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**INTERNATIONAL COMMISSION  
for the  
CONSERVATION of ATLANTIC TUNAS**

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**R E P O R T  
for biennial period, 1986-87  
PART I (1986)  
English version**

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MADRID, SPAIN

1987

# INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS

## *Contracting Parties (as of April 1, 1987)*

Angola, Benin, Brazil, Canada, Cape Verde, Cuba, France, Gabon, Ghana, Ivory Coast, Japan, Korea, Morocco, Portugal, Senegal, Sao Tomé & Príncipe, South Africa, Spain, U.S.A., Uruguay, U.S.S.R., Venezuela.

## *Chairman of Commission*

Mr. C. J. BLONDIN, U.S.A.  
(from November 15, 1983)

## *First Vice-Chairman of Commission*

Mr. S. MAKIADI, Angola  
(from November 15, 1983)

## *Second Vice-Chairman of Commission*

Mr. J. G. BOAVIDA, Portugal  
(from November 15, 1983)

## *Panel Membership (as of April 1, 1987)*

<b>Panel</b>	<b>Contracting Parties</b>	<b>Chairman</b>
1	Angola, Brazil, Cape Verde, Cuba, France, Gabon, Ghana, Ivory Coast, Japan, Korea, Morocco, Portugal, Senegal, Spain, U.S.A., U.S.S.R.	Ivory Coast
2	Canada, France, Japan, Korea, Morocco, Portugal, Spain, U.S.A.	Morocco
3	Brazil, Japan, South Africa, U.S.A.	Japan
4	Angola, Canada, Cuba, Japan, Korea, Portugal, Spain, U.S.A., U.S.S.R.	U.S.S.R.

## *Council*

No election was conducted for the 1986-87 biennial period.

## *Standing Committees*

### **Standing Committees:**

Committee on Finance and Administration (STACFAD)

### **Chairman**

Ms. P. GARCÍA DOÑORO, Spain  
(from November 18, 1985)

Committee on Research and Statistics (SCRS)

Mr. A. GONZÁLEZ GARCÉS, Spain  
(from November 11, 1986)

## *Secretariat*

Príncipe de Vergara, 17, 28001 Madrid (Spain)  
*Executive Secretary:* O. RODRÍGUEZ-MARTÍN  
*Assistant Executive Secretary:* P. M. MIYAKE

## LETTER OF TRANSMITTAL

The Chairman of the International Commission for the Conservation of Atlantic Tunas presents his compliments to the Contracting Parties to the International Convention for the Conservation of Atlantic Tunas (signed in Rio de Janeiro, May 14, 1966), and to the Delegates and Advisers representing said Contracting Parties, and has the honor to transmit the "**Report for the Biennial Period, 1986-87, Part I (1986)**", describing the activities of the Commission during the first half of said biennial period.

The volume contains the reports of the Fifth Special Meeting of the Commission, held in November, 1986, and of all the associated meetings of the Standing Committees and Sub-Committees. In addition, it contains a summary of the activities of the Secretariat and the National Reports on scientific activities related to tuna fisheries as carried out by the various countries.

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

*C. J. Blondin*  
*Commission Chairman*

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# CHAPTER I

## Secretariat Reports

### ADMINISTRATIVE REPORT 1986 COM/86/8 (Amended)\*

#### 1. Member countries of the Commission

There have been no changes in Commission membership since the last meeting (November, 1985). The Commission is currently comprised of twenty-two (22) member countries as follows (in order of entry): U.S.A., Japan, South Africa, Ghana, Canada, France, Spain, Brazil, Portugal, Morocco, Korea, Senegal, Côte d'Ivoire, Cuba, Angola, U.S.S.R., Gabon, Benin, Cape Verde, Uruguay, São Tomé & Príncipe, and Venezuela.

#### 2. Ratification of the Protocol to the Convention

As of December 31, 1986, the Food and Agriculture Organization of the United Nations (FAO), depository of the ICAT Convention, had informed the Commission that the countries in the following list have ratified the Protocol to the Convention, approved at the Conference of Plenipotentiaries (Paris, July 1984), for accession of the EEC to the Convention.

France	October 23, 1984
São Tomé and Príncipe	November 1, 1984
Korea	December 7, 1984
South Africa	March 28, 1985
Uruguay	May 10, 1985
Japan	June 13, 1985
Senegal	June 14, 1985
Cape Verde	March 13, 1986
U.S.S.R.	June 9, 1986
U.S.A.	November 10, 1986
Spain	November 21, 1986
Portugal	December 23, 1986

\*The Administrative Report presented at the Commission Meeting was revised.

