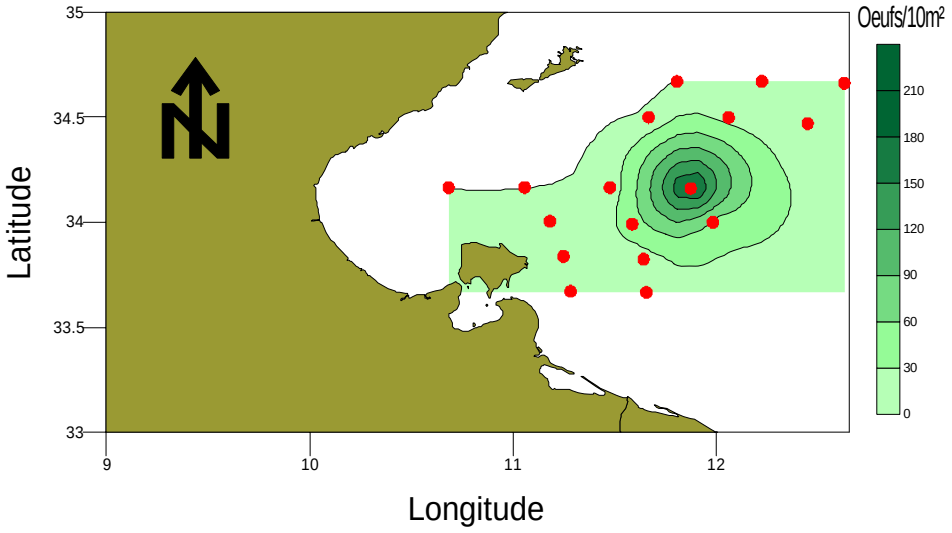

Figure 14. Horizontal breakdown of bluefin tuna eggs in the Gulf of Gabès.

ANNUAL REPORT OF TURKEY[1]

F. Saadet Karakulak[2], Vahdettin Kürüm[3]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

1.1 Albacore

Albacore is not caught as a target species in Turkish waters, but as by-catch in the bluefin tuna fishery. The catch quantity of albacore was not recorded for a long time. However, the catch quantity of this species has been specifically recorded since 2004, with a total catch 27 t **(Table 1)**.

1.2 Bluefin tuna

The total catch of bluefin tuna in 2005 was 990 t, a decrease as compared to previous year (1,075 t in 2004). Adverse weather conditions had negative effects on fishing effort. Almost all of the catch was caught by purse seiners. There were 62 vessels licensed for bluefin tuna fishing operations. There are six bluefin tuna farms in Turkey. Almost all of the purse seine catch was transferred to floating cages for fattening. The length frequency distribution of bluefin tunas caught by purse seiners in 2005 in Turkish waters is shown in **Table 2** and **Figure 1**.

1.3 Atlantic bonito

Bonitos play a major role in the Turkish fishery. Bonito fishing is intensively carried out in the Black Sea and the Marmara Sea using purse seine, gillnets, encircling nets and hand lines. The total catch in 2004 was 5,701 t. There has been a decrease in catches since 2002. However, in 2005 there was a considerable increase in bonito fishing.

1.4 Swordfish

The swordfish fishery in Turkey is carried out in the Aegean Sea and the eastern Mediterranean. While swordfish fishing is carried out using harpoon in the northern Aegean Sea, it is carried out by longlines in the eastern Mediterranean Sea. The total catch in 2004 was 386 t. Compared with previous years the fishery trend has not changed since 2000.

1.5 Other tunas

The bullet tuna and Atlantic black skipjack fisheries are carried out in the Aegean Sea and the eastern Mediterranean using purse seines, gill nets and encircling gillnets. The catch quantities of bullet tuna and Atlantic black skipjack have not been recorded for a long time. The catch quantities of these species have been specifically recorded since 2004. In 2004, the total catch of Atlantic black skipjack was 568 t and the total catch of bullet tuna was 284 t.

Section 2: Research and Statistics

Research on the bluefin tuna fishery and bluefin biology is carried out by Istanbul University, Faculty of Fisheries. Research on the effects of bluefin tuna farms on the environment is still being carried out by Aegean University, Faculty of Fisheries.

In 2005, analyses on reproduction, aging and growth of bluefin tuna were conducted, and biological samples (gonads, liver, dorsal spines and otoliths) were obtained from the fishery. The bluefin tuna otolith samples collected by Turkish scientists in 2001-2005 in Turkish waters are being studied jointly by Turkish, Greek and U.S. scientists.

[1] Original report in English.

[2] Istanbul University, Faculty of Fisheries, Ordu cad. No:200 Laleli, Istanbul, Turkey.

[3] Ministry of Agriculture and Rural Affairs. Directorate of Protection-and Control, Ankara,Turkey.

In 2006, cooperative tagging was conducted on bluefin tuna between Istanbul University and the University of Bari (Italy). For the first stage of this tagging research, supported by the Association of Bluefin Tuna Farmers and Exporters (OYID), 15 fish were obtained from the fishing carried out in the Levantine Sea. In the second stage, the fish obtained from the farms will be tagged.

Purse seiners must have permission for bluefin tuna fishing from the Ministry of Agriculture and Rural Affairs (MARA) for each year. The fishing vessels transmit all information on catch and the sale quantity of bluefin tuna via fax within the 24 hours to MARA. The Task I and Task II data are regularly reported to the ICCAT Secretariat.

The General Directorate of Protection and Control of MARA has established a new data system to collect and to analyze fishery data. By this system, in the future it will be possible to minimize the errors in fishery statistics.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

All conservation and management measures regarding bluefin tuna fisheries and farming are incorporated in national legislation. The minimum catch size for bluefin tuna is 90 cm.

The catch of bonitos using all catch methods, including dalians (traps) is prohibited in Turkish territorial waters from April 1 to August 31. The minimum catch size for bonito is 25 cm.

In order to conserve juvenile swordfish, it is prohibited to catch swordfish between October 1 and January 31 in Turkish territorial waters. The minimum catch size for swordfish is 130 cm.

The minimum catch size for Atlantic black skipjack is 45 cm.

Section 4: Inspection Schemes and Activities

Turkey has been carrying out extensive works since 2004 for alignment with the EU, within the framework of the Fisheries Project "Fisheries Sector-Legal and Institutional Alignment to the EU Acquis" which was put into practice in 2005. The project consists of four components: Institutional Strengthening, Legislation and Structural Policy, Conservation, Control and Resource Management, and Common Organization of the Market and vessel monitoring system and fisheries information system. Construction of 30 Fishing Port Offices are planned to be completed by the end of 2006.

Apart from the above, a Preliminary Draft on Amending the Fisheries Law has been drawn up and sent to the Parliament.

Table 1. Catches (t) of tunas and tuna-like species, 1998-2005.

Species	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Bonito	24,000	17,900	12,000	13,460	6,286	6,000	5,701	**
Bluefin tuna	5,899	1,200	1,070	2,100	2,300	3,300	1,075	990
Swordfish	450	230	370	360	370	350	386	**
Albacore	*	*	*	*	*	*	27	**
Atlantic black skipjack	*	*	*	*	*	*	568	**
Bullet tuna	*	*	*	*	*	*	284	**

*The catch quantity of these species has not been specifically recorded.
** The fishery statistics of these species for 2005 are not yet available.

Table 2. Breakdown of length frequencies in 2005.

FL(cm)	*N*	*FL(cm)*	*N*
90	-	190	1
95	1	195	1
100	5	200	1
105	11	205	-
110	3	210	-
115	2	215	2
120	7	220	1
125	11	225	2
130	7	230	1
135	2	235	1
140	4	240	2
145	3	245	1
150	3	250	-
155	-	255	-
160	3	260	1
165	-	265	-
170	2	270	-
175	-	275	-
180	1	280	1
185	-	285	-

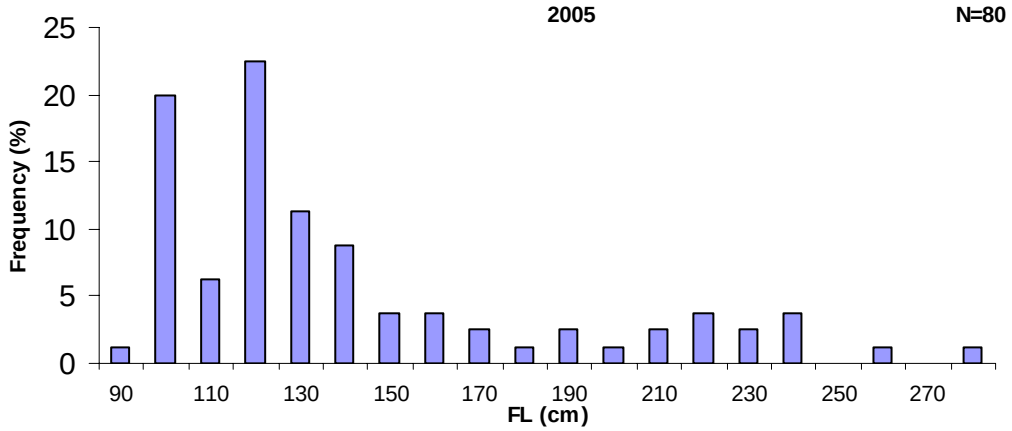

Figure 1. Length frequency distribution of bluefin tuna caught by purse seiners in Turkish waters in 2005.

ANNUAL REPORT OF UNITED KINGDOM (OVERSEAS TERRITORIES)[1]

BERMUDA

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

The Bermuda commercial fishing fleet consisted of 206 vessels during the year 2005 with approximately one-third of the vessels actively fishing for tuna and tuna-like species. Most of the fishing effort is carried out in the inner 50 km (including two offshore banks) of the Bermuda Exclusive Economic Zone while longline vessels fish further offshore.

The Bermuda domestic fleet is made up almost exclusively of fiberglass commercial fishing vessels. The number of Bermuda-based longliners has declined in recent years thus reducing offshore fishing capacity.

For the year 2005, the total catch of tuna and tuna-like species was 162 metric tons (t). This represents a decrease in landings of 24 t over the previous year. Details of the catch composition are presented in **Table 1**.

Section 2: Research and Statistics

Bermuda remained active in the ICCAT Enhanced Program for Billfish Research. A study on post-release survival and movement patterns of blue marlin caught on recreational fishing vessels in the western Atlantic, utilizing pop-up satellite tags, is ongoing. However, there were no deployments of these tags in Bermuda waters in 2005. Tournament sampling of blue marlin was continued for a fourth consecutive year. This research is providing important data on reproductive seasonality with peak spawning occurring in July. 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, yellowfin tuna, blackfin tuna and dolphinfish. Conventional tagging of blue marlin, white marlin, yellowfin tuna and blackfin tuna by charter fishing vessels has again been active during the past year.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

The fisheries regulations which introduced minimum sizes of retention for blue marlin (250 lbs/114 kg) and white marlin (50 lbs/ 23 kg) continue to be evaluated through the monitoring of the sport fishery. It has been determined that there has been a high level of compliance with these regulations since they were implemented.

The collection of scientific data on billfish, wahoo, yellowfin tuna and blackfin tuna species is ongoing. Tagging programs for pelagic species, in cooperation mainly with recreational fishermen, are ongoing. Data collection provides material for research programs, which when appropriate, can be applied in fisheries management. In addition, recreational fishing for tuna and tuna-like species is monitored (mainly through tournaments) to help to evaluate compliance with ICCAT recommendations.

Table 1. Summary table of landings of tuna and tuna-like species by Bermuda, 2005.

Species	*Weight (t)*
Yellowfin tuna	61
Bluefin tuna	0
Bigeye tuna	<1
Blackfin tuna	5
Albacore tuna	<1
Atlantic black skipjack tuna	7
Skipjack tuna	<1
Wahoo	83
Blue marlin	2
White marlin	<1
Swordfish (North Atlantic)	0
Total	**162**

[1] Original report in English.

ST. HELENA

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

The St. Helena Fisheries Corporation (SHFC) was established under legislation in November 1979 by the St. Helena Government (SHG). Until 1990 it had the dual purpose of a commercial organization and that of a Government Fisheries Office. In order to separate duties, the Directorate of Fisheries was created to administer foreign and local vessel licensing and provide an independent body to carry out various governmental responsibilities. The Directorate is staffed by a Senior Fisheries Officer, a Marine Scientific Officer a Clerk.

The SHFC is governed by a Board of Directors appointed by the Governor. The Board is composed of representatives of St. Helena Government (SHG), the fishing industry and the private sector. The aims and objectives of the Corporation as stated in the St. Helena Fisheries Ordinance of 1979 are "to engage on a commercial basis in the business of fishing and fish marketing in St. Helena and overseas and, in so for as it is compatible with these prime objects, to render assistance and to make loans to persons engaged in fishing and fish marketing within the St. Helena fishery limits". Following restructuring of the Corporation over the past year, the aims of the Corporation include the role to act as a Service provider and Regulator for the fishing sector and the island.

1.1 Fish landings

Fish landings into the Fisheries Corporation over the period January 2005 to December 2005 totaled some 671.35 t of fish at a buying value of £230,147.87. Of this amount, some 46% of the species consisted of tuna: 2% wahoo, 48% skipjack, <1% shark, <1% marlin and the rest consisted various other non-ICCAT species consisting of grouper, conger, cavalley, bullseye, soldier, yellowtail, dorado and filefish. The main ICCAT species caught in 2005 are shown in **Table 1**.

1.2 Description of fisheries

Although there is an established 200 mile limit around St. Helena, the full potential of the resource is not exploited as only the inshore waters of between 8 and 12 miles around the Island are fished due to the limited size of the fishing vessels. The main commercially exploited resource are yellowfin, bigeye, albacore and skipjack tunas 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 local commercial fleet are landed daily and delivered within 12 hours of being caught. Fishing is done by rod-reel/pole and line for the local fishermen. No longline fishing was carried out during the period. The types of bait used are live, dead and artificial. A maximum of 10 boats fished full-time complementing a crew of 24 persons.

Foreign vessels are licensed for longline fishing only; the use or carriage of nets is not allowed within the fishery limits of St. Helena and its Dependencies.

St. Helena 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 until landed. Products for the local market are fresh or frozen. Exports are in frozen form only.

Keeping within the objectives of the Fisheries Ordinance, fish is marketed in various forms around the island 6 days a week. The rural areas are serviced by a sales van supplemented by fixed outlets in various districts around the island. Supplies for the export market are met from surplus to local requirements. Exports in various frozen forms are sent mainly to the EU.

St. Helena enforces the ICCAT restriction on limitation of yellowfin and bigeye tuna caught that is less than the minimum weight of 3.2 kg.

Section 2: Research and Statistics

2.1 Fisheries survey and research

In November 2000, an inward investor was issued a license for their fishing vessel 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 50 meters. It was considered that a perhaps a vessel of up to 40 meters, capable of diversifying its operations to other fisheries might however be operated successfully within the EEZ.

In October, 2001, the inward investor 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.

2.2 Foreign vessel licensing

There was no take-up of foreign vessel licensing during 2005 although the opportunity to do so still exists. All foreign vessels taking up licenses to fish within St. Helena's EEZ are required to have on board a Vessel Monitoring System as part of the conditions of the license.

2.3 Fisheries development

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 set-up in the office of the Fisheries Directorate.

The Argos Atlantic Cold Stores (AACS) was officially opened in February, 2000 but the first throughput of fish was not made until April, 2000. The advantage seen to the fishing sector from this investment is that this freezing facility (800 t) will have the capacity to store more fish during the glut period than the St. Helena Fisheries Corporation were able to store (150 t maximum). This should help to alleviate quotas that are continually imposed on fishermen because of limited storage space. Since the start of its operation, AACS has not only been taking tunas and skipjack from the fishermen, but also other species of fish for which there were no previous markets. Unfortunately, the throughput of fish to this establishment has been rather low over the past few years due to the low landing of resource.

The AACS works very closely with the St. Helena Fisheries Corporation and the Directorate of Fisheries in its quest to provide fish products for the local and export markets.

For this first time in recent history, three vessels between 14 and 20 meters have been operating out of St. Helena to fish our two known seamounts some 80 and 180 miles away during the reporting period.

2.4 Data reporting

Data of fish catches within the St. Helena Exclusive Fishing Zone is submitted to the ICCAT Secretariat on an annual basis.

Table 1. Major ICCAT species caught, by pole and line, by St. Helena in 2005.

Species	*Catch (t)*
Yellowfin tuna	258.04
Albacore	34.89
Bigeye tuna	17.86
Skipjack tuna	320.74
Sharks	0.5
Marlin	1.66
Number of fishing days = 2,210	

ANNUAL REPORT OF THE UNITED STATES OF AMERICA[1,2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

Total (preliminary) reported U.S. catch of tuna and tuna-like fishes (including swordfish, but excluding other billfishes) in 2005 was 19,295 metric tons (t), a decrease of about 24% from 25,336 t in 2004. Estimated swordfish catch (including estimated dead discards) decreased 171 t to 2,423 t, and provisional landings from the U.S. fishery for yellowfin in the Gulf of Mexico decreased in 2005 to 1,403 t from 2,087 t in 2004. The estimated 2005 Gulf of Mexico landings of yellowfin tuna accounted for about 24% of the estimated total U.S. yellowfin landings in 2005. U.S. vessels fishing in the northwest Atlantic landed in 2005 an estimated 848 t of bluefin, a decrease of 123 t compared to 2004. Provisional skipjack landings decreased by 74 t to 28.8 t from 2004 to 2005, estimated bigeye landings increased by 67 t compared to 2004 to an estimated 483 t in 2005, and estimated albacore landings decreased from 2004 to 2005 by 159 t to 487 t.

Section 2: Research and Statistics

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 949 t in 2005, from the 2004 landings estimate of 6,515 t (Appendix Table 2.1-YFT)[3]. The 2005 estimate is considered provisional and may change due to additional commercial catch reports that become available later. In addition, a high proportion of the estimated landings were due to rod & reel catches of recreational anglers in the northwest Atlantic (3,504 t). Estimates of U.S. recreational harvests for tuna and tuna-like species continue to be reviewed and this may result in the need to revise the available estimates in the future. 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 also are caught by U.S. vessels in the western North Atlantic. Total reported skipjack landings (preliminary) decreased from 102.6 t in 2004 to 28.8 t in 2005 (Appendix Table 2.1-SKJ). 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.

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 2005 increased by 67 t from 416 t in 2004 to 483 t (Appendix Table 2.1-BET). Estimates of 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. Such provisions regulate total U.S. landings and affect other conservation and management measures consistent with ICCAT recommendations and domestic management. U.S. 2005 provisional estimated landings and discards from the northwest Atlantic (including the Gulf of Mexico) were 717 t and 131 t, respectively. Those estimated landings and discards represent a decrease of 123 t from the 2004 estimates. The 2005 landings by gear were: 178 t by purse seine, 32 t by harpoon, 2 t by handline, 211 t by longline (including discards) of which 118 t were from the Gulf of Mexico.

In response to 1992 regulations limiting the allowable catch of small fish by U.S. fishermen, in conformity with ICCAT agreements, enhanced monitoring of the rod and reel fishery was implemented in 1993 for the purpose of

[1] Original report in English.
[2] U.S. Department of Commerce, NOAA Fisheries.
[3] Appendices available at the Secretariat.

providing near real-time advice on catch levels by this fishery. This monitoring activity has continued and has included estimation of catches by finer scale size categories than reported above. The preliminary estimates for the 2005 rod and reel fishery off the northeastern U.S. (including the North Carolina winter fishery) for landings in several size categories were 347 fish < 66 cm, 7664 fish 66-114 cm, 1675 fish 115-144 cm and 476 fish 145-177 cm (an estimated 1.2, 107, 63, and 36 t, respectively). Note that additional rod and reel landings of bluefin >177 cm SFL, monitored through a sales reporting system, are included in Table 2.2-BFT.

Albacore. Albacore are landed by U.S. vessels; however, historically, albacore has 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. The U.S. landings from the Caribbean increased in 1995 to make up over 14% of the total U.S. harvest of albacore, but have since remained below 4% of the total. Nominal catch rate information from U.S. longline logbook reports are shown in Appendix Figure 2.1-ALB. Estimated total catches of albacore were 487 t in 2005, a decrease of 159 t from 2004 (Appendix Table 2.2-ALB).

2.1.3 Swordfish fishery statistics

For 2005, the provisional estimate of U.S. vessel landings and dead discards of swordfish was 2,424 t (Appendix Table 2.3-SWO). This estimate is lower than the estimate of 2,595 t for 2004. The provisional landings, excluding discard estimates, by ICCAT area for 2005 (compared to 2004) were: 414 t (457 t) from the Gulf of Mexico (Area 91); 1,061 t (1,050 t, from the northwest Atlantic (Area 92); 137 t from the Caribbean Sea (Area 93); and 550 t (593 t, from the North Central Atlantic (Area 94A).

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 8% 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 19,543 fish discarded dead in 2005. For the North Atlantic, the estimated tonnage discarded dead in 2005 is 262 t, of which 252 is estimated due to longline gear. Overall, the estimates of dead discarded catches decreased slightly, by 14 t compared to the 2004 level, but remained about 11% of the landed catch.

The total weight of swordfish sampled for sizing U.S. landings by longline, otter trawl, and handline was 2,042 t, 3 t, and 31.3 t in 2005. The weight of sampled swordfish landings in 2005 were 99%, 36%, and 94% of the U.S. total reported annual landings of swordfish for longline, trawl, and handline, respectively. Again, incorporation of late reports into the estimated 2005 landings figure will likely result in changes in the sampled fraction of the catch. Recent estimates of rod and reel landings of swordfish based on surveys of recreational anglers, range from about 5-48 t per year within the period 1996-2005.

2.1.4 Marlins and sailfish fishery statistics

Blue marlin, white marlin, and sailfish are landed by U.S recreational rod and 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^o N 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 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 marlin and sailfish.

Due to concerns over estimates of rod and reel catches landings of marlins, estimates for 2003 and 2004 were reviewed by a scientific committee convened to advise on the appropriateness of the methods and data used and

to recommend future improvements needed to reduce uncertainty in the estimates. The preliminary estimates of 2005 U.S. rod and reel landings for these billfish species, combining the geographical areas of the Gulf of Mexico (Area 91), the northwestern Atlantic Ocean west of the 60°W longitude (Area 92) and the Caribbean Sea (Area 93) are: 15 t for blue marlin, 0.8 t for white marlin, and 0.08 t for sailfish. The estimates for 2004 were 26 t, 0.7 t, and 0.2 t, respectively, for the three species.

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, Florida, U.S.A. Estimates of the billfish by-catch discarded dead in the U.S. commercial longline and other commercial fisheries for 2005 were 34 t for blue marlin, 22 t for white marlin, and 11 t for sailfish. The estimated 2004 U.S. discarded dead by-catch was 35 t, 27 t, and 5 t, respectively, for the three species.

2.1.5 Shark fishery statistics

The U.S. Federal Fisheries Management Plan (FMP) implemented in 1993 (NMFS 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. 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: (1) 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; (2) 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 overharvest in the blue shark quota; and (3) making the bigeye sixgill, sixgill, sevengill, bigeye thresher, and longfin mako sharks prohibited species that cannot be retained. Regulations on prohibited species went into effect in 2000, whereas those on pelagic shark quotas were enacted in 2001. Presently, the commercial quotas for pelagic sharks (and other species groups) are split equally between three trimester seasons.

Landings of sharks by U.S. longline fishermen holding permits to land and sell swordfish caught in the Atlantic and dead discards of sharks in the US longline fleet targeting tunas and tuna-like species are monitored and reported to ICCAT. There are also additional catches and landings of Atlantic pelagic sharks across the range of U.S. fleets that harvest them, including recreational fisheries, that are updated annually. These total catches are updated herein through 2005 (although recreational landings for 2005 were not yet available and some of the commercial catch data for 2005 are preliminary and subject to change). Commercial landings of pelagic sharks in weight steadily increased from the early 1980s, peaked in 1996, declined the next three years, and showed an increasing trend from 1999 to 2004. The magnitude of commercial landings was reduced again in 2005, although the data are preliminary (Appendix Table 2.6a-SHK). Recreational landings in numbers estimated from the MRFSS survey during 1981-2004 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 3,800 fish in 2001 (Appendix Table 2.6a-SHK). Pelagic longline dead discards also fluctuated between 1987 and 2005, but generally declined from a maximum of 30,500 fish in 1993 to a minimum of about 2,600 fish in 2004. Total catches ranged from about 12,600 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 0 fish in several years to over 20,000 fish in 1987. Pelagic longline discards reached 29,000 fish in 1993, but otherwise oscillated between a minimum of about 1,500 fish in 2005 to a maximum of about 19,000 fish in 1996. In general, there was a decreasing trend in dead discards of

blue sharks (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 7,000 fish according to available estimates and assumptions about average weights (Appendix Table 2.6c-SHK). 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 since the meat of this species is highly valued. Total catches ranged from less than 4,000 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. Total catches of thresher sharks peaked at about 5,300 fish in 1984 and 1999. A maximum of about 1,800 fish was estimated to have been landed by the commercial fishery in 1997, whereas recreational landings peaked at about 5,250 fish in 1984. The maximum estimate of dead discards from the pelagic longline fishery was about 700 fish in 1989, and no dead discards were reported for 1998-2005. Total catches of longfin makos in any given year were under 450 fish. Very few longfin makos were landed by the commercial fishery, there were no reported landings from recreational fisheries, and only some fish were reported discarded dead from 1992 to 1995. Very few oceanic whitetip sharks were landed by the commercial fishery, except for a peak of about 1,250 fish in 1983, but otherwise total catches never exceeded 450 fish. Total reported catches of porbeagle, and especially bigeye thresher, were also very low.

2.2 Research activities

2.2.1 Bluefin tuna research

As part of its commitment to the Bluefin Year Program, research supported by the United States has concentrated on ichthyoplankton sampling, reproductive biology, methods to evaluate hypotheses about movement patterns, spawning area fidelity, stock structure investigations and population modeling analyses.

Ichthyoplankton surveys in the Gulf of Mexico during the bluefin spawning season were continued in 2004 and 2005. 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/2006/082). During the 2004 U.S. ichthyoplankton survey, a plankton net of a type used in the Spanish surveys was fished in addition to the nets normally used to determine the impact of using a wider net mouth and larger mesh on the size and catch rates of bluefin in the Gulf of Mexico. The results of this work will be reported as they become available. US scientists also collaborated in development of the larval working group agenda for the CLIOTOP program.

Since 1998, researchers from Texas A&M University and the University of Maryland with assistance of researchers from Canada, Europe, and Japan have studied the feasibility of using otolith chemical composition (microconstituents and isotopes) to distinguish bluefin stocks. Recent research has investigated the value of using additional microconstituent elements (transitional metals) to enhance classification success. By themselves the transitional metals provided little discriminatory power, but when combined with the other trace elements (for 13 elements in all), the classification success for several year-classes has been moderate ranging from 60-90%, and classification functions show strong year-to-year variability. Document SCRS/2005/083 reported on the utility of an alternative chemical marker in otoliths, carbon and oxygen stable isotopes, to discriminate bluefin tuna from natal regions. The discriminatory power of stable isotopes (δ13C, δ18O) in otoliths of yearlings (age-1) was high, with 91% of individuals classified correctly to eastern and western nurseries. These stable isotopes and in particular δ18O can be used to reliably predict nursery origin of Atlantic bluefin tuna. An initial application suggests that a large fraction (~43-64%) of the Atlantic bluefin tuna collected in the western Atlantic fishery (comprised primarily of large school and medium category fish) originated from nurseries in the east. Alternatively, medium and giant category bluefin tuna from the Mediterranean were largely (~82-86%) of eastern origin.

Scientists from the University of Maryland, Virginia Institute of Marine Science and Texas A&M University were able to collect otoliths and muscle samples from 55 fish for stock structure analyses in 2004 for fish in the 39-64 cm size class (yearlings) from the western Atlantic (NJ and MA). Sampling was not conducted in 2005, but is to be conducted in 2006. In addition limited sampling of ages 1 and older continues.

Several projects were initiated in response to the ICCAT Commission's request for options for alternative approaches for managing mixed populations of Atlantic bluefin tuna (3rd Meeting of Working Group to Develop Coordinated and Integrated Bluefin Tuna Management Strategies). Document SCRS/2005/108 further examined some implications of incorporating electronic tagging information on transfer rates into virtual population analyses, SCRS/2005/084 examined yield and spawner per recruit consequences of different assumed levels of mixing between eastern and western bluefin stocks, SCRS/2006/091 examined the effect of various minimum size limits, and SCRS/2006/092 analyzed three new potential time/area closures in the Gulf of Mexico to reduce discards and by-catch of bluefin tuna.

Researchers at the Imperial College, London, continue work with the University of Miami, the University of New Hampshire and the National Marine Fisheries Service to develop methods to estimate bluefin movement and fishing mortality rate patterns (SCRS/2005/048). Researchers at the University of New Hampshire's Large pelagic research are collaborating with ICCAT scientist from several nations to develop operating models (which will use conventional and electronic tagging data and fishing effort by management area) to evaluate possible harvest control rules management procedures. Documents SCRS/2006/085 and SCRS/2006/086 summarize the progress made in this area, denoting some initial specifications for the modeling process including spatial boundaries, size groupings, potential control rules, performance criteria and estimation models.

The TAG A Giant research program from Stanford University and the Monterey Bay Aquarium continued the tagging of Atlantic bluefin tuna off the coast of North Carolina in the winter of 2006. This effort brought the total number of electronic tags deployed on Atlantic bluefin by the TAG team to 925. In addition, to tagging in North Carolina, the TAG program has continued or initiated collaborative bluefin tagging efforts with the Irish Sea Fisheries Board to tag in the waters offshore of Galway, the recreational fishers in Spain and France (Big Game Fishing Club of France), and Canadian fishers in an effort to expand the techniques being used for tag implantation. The recovery of implanted archival tags has continued as well, with the total number of recoveries reaching 110 tags. The tags deployed in 2006 showed movement patterns similar to those deployed in prior years (Block *et al.* 2001, 2005, Boustany *et al.* In press). The movement patterns, diving behavior, and thermal biology of Atlantic bluefin tuna on the Gulf of Mexico spawning ground was examined with electronic tags (Teo *et al.*, 2006). The results indicate that electronic tags can be used to predict the breeding areas of bluefin and improve the capacity for managers and fishers to discern how best to lower interaction probability, which would increase the capacity to ensure a recovery of the species.

U.S. scientists from Stanford University, in collaboration with and Italian scientist from the University of Bari, have examined population structuring through sequencing of 860 base pairs of the control region of the mitochondrial genome (SCRS/2006/089). Bluefin tuna populations from the Gulf of Mexico and the Mediterranean Sea were found to be genetically distinct based on Φ_{st}, sequence nearest neighbor and AMOVA analyses, supporting the hypothesis that these two major spawning areas are independent stocks. Another study by scientists from the Virginia Institute of Marine Science also found significant genetic differentiation at nuclear microsatellite loci and at the mitochondrial control region among young of the year Atlantic bluefin tuna captured on spawning grounds in the Gulf of Mexico, and in the western and eastern basins of the Mediterranean Sea. The existence of genetic diversity among Atlantic bluefin tuna from different spawning grounds, combined with the high fidelity of tagged adults to the same spawning areas for multiple years, supports the hypothesis that Atlantic bluefin tuna are exhibiting spawning ground fidelity.

U.S. scientists from the University of New Hampshire's Large Pelagics Research Lab (LPRC) have placed over 200 pop-up satellite archival tags have on New England bluefin tuna. Ongoing efforts include examining short and long-term dispersals of bluefin in the Gulf of Maine, the identification of spawning grounds, the spatial correlation between bluefin locations and oceanographic features and determination of migratory paths. Results from much of this tagging effort were recently published in the journal Marine Biology (Wilson, *et al.* 2005. Movements of bluefin tuna (*Thunnus thynnus*) in the northwestern Atlantic Ocean recorded by pop-up satellite archival tags. Marine Biology 146: 409- 423.) Thirteen PSAT tags were deployed on giant bluefin tuna off the coast of SW Nova Scotia, Canada, in October, 2005, in collaboration with DFO scientists. In April, 2005, the LPRC hosted a workshop which examined possible approaches for developing new indices of abundance for juvenile bluefin. Also in 2005, 98 juvenile bluefin tuna were released with implanted archival tags in collaboration with scientists from the Virginia Institute of Marine Science, and the Massachusetts Division of Marine Fisheries. Fish were tagged off the U.S. coasts of Virginia and Massachusetts. As results become available they will be reported upon. The UNH LPRC also completed a study of the reproductive status of New England bluefin during 2000-2003, and continued long-term studies of somatic condition, stable isotopes, fatty acids, stomach contents, and age and growth.

U.S. scientists also examined the size distribution of bluefin tuna caught by U.S. and Japanese longliners in the Gulf of Mexico (SCRS/2006/090). Results indicated that approximately 98% of all fish present in the Gulf of Mexico were 9 year old or older and that the age of 50% maturity was about 12 years. A study from the University of Maryland cited tagging data that corroborated these findings (i.e., occurrence of large fish outside known spawning areas during the spawning season) and showed that egg per recruit calculations are sensitive to the assumed maturity schedule (SCRS/2006/088).

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 2005 SCRS. Estimates of small swordfish by-catch for 2003-2005 were compared to the average levels estimated for the late 1990's and were found to be substantially lower (see Appendix, pg. 37-38).

Fisher-reported and observed swordfish catch, size and catch rate patterns through 2004 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/2005/085).

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.

U.S. scientists collaborated with Brazilian scientists in conduct of catch rate standardization procedures by offering a course on the topic in Brazil in mid-2005. Central to this collaboration is development of fisheries research capacity in Brazil through graduate student training and of stronger scientific cooperation between Brazil and the United States.

Research on measures to mitigate the interactions between pelagic longline and by-catch of marine turtles continued under a cooperative research program involving the U.S. Atlantic pelagic longline fishery. The Northeast Distant Fishery Experiment was conducted from 2001 through 2003 on the high seas of the Western Atlantic Ocean, in an area off New Foundland known as the Grand Banks. Results of this research into reducing mortality of marine turtles interacting with pelagic longlines was recently published (Watson, *et al.* 2005. Fishing methods to reduce sea turtle mortality associated with pelagic longlines. Can. J. Fish. Aquat. Sci. 62(5): 965-981). Additional cooperative research in the Gulf of Mexico was carried out in 2004 and in additional regions in 2005. Results of these research projects will be reported to SCRS as they become available.

A simulation study (SCRS/2006/029) was conducted to evaluate the effects of stock mixing on management benchmarks as estimated by the current surplus production assessment model. Specifically, two distinct stocks were modeled under several hypothetical mixing scenarios, and simulated data sets were generated. Performing assessments using these datasets demonstrated that a stock could look more or less productive than it actually was.

2.2.3 Tropical tunas research

In addition to monitoring catch and effort statistics for tropical tunas, four U.S. scientists participated in the 2005 ICCAT Workshop on Methods to Reduce Mortality of Juvenile Tropical Tunas, held in Madrid from July 4 to 8, 2005. Document SCRS/2005/063 used the ICCAT Task II catch and effort data to estimate expected changes in the catches of tropical tunas attributable to replacing the current moratorium with a time-area closure [Recommendation 04-01]. The results indicate that catches of tropical tunas are expected to increase substantially if the time-area closure replaces the current moratorium. Considering that the current ICCAT hypothesis is that purse-seine fleet efficiency gains 3% per year, the net change could in fact be a large overall increase to levels above the pre-moratoria fishing mortality rate levels. Document SCRS/2005/079 explored the expectations for catches of undersized bigeye tuna considering the agreement reached in [Rec. 04-01]. In all cases examined, total catches can be expected to increase from 5.5 to 6.7% as a result of [Rec. 04-01], and catches of bigeye tuna can be expected to increase from 16-22.1%. In all cases, catch of juvenile bigeye tuna increases.

U.S. scientists also participated in the ICCAT SCRS Inter-Sessional Meeting of the Tropical Species Group, held in Sète, France, April 24 to 28, 2006. Participants continued the recent work of the Group in evaluating alternative measures to protect juvenile tropical tunas.

U.S. scientists from the University of Miami Rosenstiel School of Marine and Atmospheric Science continue to collaborate with EC scientists on the EU-funded FEMS project, on management strategy evaluations related to tropical tuna fisheries. U.S. scientists have continued to conduct cooperative research with scientists from Mexico using combined longline observer data from the Gulf of Mexico, pursuing the development of indices of abundance for species of concern to ICCAT as well as descriptive analyses of that fishery.

2.2.4 Albacore research

U.S. scientists prepared document SCRS/2005/081 which described population models for North Pacific albacore (*Thunnus alalunga*) that have been developed and reviewed within the North Pacific Albacore Workshop (NPALBW) forum since 2000. Currently, the NPALBW relies on a Virtual Population Analysis (VPA) model for purposes of formulating an international-based consensus regarding the "status" of this fish stock. Recently, an equally important research directive from the Workshop has been to develop alternative, more detailed statistical-based models, in efforts to evaluate more fully the relationship between this species' population dynamics and associated fishery operations (i.e., areas of uncertainty in an overall stock assessment). We have developed one candidate model based on the Age-structured Assessment Program (ASAP), which generally represents a maximum likelihood-based numerical approach for conducting relatively straightforward, forward-simulation catch-at-age analyses. In addition the document presents a brief discussion concerning development of other alternative stock assessment models, particularly length-based/age-structured platforms (e.g., MULTIFAN-CL and Stock Synthesis 2).

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 mackerels by U.S. fishermen is generally 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. An updated assessment of king and Spanish mackerel stock status was recently completed, including evaluations of stock status under various hypotheses about interchange rates between Gulf of Mexico and U.S. Atlantic migratory groups. The results of the assessment were used to advise the Gulf and South Atlantic Fishery Management Councils on biologically appropriate harvest levels corresponding with the Councils' objectives for sustainable harvest.

In 2004 and 2005, U.S. scientists collaborated with Caribbean nations under the banner of the Caribbean Regional Fisheries Mechanism in initiating stock assessment analyses for small tuna (and other) stocks of mutual concern.