### 3. Meetings organized by ICCAT

#### 3.1 Meeting of STACFAD Working Group

In mid-July, 1986, the Commission Chairman, Mr. C. J. Blondin, in consultation with the Chairman of the Finance Committee, Ms. P. García Doñoro, decided to convene a Working Group Meeting of the Standing Committee on Finance and Administration (STACFAD). Invitations were sent to all member countries outlining the mandate of the Working Group, i.e., to discuss the critical financial situation facing the Commission, the increase in unpaid country contributions, and the effect of continuous withdrawals from the Working Capital Fund to finance part of the Commission budget or special research programs, etc.

The Working Group meeting was held on September 23-24, 1986, at the Spanish Office of Fisheries in Madrid, Spain. Participants from Angola, Brazil, Canada, France, Côte d'Ivoire, Japan, Portugal, South Africa, Spain and the United States, as well as observers from the European Economic Community and ICSEAF attended the meeting.

The Report of the Working Group is included in this Biennial Report as Appendix 1 to Annex 10.

#### 3.2 Meeting of the Team Leaders for Yellowfin Year Program

A meeting of the Activity Team Leaders for the Yellowfin Year Program was held on January 22-24, 1986, at the Commission Headquarters in Madrid. In addition to all the Team Leaders, other scientists interested in the Program were also present. The group finalized a detailed "Operational Plan" for the Yellowfin Year Program (YYP), which has been distributed to Commission members and laboratories interested in the Program. The Plan was presented to the Commission Meeting as COM-SCRS/ 86/13.

The Secretariat is coordinating the overall Program. Tagging and sampling materials as well as new tag reward posters have been sent by the Secretariat to the appropriate laboratories. Details of the Secretariat activities on the Program are reported in SCRS/ 86/16.

### 4. Meetings at which ICCAT was represented

#### 4.1 International Commission for the Southeast Atlantic Fisheries (ICSEAF)

ICCAT was represented by the Executive Secretary at the annual ICSEAF meeting held in Tarragona, Spain, in December, 1985.

#### 4.2 CWP-Tuna meeting and IOFC Tuna meetings

The Assistant Executive Secretary attended the series of meetings held at Colombo, Sri Lanka, on November 27-December 7, 1985. They were the Expert Consultation on the Stock Assessment of Tunas in the Indian Ocean (November 28-December 2), the Committee on Tuna Management (December 3-5) and the Ad Hoc Consultation on Global Tuna Statistics (December 6-7). The details on the IOFC tuna meetings are reported in the Newsletter, SCRS/86/8 and COM-SCRS/ 86/12. (Also see Section 7 of this report concerning "Collaboration with other Organizations".)

#### 4.3 Tuna Conference at Lake Arrowhead

Mr. J. P. Wise, ICCAT Biostatistician, on home leave in the United States, attended the 37th Annual Tuna Conference held at Lake Arrowhead, California, U.S.A. (May 18-21, 1986) and represented the Commission.

#### 4.4 Swordfish Workshop

The NMFS Southeast Fisheries Center (Miami, Florida, U.S.A.) held a Swordfish Workshop on April 16-25, 1986, at its laboratory. The Assistant Executive Secretary was invited to represent ICCAT and he attended the second week of the Workshop. The Workshop gathered all catch, effort, size and tagging data, created catch-at-length tables for northwest Atlantic swordfish, and a catch-at-age table. Several series of CPUE indices were calibrated and a catch-per-trip series was chosen and applied to VPA under the hypothesis of  $M=0.1$  and  $0.2$ .

Considerable progress in research was achieved during the Workshop, although a lack of information was noted, in particular, the insufficient data on catch and size, growth curve, catch, and effort. It was also felt that the stock analyses should be expanded to the total Atlantic within the framework of ICCAT. The report of this meeting was presented to ICCAT as SCRS/86/25.

#### 4.5 Workshop on future tuna management and industry

The Assistant Executive Secretary attended a "Workshop on future tuna management and industry", organized by the Institute for Marine Studies, University of Washington (U.S.A.). The Workshop was held in Vancouver, Canada, on June 30 through July 3, 1986. He presented a paper concerning the historical review of the Atlantic fishery, ICCAT's activities and purpose and the present status of tuna stocks and management in the Atlantic. His round-trip air fare was funded by the University of Washington. The report of the Workshop will become available in 1987.