2.2.6 Shark research

The ICCAT Sub-Committee on By-catches conducted an assessment of blue sharks and shortfin makos in Tokyo, Japan, in June 2004. US scientists contributed 8 working documents for this meeting on various aspects of shark biology and methods to assess stock status. In response to a Commission request, document SCRS/2005/086 provided an evaluation of the validity of the continued use of the 5% fin weight to carcass weight ratio using available data from various fishery-independent and fishery-dependent sources. The fin to carcass ratio is highly variable, depending on species, fin set, and finning procedure. If species-specific management is not feasible, the available data suggest that the aggregated 5% ratio is not inappropriate when using the primary fin set in the calculations. In all, the only guaranteed method to avoid shark finning is to land sharks with all fins attached. A cooperative shark research project between Brazil (Universidade Federal Rural de Pernambuco) and the U.S. (NOAA Fisheries and the University of Florida's Florida Museum of Natural History) has been developed and is scheduled to start in late 2006. Central to conducting the research is development of fisheries research capacity in Brazil through graduate student training and of stronger scientific cooperation between Brazil and the United States.

2.2.7 Billfish Research

The NMFS SEFSC again played a substantial role in the ICCAT Enhanced Research Program for Billfish in 2005, with SEFSC scientists acting as general coordinator and coordinator for the western Atlantic Ocean. Major accomplishments in the western Atlantic in 2005 were documented in SCRS/2005/082. Highlights include 13 at-

sea sampling trips with observers on Venezuelan industrial longline vessels in September 2005. Of the trips accomplished to date, 5 observer trips were on Korean type vessels fishing under the Venezuelan flag. Most of these vessels are based out of Cumana 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 2005 sampling season. Shore-based sampling of billfish landings for size frequency data, as well as tournament sampling was 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 western Atlantic Ocean during 2005. A total of 77 tag recovered billfish and sharks were submitted to the Program Coordinator in 2005. Age, growth, and reproductive samples (Bermuda) from several very large billfish were obtained during 2005.

A study conducted by the Virginia Institute of Marine Science (VIMS) to evaluate post release survival and habitat use from the recreational fishery for Atlantic white marlin using pop-up satellite archival tags (PSATs) was published in the Fishery Bulletin in 2005. Two separate studies were also conducted by VIMS on U.S. longline vessels to evaluate post release survival of white marlin (published in Fishery Bulletin in early 2006) and sailfish (SCRS/2006/149). The SEFSC has conducted several studies in the Northwest Atlantic and along the Pacific coast of Central America to evaluate habitat use and reproductive biology of billfish using PSAT technology. About 200 PSATs have been deployed in this effort over the last five years with deployments ranging from a month to 5.5 months. Several peer review papers summarizing these results are in press at this time, while other papers are currently in preparation. In addition, SEFSC is also currently conducting pelagic longline research to evaluate gear behavior, and the effects of gear modification on catch rate and survival of target and non-target species. Three cruises have been completed to date. This work in ongoing and should be finished sometime in 2006.

Cooperative billfish research between U.S. and Brazilian scientists was initiated in 2005 (SCRS/2006/159). Preliminary results of the billfish hook comparison research with the Brazilian pelagic longline fishery are presented in document SCRS/2006/150. Additional research in Brazil will also focus on PSAT tagging of billfish and the collection of biological materials for ageing and molecular genetic analyses. The Fishery Management Group of the University of Miami is carrying out research on Atlantic billfish in three areas, population parameter estimation, population modeling and development of socio-economic indicators. Others at the University of Miami Rosenstiel School and elsewhere are conducting research on early life history, reproductive biology and ecology of billfishes, as well as age and growth estimation.

The Fourth International Billfish Symposium was held in Catalina Island October 31-November 3, 2005. The SEFSC Migratory Fishery Biology Branch staff and associated collaborators presented 12 of the 70 papers (and two posters) during the meeting. This effort represented about 17% of the papers presented during the entire program and reflects, in a positive way, progress of research on Atlantic billfish.

Document SCRS/2006/066 presented an update of standardized CPUE for blue and white marlin from the US LL fishery in the northwest Atlantic and Gulf of Mexico. Regarding the treatment of area in the model, the authors explained that all areas were treated equally independent of the size of the area.

Document SCRS/2006/067 presented an update of standardized CPUE for blue and white marlin from the US recreational tournament fishery in the northwest Atlantic and Gulf of Mexico. There were questions about the merging of statistics from different sources (the Recreational Billfish Survey used in the analyses and other more general fishery surveys). It was noted that occasionally some tournaments catch billfish as a by catch, and a filtering procedure for deleting these tournaments from the CPUE computations was described and implemented for this update of the time series for both marlin.

Document SCRS/2006/064 used a Bayesian production model to assess the status of white marlin. The model used numerous assumptions relative to the intrinsic rates of increase and the biomass at the beginning of the fishery relative to un-fished biomass. The model was fitted to the most recent indices of abundance data (last decade or so), including GLM and habitat standardization of CPUE series. Several alternative methods were used to weight the indices and the indices were also fitted separately to assess whether results provided consistent information about trends in white marlin abundance.

Document SCRS/2006/068 provided an update on progress of an age and growth project on Atlantic white marlin. A total of 988 white marlin have been sampled for hard parts (i.e. annual spines) from commercial longline and artisanal gillnet fisheries in Venezuela. These samples are part of a larger ocean scale effort to

obtain the necessary data to estimate age and growth of white marlin. Of the total marlin sampled, 575 spines have been sectioned and read for age and growth analysis. Relative marginal increment analysis is being used to validate age estimates. Preliminary results suggest that a single increment is formed once a year. However, sample sizes for the months of April, May, and June are still insufficient to reject the possibility that a second increment could be forming in these months. More samples need to be obtained in these months to resolve this question.

Document SCRS/2006/043 identifies a problem with using general linear models to standardize CPUE estimates of population abundance indices. Often there is a lack of balance in the number of observations by factor and year sometimes including instances where gear, area, or other factors or combinations are missing for a year or years. This imbalance diminishes the robustness of the GLM estimates of population trends. Software packages differ in the way they handle these missing strata in the calculation of marginal means. This can lead to "fitted" marginal means that may radically misrepresent the actual population abundance trend. Analysts must be vigilant of the conventions applied by different software packages when interpreting fitted results.

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 3,333 billfishes (including swordfish) and 329 tunas in 2005. This represents a decrease of 12.3% for billfish and a decrease of 81.5% for tunas from 2004 levels. There continues to be several electronic tagging studies involving bluefin tuna and billfish in the Atlantic Ocean and adjacent waters during 2005. These are discussed in the bluefin and billfish research sections above. There were 27 billfish recaptures from the CTC and TBF projects in 2005. This represents an increase of 28.6% from 2004. These recaptures were one blue marlin, 20 sailfish, one white marlin and five swordfish. A total of 11 tunas were recorded as recaptures in 2005. These were seven bluefin, two yellowfin, one bigeye tuna and one albacore tuna. This recapture level was equal to the year 2004 values. The ICCAT Enhanced Research Program for Billfish (IERPBF) in the western 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 2005 (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, 8% sampling of the number of sets reported by the longline fleet. A total of 8,479 sets (6,278,046 hooks) were recorded by observer personnel from the SEFSC and NEFSC programs from May of 1992 to December of 2005. Observers recorded over 309,600 fish (primarily swordfish, tunas, and sharks), in addition to marine mammals, turtles, and seabirds during this time period. The percent of fleet coverage through 2005 ranged from 2.5% in 1992 to 9.0% in 2002. Fleet effort for 2005 has not been finalized, but percent observer coverage is estimated near 8% for the year. Sampling fraction of the U.S. pelagic longline fleet was increased in 2002 to 8%. Document SCRS/2004/168 provides a more detailed summary of the data resulting from observer sampling between 1992 and 2002. Data collected by the SEFSC, Miami Laboratory Pelagic Observer Program is available on the internet at http://www.sefsc.noaa.gov/observerdata.jsp for the years 1992 to 2005.

In 2005, an experimental gear design study was initiated in cooperation with six U.S. pelagic longline vessels that fished in the northwestern Atlantic and Gulf of Mexico to compare differences in catch rates of target species and by-catch using various hook/bait combinations. A total of 247 sets (157,138 hooks fished) were observed aboard these six vessels; results of this gear design experiment are not yet available, pending complete analyses.

Southeast U.S. Shark Gillnet Fishery Observer Coverage. The directed shark gillnet fishery operates year round in coastal waters off the US southeast coast. Sharks are the primary target species. On-board observers have conducted observations of this fishery from 1993-1995 and 1998-present and reports of the catch and by-catch from these observations are available. Starting in 2005, a pilot observer program was begun to include all vessels that have an active directed shark permit and fish with sink gillnet gear. These vessels were not previously subject to observer coverage because they either were targeting non-highly migratory species or were not fishing gillnets in a drift or strike fashion. In 2005, a total of 31 drift and 33 strike gillnet sets on 30 and 53 trips were

observed from four and seven vessels, respectively. For those vessels fishing sink gillnet gear, a total of 88 sets were observed on 30 trips from eight vessels in 2005.

U.S. shark bottom longline observer coverage. The shark bottom longline fishery is active in the Atlantic Ocean from about the Mid-Atlantic Bight to south Florida and throughout the Gulf of Mexico. The bottom longline gear targets large coastal sharks, but small coastal sharks, pelagic sharks, and dogfish species are also caught.

Observations of the Atlantic shark directed bottom longline fishery have been conducted since 1994 by the Commercial Shark Fishery Observer Program, Florida Museum of Natural History, University of Florida, Gainesville, Florida. Starting with the second trimester season of 2005, responsibility for the fishery observer program was transferred to National Marine Fisheries Service, Southeast Fisheries Science Center, Panama City Laboratory. For the second and third trimester seasons 2005, shark bottom longline observers spent 117 days at sea on 35 trips. A total of 92 sets were observed.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

3.1 Catch limits and minimum sizes

3.1.1 Rebuilding Program for west Atlantic bluefin tuna [Rec. 98-07; 02-07]

Recommendation 02-07 revised the annual west Atlantic bluefin tuna quota for the United States to 1489.6 t and allocated 25 t of this total to account for incidental catch by pelagic longline vessels in the vicinity of the management area boundary. This quota and the 2004 underharvest were applied to the 2005 fishing year (June 1, 2005 through May 31, 2006) resulting in an adjusted quota of 2055.0 t. During the 2005, calendar year, the United States landed an estimated 848.3 t of bluefin tuna, which includes an estimated 130.8 t of dead discards.

3.1.2 Recommendation to Establish a Plan to Rebuild Blue Marlin and White Marlin Populations [Rec. 00-13; 01-10; 02-13; 04-09]

Phase I of the ICCAT rebuilding plan requires countries to reduce commercial landings of Atlantic white marlin captured in pelagic longline and purse seine fisheries by 67% and reduce blue marlin landings by 50% from 1996 or 1999 landings (whichever is greater). 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% initially, with an objective of 10% 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 and white marlins, combined, through 2006. Recommendation 04-09 extended Phase I of the blue and white marlin rebuilding plan through 2006, and also specified that stock assessments for these species would be conducted in that year. Recreational catch and release rates for marlin are estimated to be very high (90-99%) 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.

A final rule was published in October, 2006, that codified the ICCAT 250 fish limit and established procedures to remain within the limit. In addition, this final rule contained measures that require all permitted anglers to use only non-offset circle hooks when using natural baits or natural bait/artificial lure combinations when participating in billfish tournaments; prohibited the retention of billfish on most commercial vessels; and established a permit condition requiring that recreational vessels possessing an HMS permit abide by Federal regulations regardless of where fishing, unless a state has more restrictive regulations. These management measures are expected to substantially reduce marlin mortality. As noted in section 2.1.4 Marlins and Sailfish Fishery Statistics of this report, the United States is working to resolve uncertainty pertaining to estimation methodologies for rod and reel catches and landings of marlins. Preliminary 2005 calendar year data from the Recreational Billfish Survey (RBS) recorded landings of 66 blue marlin and 26 white marlin. Preliminary 2005 fishing year (June, 2005-May, 2006) data from the RBS indicate landings of 62 blue marlin and 26 white marlin from recreational fishing tournaments. This survey is not inclusive of fishing activities outside of tournaments. The United States implemented a mandatory reporting program for billfish landed by recreational anglers who are not participating in registered tournaments in March 2003. In addition, the United States has taken steps to improve statistical information collection on recreational fishing in the Commonwealth of Puerto Rico and the

U.S. Virgin Islands. These efforts have resulted in qualitative information that indicates that billfish landings may have been underestimated in past years. Efforts to produce quantitative historical estimates of non-tournament billfish landings for both U.S. mainland and Caribbean ports have been problematic due to estimation techniques that are subject to imprecision and bias. In an effort to reduce mortality in U.S. recreational fisheries, steps have been taken to improve data collection in Puerto Rico, and to increase enforcement activities in response to reports of illegal sales, unregistered tournaments and non-permitted anglers. Also, the U.S. Congress appropriated $2.5 million in fiscal year 2004 to enhance research programs on billfish, including means of reducing mortality. As the results of these research projects are obtained, the United States will continue to implement appropriate changes to its management programs.

3.1.3 Recommendation to establish a rebuilding program for North Atlantic swordfish [Rec. 99-07; 02-02; 04-02]

The 1999 recommendation established an annual landings quota of 2,951 t for the United States. Recommendation 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 2004 fishing year, there was an underharvest of North Atlantic swordfish which was added to the landings quota for the 2005 fishing year. Landings and discard estimates for the 2004 fishing year and 2005 calendar years are provided in the U.S. Compliance Tables. The United States has a minimum size of 33 lb (15 kg) dressed weight, and a required minimum size of 29" (73 cm) cleithrum to caudal keel length or 47" (119 cm) lower jaw fork length, which are designed to correspond to the 119 cm minimum size limit, with zero tolerance. Information on compliance with the minimum size is provided in the U.S. compliance tables. The United States codified the provisions from Recommendation 02-02 in November 2004. Recommendation 04-02 amended the Rebuilding Program for North Atlantic Swordfish by extending for one year management measures in place for 2005 as identified in paragraphs 2, 3c, and 7 of ICCAT Recommendation 02-02.

3.1.4 Recommendation on South Atlantic swordfish [Rec. 02-03]

This recommendation establishes catch limits for the United States of 100 t for 2003 through 2005 and of 120 t for 2006, and allowed underharvests in 2000 to be carried over to 2003. The United States landed 16 t in fishing year 2004 and preliminary data indicate 0.0 t of South Atlantic swordfish in fishing year 2005.

3.1.5 Recommendation on revision and sharing of the southern albacore catch limit [Rec. 02-06; 03-07; 04-04]

The United States was subject to a catch limit of 100 t in 2004 and 2005; however, the United States does not have a directed fishery for southern albacore. Estimated U.S. landings of southern albacore tuna were 0.5 t in fishing year 2004 and preliminary data indicate 0.0 t in calendar year 2005.

3.1.6 Recommendation on North Atlantic albacore catch limits [Rec. 02-05; 03-06]

The United States was allocated a landings quota of 607 t ww for 2005, which is a level consistent with average landings for the United States since the mid-1990s. The 2002 recommendation applied for one year only, whereas the 2003 recommendation applies to three fishing years (2004-2006). The 2003 recommendation provides that overages/underages of this annual catch limit should be deducted from, or added to, the catch limit established for the year 2005 and/or 2006. The United States landed 646.5 t during the 2004 fishing year. The 2005 calendar year landings were 487.3 t.

In addition, pursuant to ICCAT's recommendation concerning the limitation of fishing capacity on North Atlantic albacore (1998), the United States submits the required reports providing a list of U.S. vessels operating in the fishery on an annual basis. The 2006 submission indicated that there were 379 vessels authorized to harvest North Atlantic albacore in the Convention area.

3.1.7 Recommendation on bigeye tuna conservation measures [Rec. 02-01; 03-01; 04-01]

No catch limits apply to the United States, since 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 416.1 t in fishing year 2004 and 483.4 t in calendar year 2005.

3.1.8 Recommendation on Yellowfin Size Limit [Rec. 72-01; 05-01]

In 2005 ICCAT repealed the minimum size limit of 3.2 kg that had been in place since 1972. The United States maintains a minimum size limit of 27 inches fork length in both recreational and commercial fisheries for yellowfin tuna.

3.1.9 Resolution on Atlantic sharks [Res. 01-11; 03-10]

The 2001 shark 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. Furthermore, the 2003 shark resolution requests ICCAT Parties and Cooperating Parties, in preparation for the 2004 shark assessment, to provide the SCRS by-catch committee with information on shark catches, effort by gear type, and landings and trade of shark products, and calls for the full implementation of National Plans of Action (NPOAs) by ICCAT parties and cooperating parties, in accordance with the FAO International Plan of Action for the Conservation and Management of Sharks.

The United States submits catch and effort data for sharks and has catch limits in place for pelagic sharks, including, Atlantic porbeagle, shortfin mako, and blue sharks. In addition to providing data to the SCRS for the 2004 shark assessment, scientists from the United States participated in the shark assessment meeting. 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), to reduce discards and 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 has managed sharks in the Atlantic Ocean under domestic fishery management plans (FMP) since 1993. The 1993 FMP, among other things, established a fishery management unit for Atlantic sharks, prohibited shark finning by requiring that the ratio between wet fins/dressed carcass not exceed 5 percent, and established other commercial and recreational shark management measures. The 1999 Atlantic Highly Migratory Species FMP established further management measures for Atlantic sharks, including a limited access permit system, recreational retention limits, reduced commercial quotas, and expansion of the prohibited shark list to 19 species. In 2002, the United States completed stock assessments for large and small coastal sharks, and began to develop Amendment 1 to the 1999 FMP to reassess shark management. Amendment 1, which was completed at the end of 2003, addressed, among other things, commercial quotas, quota management and administration, a time/area closure for sandbar and dusky shark nursery and pupping areas, and vessel monitoring system requirements for shark vessels to facilitate enforcement of closed areas.

A new Consolidated Fishery Management Plan (FMP)was completed in July 2006, which replaced the 1999 FMP, and which contained measures that will enhance U.S. data collection efforts by improving identification of dressed shark carcasses. These measures prohibit removal of the second dorsal and anal fin from sharks prior to landing, and require all U.S. shark dealers to attend shark identification workshops. Also included are actions to address overfishing of finetooth sharks and a complete review of all new information related to essential fish habitat (EFH) for sharks. The final rule implementing these measures is expected in October 2006. Other management activities occurring in 2006 include the completion of the large coastal (LCS) stock assessment in June of 2006, an assessment of the Atlantic dusky shark stock, and a review of the Atlantic porbeagle shark stock as reported in the 2005 Canadian Stock Assessment and Recovery Assessment reports. The United States is also currently planning a Small Coastal Shark stock assessment for 2007, and is in the process of developing a Shark FMP for State waters.

3.1.10 Recommendation to amend Recommendation 04-10 concerning the conservation of sharks caught in with fisheries managed by ICCAT [Rec. 05-05]

The original 2004 Recommendation established a timeline for review of the shortfin mako population assessment and development of recommendations for management alternatives (2005), as well as reassessment of blue sharks and shortfin mako (2007) by SCRS. Following the 2005 assessment, Recommendation 04-10 was amended to include additional requirements for CPCs to implement and report on measures taken to reduce fishing mortality of North Atlantic shortfin mako sharks. The United States currently tracks the annual quota for pelagic sharks, which includes landings of shortfin mako, to ensure that catches of these species are well under

the designated quota. Tracking of the pelagic shark quota in recent years indicates that pelagic sharks, including shortfin makos, do not constitute a significant portion of U.S. shark landings. The United States has catch limits in place for Atlantic porbeagle, shortfin mako, and blue sharks and will continue to submit catch and effort data for sharks.

Recommendation 04-10 also included reporting requirements for shark catches, including available historical data on catches; full utilization of shark catches; a requirement that CPCs prevent their vessels from having shark fins onboard that total more than 5% of the weight of sharks; a requirement that the ratio of fin-to-body weight of sharks be reviewed by the SCRS by 2005; and prohibitions on fishing vessels retaining, transshipping or landing any fins harvested in contravention to the Recommendation. In addition, the Recommendation encourages the release of live sharks, especially juveniles, in fisheries not directed at sharks, as well as additional research to improve the selectivity of fishing gears and identify shark nursery areas. Recommendation 05-05 required CPCs to implement the provisions of Recommendation 04-10 for North Atlantic shortfin mako shark populations. The United States continues to fulfill the requirements of these recommendations through data collection programs and a variety of fishery restrictions including the Shark Finning Prohibition Act of 2000. This law prohibited the practice of finning nationwide and the possession or landing of shark fins without the associated carcass (67 FR 6194, February 11, 2002). 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 also currently enforces a minimum size limit and bag limits for recreationally caught sharks, and has established a time/area closure for shark bottom longline fishing in the mid-Atlantic to protect sharks in the nursery grounds.

3.2 Closed seasons

3.2.1 Recommendation on the establishment of a closed area/season for the use of fish-aggregation devices (FADs) [Rec. 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; and (4) the Northeastern United States: 21,600 nm^2 during the month of June each year. Effective January 1, 2005, the United States implemented a mid-Atlantic shark closed area for bottom longline gear from January through July of each year to protect dusky shark and juvenile sandbar sharks in pupping and nursery areas. In addition, all HMS gear types are prohibited year-round, except for surface trolling only from May through October, in the Madison Swanson and Steamboat Lumps Marine Reserves **(Figure 2)**. These closures were implemented for the protection of spawning aggregations of gag grouper, and the HMS management measures will expire on June 16, 2010, consistent with Gulf of Mexico Fishery Management Council recommendations. Both of these reserves are located shoreward of the Desoto Canyon Closed Area **(Figure 2)**. The Madison-Swanson Marine Reserve is 115 nm^2 in size, and the Steamboat Lumps marine reserve is 104 nm^2 in size. Finally, on March 29, 2006, NMFS published a proposed rule (71 FR 15680) to complement regulations that the Caribbean Fishery Management Council (CFMC) implemented on October 28, 2005 (70 FR 62073) that would close six small distinct areas off of Puerto Rico and the U.S. Virgin Islands to bottom longline gear, year-round. The purpose of these closed areas is to protect essential fish habitat of reef-dwelling species. A final rule implementing these closed areas is anticipated in the fall of 2006. These areas are defined in Title 50, section 622.33 (a) of the Code of Federal Regulations.

The Northeast Distant Statistical Sampling Area (NED) (2,631,000 nm^2), which had been closed year-round (per regulations at 50 CFR part 223 and 635) from 2001 through mid-2004, has been reclassified as a gear restricted area. Pelagic longline vessels may only fish for highly migratory species in this area if they observe strict circle hook and bait restrictions and use approved sea turtle release gear in accordance with release and handling protocols. Outside of the NED, the U. S. HMS PLL fishery is required to use circle hooks with certain bait combinations, depending on the region, as well as the required, approved sea turtle release gear and release and handling protocols. NMFS published a proposed rule on March 26, 2006 (71 FR 15680) that would require participants in the Atlantic shark bottom longline fishery to possess, maintain, and utilize the same equipment

and follow the same protocols for the safe handling and release of sea turtles and other protected species as required in the pelagic longline fishery. A final rule implementing these measures is expected in the fall of 2006.

3.3 Ban on imports

3.3.1 Trade restrictive recommendations adopted in 2005 [Rec. 01-15; 02-16; 02-17; 02-18; 02-19; 02-20; 03-17; 03-18; 04-13; 04-14; 04-15]

On December 6, 2004, the United States published a final rule (69 FR 70396) that implemented or lifted trade restrictions on several countries which were adopted at the 2001, 2002, and 2003 ICCAT meetings. Trade restrictions were implemented against bigeye tuna, bluefin tuna, and swordfish imports from Sierra Leone [Rec. 02-19] and bigeye tuna imports from both Georgia [Rec. 03-18] and Bolivia [Rec. 02-17]. This rule lifted trade restrictions on Honduras for bigeye tuna [Rec. 02-18], bluefin tuna [Rec. 01-15], and swordfish [Rec. 01-15]. Trade restrictions were also lifted against Belize for bluefin tuna [Rec. 02-16], bigeye tuna [Rec. 02-16], and swordfish [Rec. 02-16] imports. Lastly, trade restrictions for bigeye tuna [Rec. 02-20] imports from St. Vincent's and the Grenadines were also lifted. In 2005, the United States published a final rule on May 17, 2005 (70 FR 28218] that implemented Recommendations [04-13], [04-14], and [04-15] to lift the trade restrictions on imported bigeye tuna [Rec. 04-15] from Cambodia, bigeye and bluefin tuna from Equatorial Guinea [04-13], and bigeye tuna, bluefin tuna, and swordfish from Sierra Leone [Rec. 04-14]. At the 2005 Annual meeting there were no additional trade restrictive measures passed by the commission.

3.3.2 Statistical documentation programs

The United States' Bluefin Tuna Statistical Document program has been in place since the 1990s, and statistical document programs for swordfish and frozen bigeye tuna were implemented in 2005. Prior to 2005, the United States had a domestic documentation program for swordfish called the Certificate of Eligibility (COE) which has now been fully replaced by the statistical document program. As required under the program, the United States submits reports to ICCAT twice-yearly providing information on import, export and re-export activity involving these species products.

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 online at the following website: http:// www.st.nmfs.noaa.gov/st4/nop/index.html. 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

3.5.1 Recommendation concerning minimum standards for the establishment of a vessel monitoring system (VMS) in the ICCAT Convention area [Rec. 03-14; 04-11]

The United States implemented a fleet-wide VMS requirement in the Atlantic pelagic longline fishery effective September 1, 2003 (June 25, 2003, 68 FR 37772), consistent with the terms of Recommendations [03-14] and [04-11]. In addition, for domestic management purposes, the United States issued a rule in December of 2003 (December 24, 2003, 68 FR 74746), requiring VMS for bottom longline vessels operating near a time/area closure and for shark gillnet vessels operating during the right whale calving season.

3.6 Measures to ensure effectiveness of ICCAT conservation and management measures and to prohibit illegal, unreported and unregulated Fishing

3.6.1 Management standard for the large-scale tuna longline fishery [Res. 01-20]

In 2001, ICCAT resolved [Res. 01-20] 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. As per Recommendation 02-22, the United States has submitted its list of vessels of more than 24 m LOA that are licensed to fish for tuna and tuna-like species in the Convention Area, which included licensed tuna longline vessels. The U.S. submission regarding Resolution [01-20] is provided in the Appendix on page 19**.**

3.7 Other recommendations

3.7.1 Resolution on Seabirds [Res. 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, pg. 39.

3.7.2 Resolution on sea turtles [Res. 03-11]

The 2003 resolution on sea turtles encourages ICCAT parties and cooperating parties to collect and provide the SCRS with information on interactions with sea turtles in ICCAT fisheries, including incidental catches and other impacts on sea turtles. The measure also encourages the release of all sea turtles that are incidentally caught alive and to share information, including technical measures, to reduce the incidental catch of sea turtles, and to ensure the safe handling of all turtles that are released to improve their survivability. The resolution also calls for the development of data collection and reporting methods for the incidental by-catch of sea turtles and to support efforts by the FAO to address the conservation and management of sea turtles. The United States complies with all of these requests.

In addition to the above activities, the United States has undertaken extensive research activities in its longline fleet for ways to reduce sea turtle interactions and increase survivability of sea turtles incidentally caught in longline fisheries. 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 line cutters and long handled de-hookers 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 are 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 are used on boated turtles to allow access to internally lodged hooks. U.S. gear experts have presented this by-catch reduction technology and data from the research activities at approximately 15 international events that included fishing communities and resource managers between 2002 and mid-2005.

In 2004 (July 6, 2004; 63 FR 40734), the United Stated codified regulations that implemented measures to reduce sea turtle by-catch. These measures pertain to the entire U.S. Atlantic pelagic longline fishery, and include: mandatory bait specifications depending on fishing locale, use of circle hooks (size of hook depending on fishing locale), and the mandatory possession and use of sea turtle handling and release gear on board all vessels with pelagic longline gear. The U.S. pelagic longline fleet has seen a precipitous decline in the number of sea turtle interactions since implementation of the circle hook regulations in mid-2004. U.S. pelagic longline leatherback sea turtle interactions declined from an estimated 1,362 in 2004 to 368 in 2005; loggerhead sea turtle interactions declining from an estimated 734 in 2004, to 283 in 2005. As new technological solutions are discovered, the United States will continue to help share these innovations with other fishing nations.

3.7.3 Recommendation on vessel chartering [Rec. 02-21; 03-12]

A final rule was published on December 6, 2004, (69 FR 70396) to implement Recommendation [02-21] concerning vessel chartering. Recommendation [03-12] implemented monitoring measures for contracting parties, including maintaining up to date records of fishing vessels entitled to fly its flag and/or authorized to fish species managed by ICCAT in the convention area which is an integral component of vessel chartering arrangements. The United States complies with these recommendations by collecting all relevant information before chartering arrangements. In late 2004, the U.S. authorized one vessel to participate in chartering activities in the ICCAT convention area during 2005.

3.7.4 Recommendation concerning the recording of catch by fishing vessels in the ICCAT Convention area [Rec. 03-13]

The United States requires all commercial fishing vessels over 24 m in length to maintain either bound or electronic logbooks. For information on the implementation of this recommendation relative to recreational fishing vessels, see the section, Resolution on Improving Recreational Fishery Statistics, below.

3.7.5 Resolution on improving recreational fishery statistics [Res. 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), mandatory non-tournament landings reporting requirements for Atlantic blue and white marlins, sailfish, swordfish, and bluefin tuna, as well as 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 percent of billfish tournaments are selected for reporting. Effective in March 2003, U.S. regulations 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 in the process of improving the non-tournament reporting system for Atlantic billfish, including swordfish, by allowing reporting via the internet.

3.7.6 Recommendation concerning the establishment of an ICCAT record of vessels over 24 meters authorized to operate in the Convention area [Rec. 02-22]

The United States submitted the list of vessels required, pursuant to this recommendation, to the Secretariat in July, 2006. At that time there were 146 U.S. vessels that met the appropriate criteria.

3.7.7 Recommendation on bluefin tuna farming [Rec. 03-09; 05-04]

The United States does not currently engage in bluefin tuna farming, therefore, no regulations are necessary for compliance with this recommendation. The United States is in the process of beginning a rulemaking to amend the BSD program which could, among other things, address the need to ensure that imported, farmed fish are only imported from farms on the ICCAT farm list.

3.7.8 Recommendation concerning the duties of Contracting Parties and Cooperating non-Contracting Parties, Entities, Fishing Entities in relation to their vessels in the ICCAT Convention area [Rec. 03-12]

The United States currently implements all elements of this measure. A list detailing the enforcement actions taken on ICCAT species is provided in the Appendix, page 20.

3.7.9 Recommendation establishing a program for transshipment by large-scale longline fishing vessels [Rec. 05-06]

This recommendation establishes a program of transshipment affecting tuna longline and carrier vessels, including the establishment of an ICCAT record of authorized carrier vessels, documentation requirements, and extensive obligations and procedures pertaining to transshipment to assist in combating IUU fishing, ensure adequate monitoring of transshipment activities, and collecting catch data from large-scale vessels. No U.S. action is necessary on this recommendation, as current U.S. regulations prohibit transshipment of HMS products in the Convention area.

3.7.10 Recommendation on compliance with statistical reporting obligations [Rec. 05-09]

Recommendation [05-09] is intended to address compliance issues with statistical reporting obligations. It requires the Secretariat to identify data gaps, the SCRS to evaluate the impacts of data gaps on stock assessments and formulation of management advice, and for Contracting parties and CPCs, to provide explanations regarding reporting deficiencies and data gaps along with plans for corrective action. The United States is prepared to respond to the Secretariat as required under this recommendation.

3.7.11 U.S. enforcement actions

A summary of actions taken in ICCAT fisheries is provided in the Appendix, page 20.

Section 4: Other Activities

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.gpoaccess.gov/fr/index.html

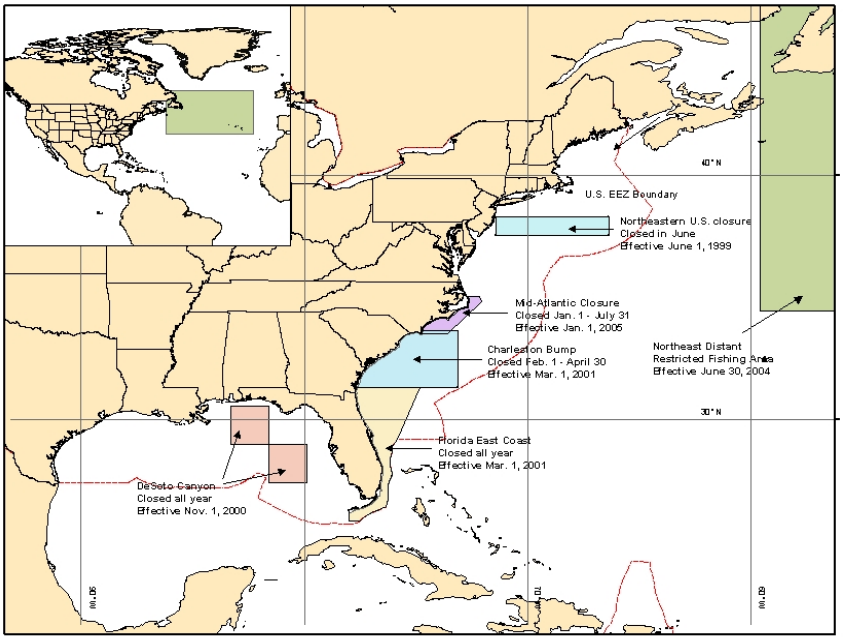

Figure 1. Existing time/area closures in HMS fisheries. Inset shows extent of the Northeast Distant restricted fishing area. All closures except the Mid-Atlantic are applicable to PLL gear only. The Mid-Atlantic Closure is applicable to bottom longline gear only. Note: the Northeast Distant (NED) was a closed area to all vessels as of 2001. It became the NED Restricted Fishing Area on June 30, 2004 when it was opened to those participating in the NED experiment.

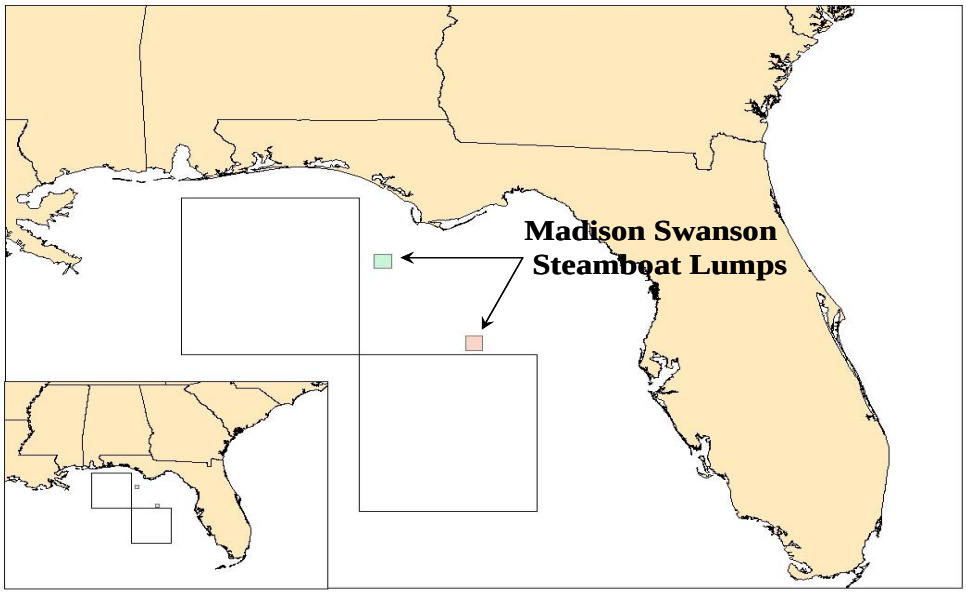

Figure 2. Madison-Swanson (upper left) and Steamboat Lumps (lower right) Marine Reserves. The Desoto Canyon closure is also shown for reference.

ANNUAL REPORT OF URUGUAY[1]

Olga Mora[2], Andrés Domingo[3]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

The Uruguayan tuna fleet fishes with surface longline and is currently comprised of 10 vessels targeting swordfish and tunas and two vessels whose major target is pelagic sharks. In both cases, effort is exerted mainly in Uruguayan territorial waters and adjacent international waters.

There was no increase in the number of vessels that operated in 2005 as compared to the previous year (12 vessels). All of these were national flag vessels (seven based at the port of La Paloma and six based in Montevideo). The majority of these are less than 200 GRT and less than 24 m in length.

The total catch landed in 2005 by this fleet was 2438 t, which was 106 t less than the previous year. Of this total, 843 t correspond to swordfish (36%), 738 t to tunas (30%), 11 t to billfish, 785 t to sharks (32%) and 60 t (2%) to other fish of lesser commercial importance (oilfish, wahoo, etc.) (**Table 1, Figure 1**).

Tuna catches in 2005 were higher than those in 2004, due to the continued increase in the percentage of yellowfin tuna (87%). Among the catches of sharks landed, those of blue shark (*Prionace glauca*, 50%) and shortfin mako (*Isurus oxyrinchus*, 23%) are noteworthy. In the "others" category, oilfish (*Lepidocybium flavobruneum*) catches predominated (**Figure 2**).

The fleet continued to discard sharks and other pelagic fish, sea turtles and birds, as well as those tuna and swordfish that were damaged or below size caught alive.

Section 2**:** *Research and Statistics*

In Uruguay, the *Dirección Nacional de Recursos Acuáticos*-DINARA (National Director of Aquatic Resources) of the *Ministerio de Ganadería, Agricultura y Pesca*-MGAP (Ministry of Agriculture and Livestock), formerly the *Instituto Nacional de Pesca*-INAPE (National Institute of Fishing), is the government authority in charge of statistical monitoring, research and the administration of these resources. To this effect, this institution processes the information from the fishing logbooks, monitors the landings as well as the information obtained from the on-board observers of the National Observer Program. In 2005 a total of 15 scientific observer trips were carried out, during which data were collected on the fishing gear and fishing method, the environment, total catch by species, destination of the catch monitored, and size and sex sampling was carried out on the major species caught. Samples were collected for systematic studies on age and growth, reproduction and genetics, among others. Macroscopic analyses of stomach contents, sightings of mammals and sea birds, and tagging of turtles were carried out. The sampling coverage of this program continued at a good level. The results were the subject of various scientific documents presented at international meetings.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

DINARA continues to exert considerable effort to maintain catches within precautionary limits, in the hopes that the new allocation criteria adopted by the Commission are correctly applied, respecting the rights of the coastal countries with developing fisheries.

In accordance with these aspects, DINARA has initiated the development of Plans of Action for the conservation and reduction of the by-catch of sea birds, sharks and sea turtles. The *Plan de Acción Nacional*-PAN (National Plan of Action) for the conservation of sea birds is expected to be finalized by the end of October, 2006, and the first stage of the PAN for sharks by February, 2007. As a result of these aforementioned Plans, various conservation measures will be implemented.

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[1] Original report in Spanish.

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In November 2005, a Workshop on the Assessment and Management of Elasmobranches in South America and Regional Bases for the Action Plans was carried out, jointly organized by DINARA and FAO. Scientists from Brazil, Argentina, Chile, Ecuador, Colombia, Venezuela, Mexico and the FAO Fisheries Department in Rome participated in this Workshop. The Workshop was very important as the initial phase for the development of the PAN for sharks.

Among the national management regulations, those on the minimum size of swordfish (25 kg, 15% tolerance), bigeye tuna and yellowfin (3.2 k) are still currently in force. On-board size sampling this year continued to show that the swordfish, yellowfin and bigeye caught are mostly large-size adult fish, as is expected from a longline fishery in this area.

Table 1. Number of active vessels of the Uruguayan tuna fleet for tunas and the catches of tunas and tuna-like species retained, by species, and reported by Uruguay for the period 2002-2005.

Year	*No. of vessels*	*Swordfish*	*Bigeye*	*Yellowfin*	*Albacore*	*Billfish*
2002	9	768	56	80	92	1
2003	10	850	59	95	108	19
2004	12	1105	40	204	120	4
2005	12	843	62	644	32	11

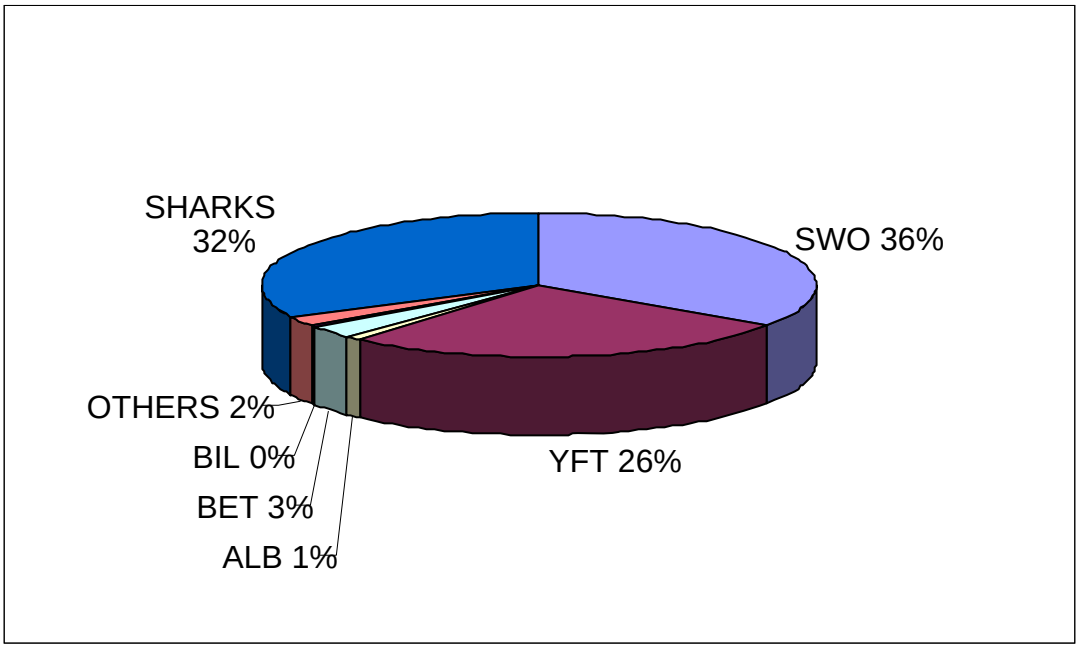

Figure 1. Percentage of the catch of the Uruguayan fleet, by species, in 2005.

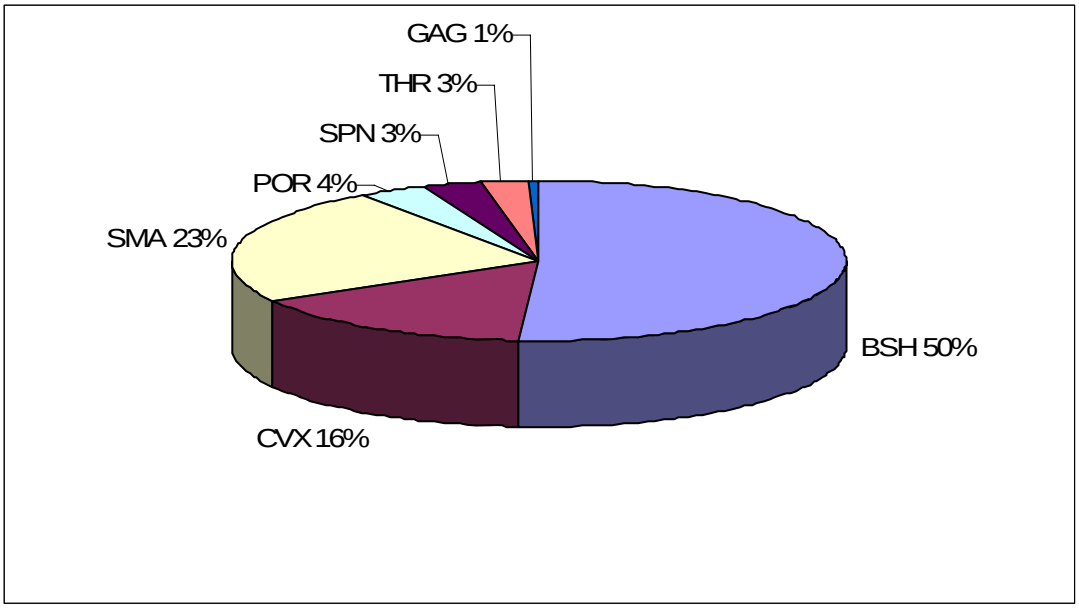

Figure 2. Percentage of the catch of sharks, by species, in 2005.

ANNUAL REPORT OF VENEZUELA[1, 2]

Part I (Information on Fisheries, Research and Statistics)

In Venezuela, the *Instituto Nacional de Investigaciones Agrícolas*-INIA (National Institute of Agricultural Research) is the agency in charge of carrying out programs on agricultural research, including the fishing sector. The *Instituto Nacional de Pesca y Acuacultura*-INAPESCA (National Institute of Fishing and Aquaculture) is the agency responsible for the management and administration of the fishery resources.

The research projects on tunas and billfishes are carried out at the *Centro de Investigaciones Agropecuarias* (Center for Research on Agriculture and Fishing) in the States of Sucre and Nueva Esparta (CIAE-Sucre/N. Esparta), with headquarters in Cumaná, in cooperation with various national and international institutions, such as INAPESCA, Universidad de Oriente, ICCAT and IRD.

Section 1: Annual Fisheries Information

1.1 Purse seine fisheries

The Venezuelan fleet is comprised of 33 purse seine vessels, 7 of which fished in the western Atlantic Ocean and the remainder fished in the eastern Pacific Ocean **(Table 1)**. The fishing area of the Venezuelan purse seiners is between 5º and 15ºN latitude and 51° and 71°W longitude **(Figure 1)**.

The catch taken by the purse seine fleet in 2005 amounted to 3,798 metric tons (t), which showed a decrease of 49.4% with respect to 2004. Yellowfin tuna *(Thunnus albacares)*, comprised 69.3% of the catches of the fleet and skipjack tuna (*Katsuwonus pelamis)* comprised 22.3%. Other species caught by the fleet were blackfin tuna *(Thunnus atlanticus)*, frigate tuna *(Auxis thazard)*, albacore *(Thunnus alalunga)* and bigeye tuna *(Thunnus obesus).* These species represented 8.3% of the catch **(Table 2)**.

The fishing effort by these vessels in 2005 was 1,044 days at sea, with the highest levels corresponding to the third quarter for vessels from 301 to 650 GRT. Likewise, yellowfin tuna catches ranged between 0.62 and 2.46 t/days at sea, and the highest catches correspond to the first and second quarters. In the second quarter, skipjack yields of 2.62 t/days at sea were obtained **(Table 4)**.

1.2 Baitboat fisheries

The Venezuelan baitboat fleet was comprised of 9 fishing vessels in 2005 and these operated in the same areas as the purse seiners **(Figure 1)**. The catch taken by these vessels amounted to 2,051.4 t, a catch level 27.5% less than that of 2004. The major species taken by these fleet were yellowfin tuna (*Thunnus albacares*) 79.5% and skipjack (*Katsuwonus pelamis*) with 12.0%, whereas blackfin tuna (*T. atlanticus*) represented 5.1% of the total landings of the fleet **(Table 3)**.

Fishing effort applied by the baitboat fleet in 2005 was 1,716 days at sea. Yellowfin tuna catches ranged between 0.70 and 2.29 t/days at sea, with the highest catches obtained in the second quarter. Skipjack catches were between 0.1 and 0.52 t/days at sea, with the highest catches corresponding to the third quarter **(Table 4)**.

1.3 Longline fisheries

Twenty-five (25) Venezuelan longliners fished in the Atlantic Ocean in 2005. The fishing area of these vessels extends from 11°-17° N and 61°-75°W in the Caribbean and 5°-17°N and 50°-60°W in the western Atlantic Ocean **(Figure 1)**.

Catches by the longline fleet were 1278.9 t. Yellowfin tuna (*Thunnus albacares*) was the most important species in the catch, representing 64.8%, whilst albacore (*Thunnus alalunga*) and bigeye tuna (*Thunnus obesus)* represented 15.0% of the catch; billfish comprised 7.9% of the catch **(Table 5)**.

[1] Original report in Spanish.

[2] Instituto Nacional de Investigaciones Agrícolas (INIA) and Instituto Nacional de Pesca y Acuacultura (INAPESCA).

Yellowfin catch per unit effort was between 13.3 and 37.7 kg/100 hooks, with the highest values corresponding to the second quarter. Albacore and bigeye tuna showed average catches of 3.8 and 2.8 kg/100 hooks. Shark catches fluctuated between 0.8 and 3.4 kg/100 hooks. The total effort applied by the fleet was 2,919,669 hook days **(Table 6)**.

1.4 Artisanal fishery

1.4.1 Playa Verde (central Venezuelan coast)

Billfish fishing in this region is carried out throughout the year. The fleet that operated in this area is comprised of 30 vessels, ranging in size from 7 to 10 m, and the fishing gear used is driftnet.

The total catch in this area was 325.6 t and is mainly comprised of the Istiophoridae family, particularly sailfish (*Istiophorus albicans)* with 40.2% of the catch and blue marlin (*Makaira nigricans)* with 33.6%. Tunas and various shark species are caught in lesser proportion **(Table 7)**.

1.4.2 Juangriego (eastern area of Venezuela)

This is the base port of 72 artisanal vessels that target king mackerel (*Scomberomorus cavalla*) using hand lines and billfish with surface longline. Fishing activities are carried out in the northeastern area of Venezuela and adjacent waters. These boats are of an artisanal nature ranging between 9 and 14 m.

In this fishery, the reported catches indicate that billfish, i.e. sailfish (*Istiophorus albicans)* and white marlin (*Tetrapturus albidus)* were the most abundant, with catches of 11.2 t and 15.1 t, respectively. There were 2.7 t of tunas landed, mainly blackfin tuna, with 13.1 t. One species that in recent years has acquired importance due to its market value is the dolphinfish (*C. hippurus)* and landings of this species amounted to 43.9 t. **(Table 8)**.

Section 2: Research and Statistics

Venezuela carries out research on the fishery for large pelagics, which include tunas and billfishes. Biological sampling continued in 2005 on the various species landed at the ports of Sucre, Anzoátegui and Nueva Esparta, as well as the collection of data on catch and effort of the different fisheries. In 2005, sampling was carried out on 9,107 tunas and billfishes from observers trips carried out from industrial fishing and on 8,509 fish from the artisanal fishery and surface longline fishery **(Table 9)**. The percentage composition of the catch was determined from multi-species sampling at the ports to correct the landings reported in the logbooks. The results are shown in **Tables 10** and **11**.

Monitoring of catch and effort was carried out on the industrial vessels that fished in the western Atlantic using baitboat, purse seine and longline. The industrial fleet carried out 368 trips, and the overall coverage rate was 95.4%, while by fishing type, the percentages were: 100% for purse seine, 91.5% for baitboat and 96.8% for longline **(Table 12)**.

The assessment of catch and effort of the fishery for king mackerel (*Scomberomorus cavalla*) continued in the eastern area of Venezuela. This program is carried out at the Nueva Esparta Local Station of INIA.

Within the ICCAT Enhanced Research Program for Billfish, sponsored and coordinated by the International Commission for the Conservation of Atlantic Tunas (ICCAT), billfish sampling continued at the ports of Playa Verde and Juangriego, in the central coastal area and eastern area of Venezuela, respectively, as well as monitoring of the sport fishing tournaments at the Playa Grande club. In 2005, 19 scientific observer trips were carried out on industrial longline vessels, with an 8.7% coverage rate on all trips carried out by this fleet. This program is presented in detail in document SCRS/2006/062.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

In order to implement measures for the conservation of Venezuela's hydrobiological resources to ensure a rational exploitation and avoid a collapse of the stocks, INAPESCA has adopted Administrative Laws and Resolutions to regulate the activities of the fishing vessels, as well as the catch and commercialization of target and by-catch species in the industrial and artisanal fisheries catching tuna and tuna-like species.

The Regulation of 2000 on catches and commercialization in Venezuela of species pertaining to the Istiophoridae and Xiphiidae families was updated in 2003, consisting of a limit on the artisanal catch directed at the aforementioned species only, a prohibition of catches and commercialization of longbill spearfish (*Tetrapturus pfluegeri*) and roundscale spearfish (*Tetrapturus georgei*), and establishing fishing protection areas for white marlin, blue marlin, sailfish and swordfish, limiting the number of vessels and fishing gears, as well as their characteristics.

A measure was implemented in 2004 regulating the compulsory installation and use of vessel positioning systems on board fishing vessels over 10 GRT, to permit better monitoring and effective control of the fishing operations of the industrial fleet, to guarantee the conservation and rational use of the hydrobiological resources.

As regards the species associated with the tuna fisheries, the National Plan for the Conservation of Sharks was developed in 2005 which, with the support of the research institutions, will be implemented in 2007.

The *Comité Local de Seguimiento*, CLOSE (Local Committee on Monitoring) of tunas and tuna-like species was reestablished in 2006 to study the application of policy at the regional level, as well as plans for development. In this sense, requests to include a multi-purpose artisanal fishery fleet which at a specific time of the year could access longline tuna fisheries are being monitored. Likewise and in accordance with Article 55 of the Law of Fishing and Aquiculture, the compulsory presence of an inspector to monitor the unloading of industrial vessels Venezuela was established. This procedure will guarantee monitoring of the unloading of the species allowed and their regulation on the national level.

Table 1. Composition of the Venezuelan industrial fleet in the Atlantic Ocean, by vessel size in 2005.

Size		*LL*	*BB*	*PS*	*Total*
0	50	21			21
51	100	4	3		7
101	150		2		2
151	200				
201	250		1		1
251	300		3	1	4
301	350				
351	400				
401	450				
451	500				
501	550				
551	600			6	6
	Total	**25**	**9**	**7**	**41**

Table 2. Venezuelan purse seine catches (t) in the central west Atlantic in 2005.

	Quarter					
Species	*I*	*II*	*III*	*IV*	*Total*	*%*
Yellowfin (YFT)	595.8	950.4	331.6	756.0	2633.9	69.3
Skipjack (SKJ)	228.9	270.4	211.7	136.6	847.6	22.3
Frigate tuna (FRI)	18.0	5.2	18.5	0.0	41.7	1.1
Albacore (ALB)	47.5	15.3	0.0	0.0	62.8	1.7
Bigeye tuna (BET)	29.6	31.4	22.3	8.5	91.9	2.4
Blackfin tuna (BLF)	24.1	36.7	59.9	0.0	120.6	3.2
Total	**943.9**	**1309.5**	**644.0**	**901.1**	**3798.5**	**100.0**

Table 3. Venezuelan baitboat catches (t) in the central west Atlantic in 2005.

	Quarter					
Species	*I*	*II*	*III*	*IV*	*Total*	*%*
Yellowfin tuna (YFT)	370.3	464.3	312.7	484.0	1631.3	79.5
Skipjack tuna (SKJ)	14.8	14.9	101.8	113.7	245.2	12.0
Frigate tuna (FRI)	0.0	0.0	0.0	0.0	0.0	0.0
Albacore (ALB)	0.0	0.0	0.0	0.0	0.0	0.0
Bigeye tuna (BET)	12.1	0.0	58.7	0.0	70.8	3.5
Blackfin tuna (BLF)	50.8	0.0	53.3	0.0	104.2	5.1
Total	**448.1**	**479.1**	**526.6**	**597.7**	**2051.4**	**100.0**

Table 4. Effort (days at sea) and catch per unit effort (t/days at sea), by fleet capacity in industrial fisheries for tuna, purse seine and baitboat in the central west Atlantic in 2005.

Quarter	*Gear*	*Days at sea*	*Capacity*	*YFT*	*SKJ*	*Other*
			Purse seine (PS)			
		55	<301	1.07	1.15	0.01
I	PS	187	> =301< 650	1.25	2.98	0.11
			>= 650			
		0	< 301			
II	PS	250	>=301<650	2.46	2.62	0.04
		0	>=650			
			< 301			
III	PS	200	<=301<650	1.25	1.97	
			>=650			
			< 301			
IV	PS	352	<=301<650	0.62	1.91	0.03
			>=650			
			Baitboat (BB)			
			<60			
I	BB	109	>=60<150	1.10	0.02	0
		253	>150	0.88	0.24	0.01
			<60			
II	BB	174	>=60<150	2.29	0	
		329	>=150	0.70	0.13	
			<60			
III	BB	180	>=60<150	0.75	0.09	0
		259	>=150	0.84	0.52	0.01
		8	<60	1.94	0.19	0
IV	BB	192	>=60<150	1.19	0.10	0
		212	>=150	0.94	0.38	0

Table 5. Catch (t) of the Venezuelan tuna longline fleet in the Atlantic Ocean in 2005.

	Quarter					
Species	*I*	*II*	*III*	*IV*	*Total*	*%*
Yellowfin tuna (YFT)	124.6	273.7	294.6	134.8	827.8	64.8
Albacore (ALB)	18.2	25.7	48.4	18.5	110.8	8.7
Bigeye tuna (BET)	66.9	6.7	4.3	2.4	80.3	6.3
Wahoo (WAH)	2.9	3.4	5.5	1.6	13.5	1.1
Dolphinfish (DOL)	1.2	0.4	1.8	0.1	3.5	0.3
White marlin (WHM)	11.2	2.2	10.6	3.1	27.1	2.1
Blue marlin (BUM)	6.3	6.1	13.3	3.3	29.0	2.3
Sailfish (SAI)	5.2	5.6	12.9	4.1	27.8	2.2
Swordfish (SWO)	25.2	6.6	12.9	3.1	47.8	3.7
Spearfish (SPF)	7.0	4.8	4.2	0.7	16.7	1.3
Shark (SHK)	7.5	13.0	13.8	12.8	47.0	3.7
Blue shark (BSH)	16.1	2.6	7.0	0.5	26.1	2.0
Shortfin mako (SMA)	11.7	1.9	5.6	0.5	19.6	1.5
Total	**304.0**	**352.7**	**434.9**	**185.3**	**1276.9**	**100.0**

Table 6. Effort (hooks) and CPUE (kg/100 hooks) in the longline industrial fishery catching tunas and billfish off the central west Atlantic in 2005.

	Quarter				
Species	*I*	*II*	*III*	*IV*	*Total*
Yellowfin tuna (YFT)	13.2	37.7	33.7	35.7	28.4
Albacore (ALB)	1.9	3.5	5.5	4.9	3.8
Bigeye tuna (BET)	7.1	0.9	0.5	0.6	2.8
Wahoo (WAH)	0.3	0.5	0.6	0.4	0.5
Dolphinfish (DOL)	0.1	0.1	0.2	0.0	0.1
White marlin (WHM)	1.2	0.3	1.2	0.8	0.9
Blue marlin (BUM)	0.7	0.8	1.5	0.9	1.0
Sailfish (SAI)	0.5	0.8	1.5	1.1	1.0
Swordfish (SWO)	2.7	0.9	1.5	0.8	1.6
Spearfish (SPF)	0.7	0.7	0.5	0.2	0.6
Shark (SHK)	0.8	1.8	1.6	3.4	1.6
Blue shark (BSH)	1.7	0.4	0.8	0.1	0.9
Shortfin mako (SMA)	1.2	0.3	0.6	0.1	0.7
No. of hooks	942.361	726.054	873.506	377.748	2.919.669

Table 7. Catch (t) and effort (trips) by the artisanal fishery catching billfish with gillnets off the central Venezuelan coast in 2005.

	Quarter					
Species	*I*	*II*	*III*	*IV*	*Total*	*%*
Blue marlin (BUM)	50.1	32.5	9.4	17.6	109.5	33.6
White marlin (WHM)	0.9	1.9	6.1	4.4	13.3	4.1
Sailfish (SAI)	20.5	34.4	41.2	34.7	130.8	40.2
Swordfish (SWO)	2.6	1.8	1.6	0.8	6.8	2.1
Dolphinfish (DOL)	3.4	3.9	1.4	1.6	10.3	3.2
Shark (SHK)	4.9	5.6	3.5	6.5	20.5	6.3
Yellowfin tuna (YFT)	2.3	1.3	0.4	0.0	4.0	1.2
Albacore (ALB)	0.3	0.6	0.3	0.6	1.8	0.5
Atlantic bonito (BON)	5.6	0.9	0.4	10.6	17.5	5.4
Frigate tuna (FRI)	3.7	0.3	2.0	2.7	8.8	2.7
Wahoo (WAH)	0.8	0.4	0.3	0.8	2.4	0.7
Total	95.1	83.5	66.8	80.3	325.6	100.0
No. of trips	633	729	793	988	3.143	

Table 8. Monitored catches (t) by the artisanal fishery catching billfish by purse seine in eastern Venezuela in 2005.

	Quarter					
Species	*I*	*II*	*III*	*IV*	*Total*	*%*
White marlin (WHM)	0.8	1.7	1.8	0.0	4.3	15.1
Blue marlin (BUM)	0.0	0.0	0.3	0.0	0.3	0.9
Sailfish (SAI)	0.6	0.3	2.3	0.0	3.2	11.2
Dolphinfish (DOL)	2.7	8.4	1.2	0.0	12.4	43.9
Blackfin tuna (BLF)	1.4	1.3	1.0	0.0	3.7	13.1
Albacore (ALB)	0.2	0.2	0.0	0.0	0.4	1.5
Yellowfin tuna (YFT)	0.4	0.1	0.2	0.0	0.8	2.7
Wahoo (WAH)	1.6	0.5	0.2	0.0	2.4	8.4
Swordfish (SWO)	0.2	0.4	0.2	0.0	0.9	3.1
Total	**9.5**	**14.6**	**4.1**	**0.0**	**28.2**	**100.0**

Table 9. Biological sampling of tunas and tuna-like species in tuna fisheries in the west Atlantic Ocean.

Species	*BB*	*%*	*PS*	*%*	*LL*	*%*	*GN*	*%*	*LL A*	*%*	*Total*	*%*
Yellowfin tuna (YFT)	431	72.3	715	24.9	3.584	63.5					4.730	26.9
Skipjack tuna (SKJ)	82	13.8	1577	54.9		0.0					1.659	9.4
Frigate tuna (FRI)			187	6.5		0.0					187	1.1
Albacore (ALB)			24	0.8	922	16.3					946	5.4
Bigeye tuna (BET)	28	4.7	214	7.5	329	5.8					571	3.2
Blackfin tuna (BLF)	55	9.2	254	8.8	10	0.2					319	1.8
Wahoo (WAH)					89	1.6					89	0.5
Sailfish (SAI)					113	2.0	5.512	72.0	121	14.1	5.746	32.6
Blackfin tuna (BLF)						0.0		0.0	67	7.8	67	0.4
Blue marlin (BUM)					47	0.8	600	7.8	10	1.2	657	3.7
Swordfish (SWO)					140	2.5	236	3.1		0.0	376	2.1
White marlin (WHM)					130	2.3	278	3.6	163	19.0	571	3.2
Dolphinfish (DOL)					53	0.9	1.026	13.4	496	57.9	1.575	8.9
Shark (SHK)					223	4.0		0.0		0.0	223	1.3
Total	**596**	**100**	**2871**	**100**	**5.640**	**100**	**7.652**	**100**	**857**	**100**	**17.616**	**100**
%	3.4		16.3		32.0		43.4		4.9			

BB = Baitboat.
PS = Purse seine.
LL = Industrial longline.
LLA = Artisanal longline.
GN = Gillnet.

Table 10. Species composition (in percentage, by quarter) of the tuna surface fleet for baitboat (BB) and purse seine (PS) in the central west Atlantic in 2005.

Species	*PS*				*BB*			
	Quarter				*Quarter*			
	I	*II*	*III*	*IV*	*I*	*II*	*III*	*IV*
Yellowfin tuna (YFT)	63.13	72.57	51.49	83.9	82.66	96.94	59.38	0
Skipjack tuna (SKJ)	24.25	20.66	32.87	15.16	3.31	3.1	19.3	0
Frigate tuna (FRI)	1.91	0.4	2.87	0	0	0	0	0
Albacore (ALB)	5.03	1.17	0	0	0	0	0	0
Bigeye tuna (BET)	3.14	2.4	3.47	0.94	2.7	0	11.15	0
Blackfin tuna (BLF)	2.55	2.8	9.3	0	11.34	0	10.13	0

Table 11. Species composition (in percentage, by quarter) of the tuna longline fleet in 2005.

Species	*Quarter*				
	I	*II*	*III*	*IV*	*Total*
Yellowfin tuna (YFT)	62.2	64.8	69.3	70.6	67.2
Bigeye tuna (BET)	1.7	12.0	0.0	0.0	2.6
Albacore (ALB)	1.6	5.6	6.5	7.8	5.5
Blue marlin (BUM)	1.5	1.4	1.4	3.2	1.7
White marlin (WHM)	1.0	2.5	0.4	2.0	1.2
Sailfish (SAI)	2.7	2.2	2.9	0.0	2.3
Swordfish (SWO)	0.5	0.3	3.2	1.4	1.8
Shark (SHK)	26.2	17.7	14.4	11.8	17.2
Dolphinfish (DOL)	0.5	0.2	0.1	0.0	0.2
Wahoo (WAH)	0.1	1.0	0.3	0.3	0.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 12. Trips by industrial tuna vessels in the central west Atlantic in 2005.

Month	*PS*		*BB*		*LL*		***Total***	
	TR	*C*	*TR*	*C*	*TR*	*C*	***TR***	***C***
January			7	6	7	7	**14**	**13**
February	3	4	11	9	19	19	**33**	**32**
March	4	4	10	8	18	18	**32**	**30**
April	2	1	9	8	16	14	**27**	**23**
May	2	2	12	12	17	17	**31**	**31**
June	4	4	8	8	21	21	**33**	**33**
July	2	2	10	8	19	19	**31**	**29**
August	1	1	9	9	27	27	**37**	**37**
September	2	2	12	11	14	14	**28**	**27**
October	3	3	10	10	21	21	**34**	**34**
November	3	3	8	8	21	21	**32**	**32**
December	5	5	11	10	20	15	**36**	**30**
Total	**31**	**31**	**117**	**107**	**220**	**213**	**368**	**351**
% Coverage	100		91.5		96.8		95.4	

TR = Trips made.
C = Trips monitored.

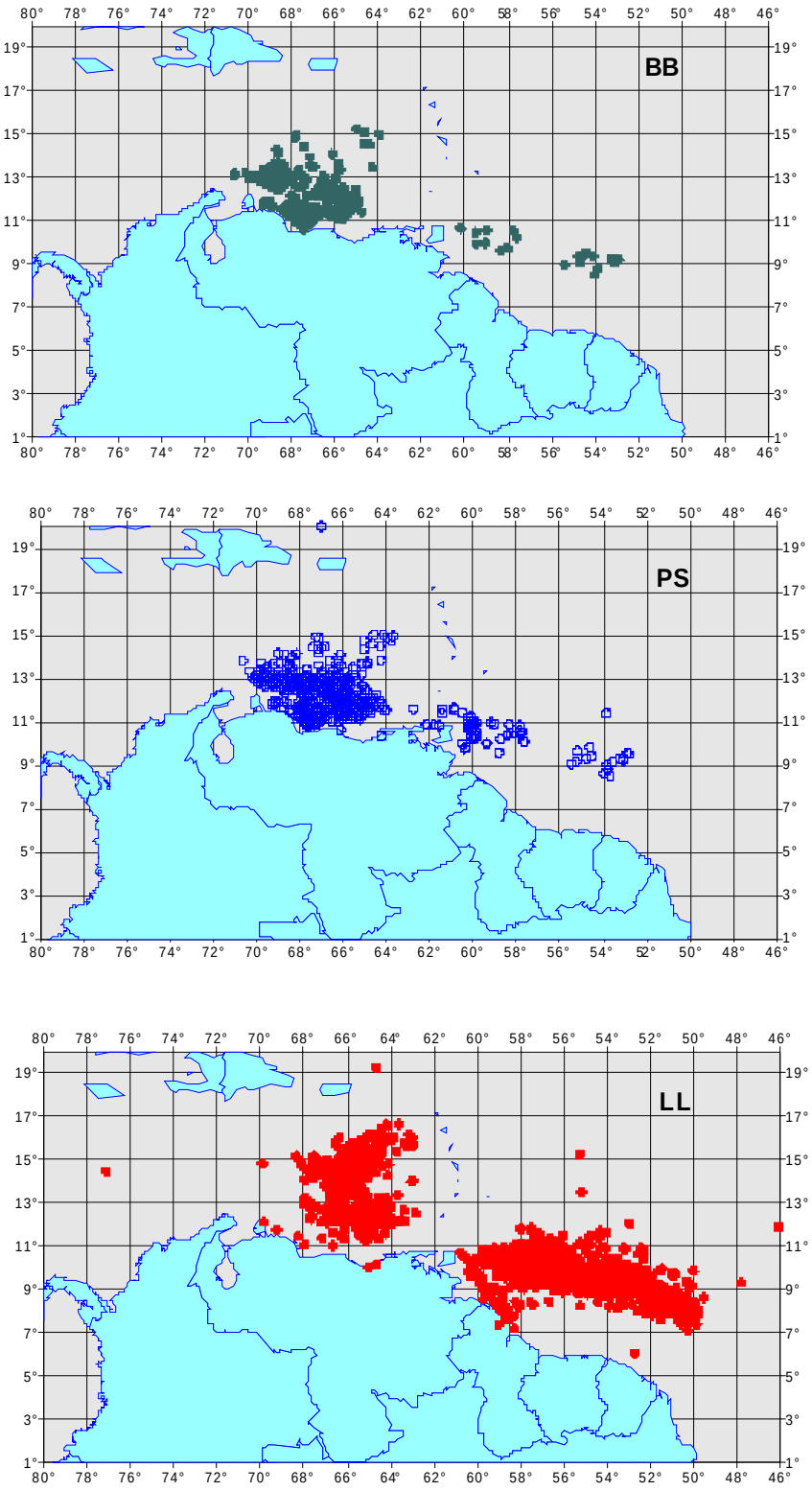

Figure 1. Fishing areas of Venezuelan industrial tuna vessels in 2005. (BB = baitboat, PS = purse seine and LL= longline).

REPORTS OF OBSERVERS FROM COOPERATING NON-CONTRACTING PARTIES, ENTITIES, OR FISHING ENTITIES

ANNUAL REPORT OF CHINESE TAIPEI[1]

Fisheries Agency, Council of Agriculture[2]

Part I (Information on Fisheries, Research and Statistics)

Section 1: Annual Fisheries Information

1.1 General overview

Chinese Taipei has been fishing for tuna and tuna-like species in the Atlantic Ocean since the early 1960s. At that time, the fishery targeted albacore and yellowfin in the Atlantic Ocean and, since the development of deep longline operations in the late 1980s, in the tropical Atlantic Ocean, some of the fishing effort shifted to target mainly bigeye tuna. Albacore, bigeye and yellowfin have comprised more than two-thirds of the annual catch in the recent years **(Table 1)**.

Bigeye and yellowfin are mainly caught in the area between 15°N and 15°S. A higher catch composition of albacore has been observed in the area north of 15°N and in the area south of 15°S (**Figure 1)**. Swordfish is mainly a by-catch species of the fishery.

The number of vessels in the longline fishery has declined from 201 in 1996 to 142 in 2005. Simultaneously, there has been a decline in the overall catches by the fishery, from about 60,105 t in 1996 to 32,899 t in 2005 **(Table 1)**. More detailed information on the major tuna species is as follows:

1.2 Albacore

In the Atlantic Ocean, two stocks of albacore, separated by 5°N, are subject to fishery management. Chinese Taipei longliners fish albacore all year round. The annual catch of South Atlantic albacore fluctuated between 16,000 t and 18,000 t in the last decade but significantly decreased to 13,288 t in 2004 and 10,730 t in 2005 due to a decrease in fishing effort. The catch of North Atlantic albacore in 2005 was 2,540 t, similar to the previous year's catch. The total catch of the two stocks combined in 2005 was estimated at 13,270 t, a decrease of 4,296 t from 2004.

1.3 Bluefin tuna

The Chinese Taipei longline fleet has been targeting the eastern Atlantic Ocean and Mediterranean bluefin stock on a seasonal basis since 1993, with little change in the fishing pattern, in terms of season (from April to June every year) and operational mode. The catch of bluefin tuna was 51 t in 2004 due to the decrease in the number of vessels in operation, and increased to 277 t in 2005.

1.4 Tropical tunas

The catches of bigeye tuna and yellowfin tuna in 2005 were estimated to be about 11,984 t and 3,596 t, respectively, showing a decrease of 5,733 t and 2,228 t, respectively, from those of the previous year (17,717 t and 5,824 t in 2004).

1.5 Swordfish

Following the reduction in the catch limits under the sharing arrangement adopted by ICCAT in 1998, the Chinese Taipei catch of swordfish was also reduced. The preliminary estimate of the swordfish catch was 884 t in 2005, comprised of 140 t from the North Atlantic Ocean and 744 t from the South Atlantic Ocean.

[1] Original report in English.
[2] No. 2, Chao-Chow Street, Taipei.

1.6 Billfish species

Billfish are by-catch species in the Chinese Taipei fishery. The preliminary catch estimates of Chinese Taipei vessels operating in the Atlantic Ocean for white marlin, blue marlin and other marlins were 56 t, 151 t and 104 t, respectively, in 2005.

Section 2: Research and Statistics

2.1 Data collection and processing system

Routine collection and compilation of data for tuna and tuna-like species have been carried out for all longline fisheries in the Atlantic Ocean, including large and small-scale vessels. The Task I and Task II data 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 in accordance with ICCAT requirements.

Task I data have been estimated based on five sources of information: (1) trader sales records, (2) fishing vessel sales settlements, (3) certified weight reports of Shin Nihon Kentei Kaisha (New Japan Surveyors and Sworn Measures Association, NJSSMA), (4) data from the tuna association, and (5) Statistical Documents data. Data from trader sales records and verification of fishing vessel sales settlements are of particular importance to estimate Task I data for albacore. Data sources (3)-(5) are used as the main basis to estimate Task I for bigeye, yellowfin and the other major tuna and tuna-like species. Data source (3) has been replaced by similar landing records from the Organization for the Promotion of Responsible Tuna Fisheries (OPRT) since 2004.

As for Task II catch and effort, all the data are complied based on logbooks, which the fishermen are required to submit to the authorities. Information including daily positions, number of hooks deployed, catch by number and weight by species must be entered in the logbooks. All the logbooks are first verified for accuracy and validity before entry to the database. Then, the Task I data were used as reference in the production of the Task II data.

As regards Task II size data, fishermen are required to measure the first 30 fish they have caught and retained on board, regardless of the species. Those size data are sent to the ICCAT Secretariat as actual size data. In addition, the catch-at-size database was created by Chinese Taipei scientists, based on these size data, in conjunction with Task I and II catch data.

2.2 Research

In the past, a domestic research program focused more on the standardization of catch per unit effort on a number of tuna stocks. The research results were presented at the regular meetings and inter-sessional working group meetings of the SCRS. Following the implementation of the observer program, more data and biological samples were made available for research. Currently, research related to tunas includes: stock assessments, DNA studies on bigeye, swordfish, and albacore (and other incidental catch species), size samples by sex for swordfish, conversion factors for the major tuna species, shark fin ratio, re-estimation of shark by-catch, incidental catch rate of seabirds and sea turtles. For research work on a global basis, budgets of about US$910,000 and US$780,000 were allocated for 2003 and 2004, respectively, and were further increased to US$940,000 and US$1,400,000 in 2005 and 2006, respectively.

The research results were presented at the regular meetings and inter-sessional working group meetings of the SCRS.

The scientific papers presented at recent ICCAT meetings were as follows:

- Preliminary analysis of standardized catch per unit effort of bigeye tuna (*Thunnus obesus*) caught by Taiwanese longline fleets in the Atlantic Ocean by general additive model (SCRS/2006/050).
- Identification on Atlantic swordfish stock structure inferred by mitochondrial control region DNA sequence characters (SCRS/2006/026).
- Updated white marlin and blue marlin catch rates from the Taiwanese longline fishery in the Atlantic (SCRS/2006/102).
- Standardization of South Atlantic swordfish by-catch rate for the Taiwanese longline fleet. (SCRS/2006/120)

- Morphology of rings on otolith and spine characters from North Atlantic albacore of 40-44 cm fork length (SCRS/2006/109).
- Age and growth of South Atlantic albacore – a revision after the revelation of otolith daily ring counts (SCRS/2006/110).
- Standardized catch per unit effort of bigeye tune (*Thunnus obesus*) caught by Taiwanese longline fleets in the Atlantic Ocean (SCRS/2004/137).
- Standardized CPUE for sharks and blue sharks caught by Chinese Taipei longline fishery in the South Atlantic Ocean (SCRS/2004/126).
- Observed by-catch of Taiwanese tuna longline fishery in Atlantic Ocean (SCRS/2004/184).
- Standardized CPUE for South Atlantic albacore, *Thunnus alalunga*, from the Taiwanese longline fishery during 1968-2001 (SCRS/2003/075).
- Standardized CPUE trend of Taiwanese longline fishery for northern Atlantic albacore from 1968 to 2001 (SCRS/2003/076).
- Comparison between optimal searching algorithms versus knife-edge cutting method for conversion of length distribution into age composition (SCRS/2003/077).
- Catch, effort and standardized catch per unit effort for the eastern Atlantic and Mediterranean bluefin tuna stock caught by Taiwanese longline fishery up to 2001 (SCRS/2002/102).
- Development of standardized catch rate of South Atlantic swordfish for Taiwanese longline fleet (SCRS/2002/120).
- General linear mixed model analysis for standardization of Taiwanese longline CPUE for bigeye tuna in the Atlantic Ocean (SCRS/2002/121).
- Analysis of Taiwanese white marlin catch data and standardization of its catch rates (SCRS/2002/056).

2.3. Data improvement programs

For improvement of the statistical system, Chinese Taipei has taken the following measures to collect fishery-independent data. When more data from various sources are available, crosschecking and reviewing will be carried out on the Task II catch/effort data and size data to improve the accuracy of the scientific information.

2.4 Port sampling

Since most of Chinese Taipei far seas longliners unload their catches at overseas ports, the launching of a port sampling program at the major foreign landing ports will be helpful for the collection of fishery-independent data. Three pilot sampling trips were made at three foreign ports in September 2005 during the fishing seasons. For the Atlantic Ocean, the pilot sampling program was conducted in September 2005 in Cape Town.

2.5 Observer program

The first pilot observer program was launched in 2001 with focus on the Indian Ocean. In 2002-03 the program was extended to cover all three oceans, with deployment of two observers to each ocean, and the number of observers was increased to nine in 2004. For the Atlantic Ocean, there were four observers in 2004 which was increased to five in 2005. If these, three were placed onboard bigeye vessels and the remaining two onboard albacore vessels.

The observers were required to collect fishery data and size measurements on target species and by-catch species. Biological samples of bigeye, albacore, swordfish and by-catch/incidental catch species were also collected. The annual budget input for the observer program was increased to about US$330,000 in 2004 from US$180,000 in 2003. The budget for 2005 was further increased to US$750,000.

Part II (Management Implementation)

Section 3: Implementation of ICCAT Conservation and Management Measures

3.1 Limit on the number of fishing vessels

3.1.1 Bigeye tuna [Rec. 04-01]

Chinese Taipei limited the number of fishing vessels catching bigeye tuna to 98 in 2005 in compliance with the *Recommendation by ICCAT on the Bigeye Tuna Conservation Measures* [Rec. 04-01]. In order that its fleet size

would be commensurate with its fishing possibilities, Chinese Taipei implemented a two-phase vessel reduction program in 2005 and 2006, aimed at scrapping 160 large-scale tuna longline vessels targeting bigeye tuna. The number was decreased to 76 at the end of 2005.

3.1.2 Northern albacore [Rec. 98-08]

In accordance with the 1998 *Recommendation by ICCAT on the Limitation of Fishing Capacity on Northern Albacore* [Rec. 98-08], the number of fishing vessels authorized to catch northern albacore was set at the average number for the period of 1993-1995. Following the limit on the number of fishing vessels, Chinese Taipei authorized 14 vessels to fish for northern albacore in 2005. The list of the 14 vessels was transmitted to the ICCAT Secretariat on May 5, 2005.

3.2 Catch limits and minimum sizes

In accordance with the relevant ICCAT recommendations, catch limits on northern and southern albacore, bigeye tuna, eastern bluefin tuna, northern and southern swordfish, blue marlin and white marlin have been set. Measures to prohibit the catch of undersized yellowfin tuna, bigeye tuna, bluefin tuna and swordfish were also enforced.

As for the *Recommendation by ICCAT Regarding Compliance with Management Measures which Define Quotas and/or Catch Limits* [Rec. 00-14], Chinese Taipei has taken into account the requirement of the adjustment of underage/overages. Catch estimates together with the status of overages/underages in 2005 were presented to the Secretariat.[3]

3.2.1 Bigeye tuna [Rec. 04-01]

According to the *Recommendation by ICCAT on Bigeye Tuna Conservation Measures* [Rec. 04-01], Chinese Taipei was required to limit its catch of bigeye tuna to 14,900 t in 2005. To ensure that the bigeye tuna catch limit did not exceed the 14,900 t accorded and to minimize the chances of overuse of the catch limit, the Fisheries Agency implemented a vessel reduction program and an enhanced vessel monitoring and management scheme in 2005. Besides, there was a requirement for fishermen to comply with the minimum size of 3.2 kg for bigeye tuna caught in this region.

3.2.2 Bluefin tuna [Rec. 02-08]

According to the *Recommendation by ICCAT Concerning a Multi-year Conservation and Management Plan for Bluefin Tuna in the East Atlantic and Mediterranean* [Rec. 02-08], fishing possibilities for Chinese Taipei based on a share of 1.5% would only be activated in a given year when the level of underages has been utilized. In addition, the same recommendation restricted vessels from fishing western Atlantic bluefin tuna. A size limit of 10 kg for bluefin tuna caught in the Mediterranean Sea [Rec. 04-07] was applied. Appropriate measures have been taken by the Fisheries Agency to ensure compliance with the ICCAT recommendation.

3.2.3 Northern albacore [Rec. 03-06]

According to the *Recommendation by ICCAT on North Atlantic Albacore Catch Limits* [Rec. 03-06] a catch limit of 4,453 t was set for Chinese Taipei. As mentioned above, in 2005 only 2,540 t of northern albacore were caught, well below the limit designated.

3.2.4 Southern albacore [Rec. 04-04]

According to the *Recommendation by ICCAT on the Southern Albacore Catch Limit for 2005, 2006 and 2007* [Rec. 04-04], a catch limit of 30,915 t of southern albacore was set for all countries fishing the stock. There was no agreement on the allocation of catch quota by individual country. As mentioned above, following the decrease in fishing effort in the fishery, the catch of South Atlantic albacore was also reduced drastically. Overage of the catch limit in 2005 was not likely to occur.

[3] Available from the Secretariat.

3.2.5 North swordfish [Rec. 02-02]

According to the *Recommendation by ICCAT Relating to the Rebuilding Program for North Atlantic Swordfish* [Rec. 02-02], Chinese Taipei was allocated a quota of 310 t in 2005. In addition, restrictions were applied on swordfish minimum weight (< 25 kg) and size (lower jaw fork length (LJFL) < 119 cm) for vessels operating in this region. Domestic measures were taken to ensure compliance with these measures.

3.2.6 South swordfish [Rec. 02-03]

According to the *Recommendation by ICCAT on the South Atlantic Swordfish Catch Limits* [Rec. 02-03], and the *Resolution by ICCAT to Authorize a Temporary Catch Limit Adjustment in the South Atlantic Swordfish Fishery* [Res. 03-05], Chinese Taipei was allocated a quota of 780 t in 2005. Domestic measures were taken to ensure compliance with these recommendations.

3.2.7 Atlantic white marlin and Atlantic blue marlin [Rec. 00-13, Rec. 02-13]

In 2002, ICCAT adopted the *Recommendation by ICCAT to Amend the Plan to Rebuild Blue Marlin and White Marlin Populations* [Rec. 02-13]. The recommendation requested Chinese Taipei to further reduce its catch of Atlantic white marlin to 186.8 t and its catch of blue marlin to 330 t. Domestic measures were taken to ensure compliance with these recommendations.

3.3 Closed seasons [Rec. 93-07]

In accordance with the 1993 Recommendation [Rec. 93-07], domestic regulations were implemented to prohibit longline vessels from fishing bluefin tuna in the Mediterranean from June 1 to July 31.

3.4 Ban on imports

According to ICCAT Recommendations [Rec. 03-18, Rec. 02-17], imports of bluefin tuna, swordfish and bigeye tuna products caught by those countries under trade restrictive measures, including Georgia and Bolivia, were prohibited.

3.5 Vessel Monitoring System (VMS) [Rec. 04-11]

According to the *Recommendation by ICCAT Concerning Minimum Standards for the Establishment of a Vessel Monitoring System in the ICCAT Convention Area* [Rec. 03-14] and the *Recommendation by ICCAT Concerning Implementation of the VMS Recommendation* [Rec. 04-11], all large-scale tuna fishing vessels authorized to fish for tuna and tuna-like species in the ICCAT Convention Area were required to install a satellite-based vessel monitoring system (VMS) and report back their positions every six hours. To ensure the continuous working of the VMS without excuse of malfunction, all vessels are required to install two sets of VMS with one of them as a spare. Staff at the land-based monitoring center was assigned to closely monitor the activities of vessels through VMS reporting. The annual budget allocated to conduct the VMS programs was about US$700,000 in 2005.

3.6 National Observer Program

According to the *Recommendation by ICCAT on a Multi-Year Conservation and Management Program for Bigeye Tuna* [Rec. 04-01]**,** there is a requirement of at least 5% observer coverage on board longline vessels over 24 meters fishing for bigeye. A description of the Chinese Taipei observer program is given in section 3.2 above. The observer program in the Atlantic Ocean covered the deployment of four observers in 2004, which was increased to five in 2005. Of these, three were placed onboard four bigeye vessel trips and the remaining two were onboard two albacore vessel trips.

The observers were required to collect fishery data and size measurements on target species and by-catch species. Biological samples of bigeye, albacore, swordfish and by-catch/incidental catch species were also collected.

3.7 Measures to ensure effectiveness of ICCAT conservation and management measures and to prohibit illegal, unreported, and unregulated fisheries (IUU)

In accordance with the *Resolution by ICCAT on Calling for Further Actions Against Illegal, Unregulated, and Unreported Fishing Actives by Large-Scale Tuna Longline Vessels in the Convention Area and Other Areas* [Res. 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 and Other Areas* [Res. 00-19], 48 flag of convenience (FOC) vessels that were built in Chinese Taipei shipyards completed registration in the registry, of which 13 were operating in Atlantic Ocean. The changes concerning the re-registration vessel list were also reported to the Secretariat on July 7, 2003.

In accordance with the *Resolution by ICCAT Concerning More Effective Measures to Prevent, Deter and Eliminate IUU Fishing by Tuna Longline Vessels* [Res. 01-19], the following measures have been taken: (1) administrative guidance has been made to the industry not to engage in FOC/IUU activities that could diminish ICCAT conservation and management measures; and (2) administrative guidance was given to banking institutions not to grant loans to IUU fishers.

Furthermore, in accordance with the *Resolution by ICCAT Concerning Further Defining the Scope of IUU Fishing* [Res. 01-18], vessels that have been identified by ICCAT and other RFMOs to be carrying out IUU fishing were prohibited access to Chinese Taipei fishing ports.

Pursuant to the *Resolution by ICAT Concerning a Management Standard for the Large-Scale Tuna Fishery* [Res. 01-20], the Report of Implementation of the ICCAT Management Standard for Larger-Scale Tuna Longline Vessels was submitted[4].

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* [Rec. 02-22], a list of 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.

3.8 Transshipment

According to the *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* [Res. 02-25], fishing vessels are required to obtain prior authorization to conduct at-sea or port transshipment. In line with the resolution, in validating the Statistical Documents, the Fisheries Agency has taken necessary measures to ensure that the quantity of fish transshipped is consistent with the reported catch amount of each vessel. In 2005, 504 transshipments were made.

3.9 Statistical Document [Rec. 94-05, Rec. 97-04, Rec. 01-21, Rec. 03-09, Rec. 03-19]

In accordance with ICCAT Recommendations, regulations on the application of the Bluefin Tuna Statistical Document have been implemented since1994. To meet the requirement of the Japanese and the U.S. domestic regulation on the import of swordfish, regulations on the application of Swordfish Certification of Eligibility were implemented starting from June 1999 and November 2000 for the United States and Japan, respectively. Furthermore, the system for issuing the "ICCAT Bigeye Tuna Statistical Document" in accordance with the ICCAT recommendation has been in effect since July 1, 2002.

In 2005, about 599 Statistical Documents were issued for the trading of bigeye tuna, bluefin tuna and swordfish caught in the Atlantic Ocean. Among these, 86% were issued for bigeye tuna. Most of the catch was exported to Japan (91%), while exports to the United States ranked second (4%).

[4] Available from the Secretariat.

Section 4: Inspection Scheme and Activities

4.1 Inspections

Catches landed at domestic ports are required to undergo inspections.

4.2 Regulations to prohibit fish laundering

Stringent management measures have been in force since 2005, including the revocation of fishing licenses when there is evidence of serious violations, including involvement in fish laundry in association with IUU vessels.

4.3 Close cooperation with import or market States

In applying for the Statistical Document (SD), verification of the catch limit of individual vessels, weekly reports of their catch, information from VMS, and transshipment certificated through crosschecking is conducted before an SD is issued. In addition, Chinese Taipei has continuously requested the cooperation of the Organization for the Promotion of Responsible Tuna Fisheries (OPRT) to provide import data for crosschecking of catch data reported by fishing vessels. Through the exchange of import and export information provided by ICCAT Parties concerned, if any falsification of a SD is detected, the fishing license of the violator is subject to suspension for a period of up to one year, and is even subject to revocation in the case of serious violations.

Section 5: Others Activities

5.1 Fishing Capacity Reduction Program

A two-phase program was launched in 2005 aimed at scrapping a total of 160 large-scale tuna longline vessels in the three oceans in two years (2005-2006), 59 in 2005 in the first phase and 101 in 2006 in the second phase. This program will cost the government and industry US$200 million to compensate the owners whose vessels are subject to scrapping.

5.2 Contributions to ICCAT

Since Chinese Taipei is not a member of ICCAT, it has no obligation to share in the financing of the ICCAT budget. However, in view of the importance of conservation of the stocks and stock assessments and since Chinese Taipei is an important user of the tuna stocks in the Atlantic Ocean, it has been making voluntary contributions to ICCAT since 1998. From 1998 to 2004, Chinese Taipei made voluntary contributions totaling US$461,560 to ICCAT. The amount of €$63,000 was also contributed to the ICCAT Secretariat in 2006.

5.3 Implementation of the ICCAT Management Standard for Larger-Scale Tuna Longline Vessels

Pursuant to the *Resolution by ICCAT Concerning a Management Standard for the Large-Scale Tuna Fishery* [Res. 01-20], the Report of Implementation of the ICCAT Management Standard for Large-Scale Tuna Longline Vessels was submitted.[5]

5.4 Measures to reduce the incidental catch of sea turtles, seabirds and sharks

- To improve research, Chinese Taipei has been conducting surveys on what has been done by its fishermen to avoid the by-catch of seabirds and the mitigation effect since 1995.

- To disseminate information on seabird conservation, pamphlets and leaflets have been distributed in recent years to fishers, fishery industries and domestic conservation groups to promote the concept of conservation of sea turtles, seabirds and sharks.

- As regards data collection, since 2000 Chinese Taipei has also deployed observers on distant water tuna longline vessels to record the length, species and related information on by-catch.

[5] Available from the Secretariat.

- In 2004, Chinese Taipei supported the "International Technical Workshop on Preventing Incidental Catch of Seabirds" sponsored by the International Bird Life, which was held in Kaohsiung.

- In 2006, Chinese Taipei established the National Plan of Action (NPOA) to reduce the catch of seabirds in longline fisheries and for the management and conservation of sharks.

Table 1. Catch estimate (in round weight, t) of the Chinese Taipei tuna longline fishery which operated in the Atlantic Ocean, 1996-2005.

Year	*ALB*	*BET*	*YFT*	*BFT*	*SBF***	*SWO*	*WHM*	*BUM*	*BIL*	*SKJ*	*OTH*	*SKX*	*TOTAL*
1996	22,861	21,850	6,653	472	24	3,395	566	660	143	15	1,183	2,283	60,105
1997	21,495	19,242	4,466	506	89	3,074	441	1,478	296	47	650	847	52,631
1998	19,204	16,314	5,328	456	42	1,433	506	578	411	75	121	969	45,437
1999	23,162	16,837	4,411	249	30	1,453	464	486	332	40	558	2,068	50,090
2000	22,520	16,795	5,661	313	24	1,650	437	485	165	41	714	1,666	50,471
2001	20,232	16,429	4,805	633	223	1,448	152	240	49	25	975	675	45,886
2002	21,651	18,483	4,659	666	15	1,474	178	294	206	39	758	653	49,076
2003	21,908	21,563	6,486	445	16	1,511	104	319	112	40	931	1,803	55,238
2004	17,566	17,717	5,824	51	17	775	172	315	59	43	871	1,380	44,790
2005*	13,270	11,984	3,596	277	18	884	56	151	104	38	1106	1,455	32,939

* = Preliminary data.
** = The catch estimate of SBF has been revised to be consistent with the CCSBT database in 2004.

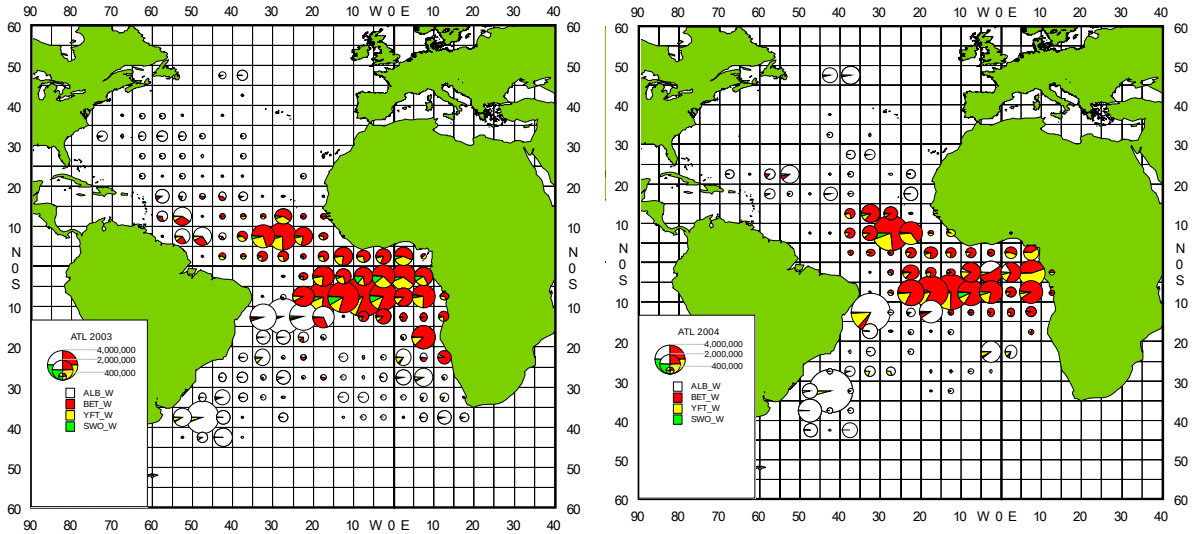

Figure 1. Distribution of catch and catch composition of the main tuna species in the Atlantic Ocean in 2003 (left) and 2004 (right, preliminary data).

ANNUAL REPORT OF GUYANA[1]

Ingrid Peters & Dawn Maison

Part I (Information on Fisheries, Research and Statistics)

In January 2005, there was flooding in Guyana that severely affected the data collection activities. The landing sites along the coast for artisanal vessels were inaccessible to fishers. Fishing was severely affected due to inaccessibility and fishers used their vessels as transportation vehicles for villagers. This caused production to be low during the first quarter of the year.

A number of companies both local and foreign have shown interest in deep-sea fishing on the high seas and Guyana's EEZ for tuna and tuna like species.

However, Guyana does not have the legislation in place nor the capacity to monitor these vessels on the high seas. When these systems have been put in place, Guyana will explore the possibility of opening its pelagic fishery.

Section 1: Annual Fisheries Information

In Guyana, there is an Inshore Artisanal Fishery (fishermen use boats manufactured locally exploiting both the demersal and pelagic species found near shore and within the EEZ). In this fishery the fishers use five gear types namely: (i) Chinese seine/fyke net, (ii) pin seine, (iii) caddell, (iv) gillnet (nylon and polyethylene), and (v) handline, fish pots.

The artisanal boat count exercise was completed in 2005 and the figures show that there was an increase of one hundred and thirty eight vessels. In 1997 the count was 991 and in 2005 it was 1,129 vessels.

All the boats are made from wood and are manufactured locally. The boats range from 6 to18 meters in overall length and are powered by sails, outboard, or inboard engines.

1.1 Fishing gear

Chinese seine, caddell and pin seine vessels are flat-bottom dories powered by sail, paddle or small outboard engines which give more maneuverability over shallow, muddy and sandy bottom areas. Chinese seines are funnel-shaped nets, 16m (52 ft) long and 4-6 m (13.1-19.6 ft) wide at the mouth. The mesh size gradually tapers from 8cm at mouth to 1 cm at funnel.

Caddell or demersal longline fishing vessels range in size from 6.71-9.15m (22-30 ft) in length. A caddell line consists of a horizontal/ground line anchored at each end, with a series of about 800 dangling/vertical lines, set with baited hooks at 2m outwards. Each vessel carries between 4-5 wooden trays with each tray having 2-6 main lines.

Gillnet nylon boats are v-bottom boats ranging in size from 7.63 to 9.15 m (25-30 ft) in length. These boats have no cabin but are equipped with icebox and are usually powered by 48-hp outboard engines. The fishers therefore conduct daily fishing trips. Vessels using the gillnet polyethylene gear are v-bottom vessels with a length range of 12.2-15.25 m (40-50 ft). These vessels have a cabin and use diesel-powered inboard engines. The length of the trip for the polyethylene vessels is usually 10-21 days.

Approximately 60% of the artisanal vessels use gillnets and fishing is done in coastal and shallow waters. The fishers would normally target whatever fish species that are in season for example, snappers and trout, with sharks comprising the main portion of the by-catch. The gillnet polyethylene gear is responsible for catching 90% of the sharks landed in Guyana.

There is strong competition within the industry, as there is a ready market for the products and by-products such as fins, glue (bladder) and bones. There are three licensed shark processors in Guyana.

[1] Original report in English.

For a normal fishing trip a vessel would spend 7-15 days at sea. Sharks are harvested all year round, however during July-January there is an increase in landings. At the end of the season (July-January) the vessels would land approximately 178,818 kg of dressed sharks per month.

1.2 Composition of the fleet

Sharks and scombrids are exploited in Guyana mainly with the gillnet gears. There are three sizes of gill nets that catch the shark species. These are the two, six and eight inch mesh sizes. This gear type is non-specific and catches all species of fish. The two-inch mesh size catches smaller amounts of sharks and juvenile of the various species since they fish in shallower waters. Their main target, however, is the smaller ground fish species (*Macrodon ancylodon, Nebris microps* and *Micropogonias furnieri*). Due to the incidental nature of the shark catches, this makes it difficult to control the harvest of juvenile sharks caught in the shallower waters and also to identify the species.

Other gear types that catch sharks are the caddell lines (manual longline), handline, trawl nets and pin seine.

1.3 Plans for development

There are no plans to develop the artisanal fishery. The Department of Fisheries is considering a proposal to limit the amount of vessels per gear type as a precautionary approach for conserving the fishery.

The Department is looking at the possibility of developing a pelagic fishery. However, this will take some time, as Guyana is a developing State with limited resources. The development of a large pelagic fishery will require introduction of new technology and increased monitoring systems to ensure that the new fisheries comply fully with all ICCAT regulations.

Section 2: Research and Statistics

Sharks are landed dressed, i.e. headless and gutted. Only the juvenile sharks (caught by either caddell, chinese seine or gillnet nylon), which account for 2% of the total catch, are landed whole. In view of this, it continues to be difficult to record shark catches by species. The Fisheries Department has noted the need for continued special technical assistance to address the issue of identification of dressed sharks, and is finalizing a proposal made by Caricom Regional Fisheries Management Secretariat for a one year study to improve collection of data on shark catches. The Department is seeking funding from FAO and other sources for this project.

All the data on landings for sharks and scombrids are reported to ICCAT, together with the number of fishing vessels involved in these fisheries. At present effective fishing effort is not recorded, and hence only Task I data have been reported this year.

Part II (Management Implementation

Section 3: Implementation of ICCAT Conservation and Management Measures

Guyana's Coast Guard is responsible for monitoring all of the fishing activities within Guyana's Exclusive Economic Zone with the assistance from the Fisheries Department. However, in 2005 there was an extension of the duties (re-locating residents from flooded areas, monitoring smuggled fuel and narcotics) for the members of the Coast Guard.

The Guyana Coast Guard was able to conduct 13 fisheries surveillance trips (four aerial reconnaissance and nine at sea).

Five (5) apprehensions were carried out, four for Venezuela and one local). The limited resources and the staff training by M.V. Essequibo which was was carried out locally and overseas, made it difficult to conduct more extensive surveillance.

Table 1. Artisanal vessels by gear for 2005.

Gear type	*No. of vessels*
Gillnet polyethylene (cabin cruiser) 6-8" mesh size	341
Gillnet polyethylene (inboard) 8" mesh size	80
Gillnet nylon 2" mesh size	342
Caddell # 5-9 hooks	55
Chinese seine 4 –5 bundles (25-30 lbs. each)	285
Pin seine	26
Total	**1,129**

Table 2. Scombrids and shark production by species (kg) 2005.

Shark species	
R. porosus	130,437
S. zygaena	5,269
C. limbatus	546,993
Unidentified shark species	2,364,491
Scombrids	
Scomberomorus brasiliensis	522,849
Scomberomorus cavalla	245,245
Total	**3,815,284**

Note: Shark species are landed dressed (headless, finless and gutted) and hence the Fisheries Department's Data Collectors were unable to carry out identification.

The shark fishery is a multi million dollar fishing activity and contributed to 7% of the overall export of total fish products from Guyana at a value of US$4,997,163 for 2005.

Table 3. Large pelagic landings statistics for 1998-2005 (t).

Species/Year	*Landings (t)*								
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*Total*
S. brasiliensis	625	1,143	308	329	441	389	493	521	4,249
S. cavalla	440	398	214	239	267	390	311	245	2,504
C. hippos	118	78	233	58	99	148	114	45	893
R. porosus	-	-	192	114	306	13	-	130	755
G. cuvier	-	-	-	4	-	-	7	-	11
C. limbatus	-	-	50	14	86	20	7	546	723
S. zygaena	-	-	11	-	4	.1	3	5	23.1
Shark spp.	2,562	2,175	903	666	842	1,778	3,047	2,360	14,333
Total	**3,745**	**3,794**	**1,911**	**1,424**	**2,045**	**2,738.1**	**3,982**	**3,852**	**23,491.1**

REPORT OF OBSERVERS FROM INTERGOVERNMENTAL ORGANIZATIONS

ANNUAL REPORT OF THE CARIBBEAN REGIONAL FISHERIES MECHANISM (CRFM) SECRETARIAT ON BEHALF OF CARICOM[1]

S. Singh-Renton[2]

Part I (Information on Fisheries, Research and Statistics)

The report provides available 2005 landing statistics and national fisheries information updates on behalf of the following CRFM/CARICOM territories: Grenada, Commonwealth of Dominica, Nevis (of St. Kitts and Nevis), and St. Lucia. Additionally, the report summarizes recent and ongoing sub-regional research and assessment efforts coordinated by the CRFM Secretariat.

Section 1: Annual Fisheries Information

The large pelagic fisheries in the four-named Islands in the Eastern Caribbean continue to have a substantial artisanal component, but fishing patterns and practices have been slowly evolving since the 1990s, with the exploration of FAD technology and the gradual introduction of larger-sized vessels that could stay at sea for several days.

Fish Aggregating Devices (FADs) are often constructed locally, through joint efforts between the national fisheries authorities and the fishing communities. FADs are made using materials that are available within the islands, e.g. tarpaulin, rope and plastic buoys are the typical materials used in Grenada. Fishing methods employed around the FADs are mainly: trolling with artificial baits, and line fishing using drop lines that are similar to hand lines but which are supported by a float or buoy. In Grenada, problems were experienced with maintenance of FADs introduced in previous years, but there are plans to place six FADs off the east and west coasts of the island in 2007 for use by commercial fishers.

There is normally some annual fluctuation in reported landings, which can be significant for some species in some years and is likely caused by annual fluctuations in recruitment to the fisheries and/or changes in local availability as a result of changes in local sea and other environmental conditions. Added to this, it should be noted that these small islands are often affected by hurricanes and their associated negative general impacts on the local economies. In consequence, following devastation by hurricanes when other major industries such as tourism and agriculture may be recovering slowly, the fishing industry offers the benefit of quicker relief in respect of food security and employment concerns. This results in new entrants to the fisheries, and hence increases in fishing effort from time to time in these four islands.

Section 2: Research and Statistics

Table 1 provides currently available best estimates of commercial landings of large pelagic species in 2005 in Grenada, Commonwealth of Dominica, Nevis (of St. Kitts and Nevis), and St. Lucia. **Table 2** gives details of fishing vessels used in the large pelagic fishery of Grenada.

1 Original report in English.

2 Caribbean Regional Fisheries Mechanism (CRFM) Secretariat, Third Floor, Corea's Building, Halifax Street, St. Vincent and the Grenadines, West Indies. E-mail: ssinghrenton@vincysurf.com

2.1 Tagging of small tunas

Cramp's Large Pelagic Fish Tagging Programme was implemented during 1996 to 1999, to determine the distribution and movement patterns of four large pelagic fish species of commercial importance to countries within the eastern and southern Caribbean: *Thunnus atlanticus* (blackfin tuna), *Acanthocybium solandri* (wahoo), *Coryphaena hippurus* (dolphinfish), and *Scomberomorus cavalla* (king mackerel). Fish tagging activities took place at selected locations within the eastern Caribbean. The Programme explored several means to facilitate fish tag and release activities: (i) collaborative partnerships with national fisheries administrations; (ii) sport fishing tournaments; (iii) collaborative partnerships with individual commercial fishers; and (iv) a recreational fisher volunteer programme. Options (iii) and (iv) were the most cost-effective, as well as most productive in terms of results.

During the programme, a total of 1,143 fish were tagged and released: 787 blackfin tuna; 250 wahoo; 89 dolphinfish; and 17 king mackerel. The majority of the fish tag releases occurred in the coastal waters of St. Vincent and the Grenadines, but some releases also took place in the coastal waters of the islands of Antigua and Barbuda, Dominica, St. Lucia, Grenada, and Trinidad and Tobago, all located within the Eastern Caribbean. To date, 13 recaptures have been reported. Eleven blackfin tuna, released off the coasts of St. Vincent and the Grenadines were recaptured comparatively close to, or at their points of release after variable times at liberty ranging from five days to 1,230 days. Similarly, two king mackerel fish, released off the west coast of Trinidad, were recaptured very close to their points of release after 74 and 129 days at liberty. The limited number of recaptures precludes quantitative analyses of the growth and movement patterns of these fish species based on the data gathered in the study. However, the results highlight the potential for these fish to remain in comparatively small sea areas along the coasts of these islands for notable time periods of over three years.

2.2 Resource assessments

The Second Annual CRFM Scientific Meeting was held during 13-22 March 2006 in Trinidad and Tobago. During this meeting, three CRFM Resource Working Groups met to analyze data on a range of fisheries resources. CRFM's Large Pelagic Fish Resource Working Group conducted preliminary analyses aimed at evaluating the status of the dolphinfish fishery and also the king mackerel fishery in the southeast Caribbean. The report of this meeting was recently finalized for publication.

CRFM's *Ad Hoc* Working Group on Methods held its second meeting during 27-30 June 2006, during which the Working Group examined three specific areas of methodology: options for incorporating social and economic information into fisheries performance analyses and hence also management advice; a simple method to estimate survival rates using catch and effort data collected over limited periods of time, and; the method of Ecological Risk Assessment for Effects of Fishing (ERAEF), which facilitates consideration of the influence of factors on the fishery other than fishing activities. Specific tests of the ERAEF and survival rate estimation methods were planned for the inter-sessional period. Additionally, there were also meetings of two smaller working groups which were established during the first meeting of the methods working group, in order to devote specific attention to: (i) data availability and quality; and (ii) communications between scientists and managers. The report of the Second Meeting of the CRFM *Ad Hoc* Working Group on Methods will be presented at the Third Annual CRFM Scientific Meeting in 2007.

Table 1. The 2005 annual commercial large pelagic fish landings (t) of Grenada, Commonwealth of Dominica, St. Kitts and Nevis and St. Lucia.

Country	*Common name*	*Scientific name*	*2004*	*2005*
Grenada	Yellowfin tuna	*Thunnus albacares*	460.4	492.33
	Skipjack tuna	*Katsuwonus pelamis*	20.8	21.71
	Blackfin tuna	*Thunnus atlanticus*	267.5	306.32
	Bigeye tuna	*Thunnus obesus*	0	NA
	King mackerel	*Scomberomorus cavalla*	0	NA
	Wahoo	*Acanthocybium solandri*	-	NA
	Atlantic bonito	*Sarda sarda*	-	NA
	Albacore*	*Thunnus alalunga*	24.6	28.51
	Atlantic sailfish	*Istiophorus albicans*	112.2	146.60
	Bluem marlin	*Makaira nigricans*	44.7	41.92
	White marlin	*Tetrapturus albidus*	33.1	10.42
	Swordfish	*Xiphias gladius*	73.1	55.53
	Sharks unspecified		15	18
Commonwealth of Dominica	Yellowfin tuna	*Thunnus albacares*	80.6	119.09
	Skipjack tuna	*Katsuwonus pelamis*	29.6	19.81
	Blackfin tuna	*Thunnus atlanticus*	19.8	38.04
	Bigeye tuna	*Thunnus obesus*	0.02	NA
	Wahoo	*Acanthocybium solandri*	5.7	8.37
	King mackerel	*Scomberomorus cavalla*	-	0.04
	Tuna unspecified		7.5	NA
	Atlantic sailfish	*Istiophorus albicans*	1.4	NA
	Swordfish	*Xiphias gladius*	0.1	0.18
	Blue marlin	*Makaira nigricans*	36.3	43.53
	Atlantic bonito	*Sarda sarda*		5.90
	Cero mackerel	*Scomberomorus regalis*		0.01
St. Kitts	Tuna and mackerels unspecified		7.8	NA
Nevis	Tuna and mackerel unspecified		3.5	1.85
	Wahoo		5.5	7.15
St. Lucia	Yellowfin tuna	*Thunnus albacares*	147	171.64
	Skipjack tuna	*Katsuwonus pelamis*	137	159.10
	Blackfin tuna	*Thunnus atlanticus*	96	125.97
	Albacore tuna	*Thunnus alalunga*	5	1.57
	Atlantic black skipjack	*Euthynnus alletteratus*		0.46
	Tuna unspecified		0.92	NA
	Atlantic bonito	*Sarda sarda*	0.6	NA
	Bullet tuna	*Auxis rochei*	0.1	NA
	King mackerel	*Scomberomorus cavalla*	0.53	1.13
	Spanish mackerel	*Scomberomorus maculatus*	0.07	0.08
	Cero mackerel	*Scomberomorus regalis*	0.27	0.56
St. Lucia (continued)	Wahoo	*Acanthocybium solandri*	238	168.66
	Blue marlin	*Makaira nigricans*	17	20.69
	Bigeye tuna	*Thunnus obesus*	0.14	1.56
	Atlantic swordfish	*Xiphias gladius*	2	2.63

The 'albacore' reported by Grenada is believed to consist of a mixture of albacore, and other tunas. The Fisheries Division in Grenada has been improving species identification skills of data collectors in order to rectify this issue in the future.
NA – Statistics were not available at the time this report was prepared.

Table 2. Data on fishing vessels involved in the off-shore pelagic fishery in Grenada.

Vessel Type	*Vessel material*	*Length (ft)*	*Power (hp)*	*Capacity (lb)*	*Crew*	*Areas fished/ Time at sea*	*Gear (lines, hooks)*	*No. vessels*	*Main target species*
Troll vessels	Wood, Wood/FRP, FRP	17-24	40-85 hp, OBM	2000	2	5-40 nm < 1 day	2 – 3 troll lines	130	BLF, KGM, WAH, & Dolphinfish
Type I longliner	Wood, Wood/FRP, FRP	17-24	15-25, OBM	400	2	2-10 nm, < 1 day	150 hks	210	YFT, & SAI
Type II longliner	FRP	24-30	2 x (40-60), OBM	2000	3	5-40 nm, < 1 day	200 hks	120	YFT, & SAI
Type III longliner	Wood, FRP, Steel	32-60	130-350 hp, IBM	5000	4	Up to 100 nm, 3-8 days	500 hks	75	YFT, & SWO

Notes:
FRP - Fibreglass Reinforced Plastic.
OBM - Outboard motor.
IBM - Inboard motors.
Wood/FRP Wood covered by FRP.

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