#### 4.6 Meeting to review Spanish Task II sampling

The biostatistician, Mr. J. P. Wise, attended the meeting to review Spanish Task II sampling in the Peninsula and Balearic Islands, in La Coruña, Spain, on July 8-9, 1986, at the request of the Spanish Institute of Oceanography.

#### 4.7 General Fisheries Conference for the Mediterranean (GFCM-FAO)

The Conference was held in Monaco on October 6-10, 1986, and was attended by the Assistant Executive Secretary. Details are reported in COM-SCRS/86/12. Tuna statistics, research and management were discussed during the session and ICCAT's work on these aspects were reported to the GFCM by the Assistant Executive Secretary. Many participants showed keen interest in these subjects and promised to collaborate with ICCAT.

### 5. Collaboration with other organizations

Collaboration with other organizations during 1986 has been very important. Many programs have begun and are under the way.

#### 5.1 CWP-Tuna

Of particular interest is the Ad Hoc Consultation on Global Tuna Statistics which was proposed by Dr. Miyake and organized by FAO at Colombo, in December, 1985 (see Section 4.2. above). The meeting was attended by representatives from all the regional agencies concerned with tuna statistics; namely, Inter-American Tropical Tuna Commission (IATTC), South Pacific Commission (SPC), Forum Fisheries Agency (FFA), Indo-Pacific Tuna Programme (IPTP), FAO (also representing IOFC, IPFC and CWP), International Commission for the Conservation of Atlantic Tunas (ICCAT) and by several country representatives including coastal and industrialized nations.

The group came to the conclusion that we need a mechanism similar to that of CWP-Atlantic, through which all the regional tuna agencies would be able to collaborate in improving tuna statistics. The report of the Group was submitted as SCRS/86/8.

Following this idea, very close collaboration has begun in improving the world tuna statistics between these agencies. ICCAT is taking the initiative in this field and assisting FAO to compile better tuna statistics. Also some discussion on boat registrations, standard logbook forms, etc., is going on among these agencies.

## 5.2 Collaboration with FAO

Very close working cooperation has been maintained with the Fisheries Department of FAO and other FAO organizations, such as the FAO Fishery Committee for the Eastern Central Atlantic (CECAF), the General Fisheries Council for the Mediterranean (GFCM) (see Section 4.7.), the Indo-Pacific Fisheries Council (IPFC), the Indian Ocean Fisheries Commission (IOFC) (see Section 4.2.).

Mutual assistance between FAO and ICCAT in collecting statistics and other information continued as in other years. The project to eliminate discrepancies in Atlantic tuna statistics between the data bases of the two organizations was successfully continued and the FAO publications now contain data very close to those published by ICCAT for Atlantic tunas.

Such collaboration is also demonstrated in the development of the "Field Manual for Statistics and Sampling for the Indian Ocean". Accepting the invitation of the Indian Ocean Tuna Management Program (FAO), the Assistant Executive Secretary visited Colombo, Sri Lanka, on August 7 through 21, 1986, in order to help the Program to develop a "Manual for Collecting Statistics and Sampling in the Indian Ocean". He evaluated the sampling and statistical system of the Program and completed a draft text of the manual. Since the Secretariat is considering revising the Manual for the Atlantic as well, including the new chapter on sampling of artisanal fisheries, the new text developed for the Indian Ocean is also going to be used in the revised version of the Field Manual for the Atlantic. The Assistant Executive Secretary's trip expenses were all covered by FAO.

## 5.3 Other organizations

The Commission also collaborated with various international organizations other than those mentioned in the previous paragraphs, such as:

- International Commission for the Southeast Atlantic Fisheries (ICSEAF)
- Northwest Atlantic Fisheries Organization (NAFO)
- International Council for the Exploration of the Sea (ICES)
- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

## 6. Coordination of Research

The coordination of research carried out by the Secretariat during 1986 is summarized in the "Secretariat Report on Statistics and Coordination of Research".

### 6.1 Purchase of mini-computer

Special mention should be made of the new computer purchased by the Commission as recommended by the SCRS and approved by the Commission in 1985. Six computer models were carefully compared for price and capacity. After approval for the purchase was given, three of these models were actually tested and the Micro-Vax II was selected. The configuration includes 4MB real memory, two 72MB hard discs, a 1600 b.p.i. tape drive, a line printer, VMS operating system, FORTRAN 77, COBOL, and graphic capability.

The purchase was made in December, 1985, and delivery was finally made in June, 1986. After installation of hardware and software, and correcting the initial hardware problems, the system became operative at the end of August which actually represents a considerable delay. As a result, the contract with the INFONET system had to be maintained until the end of 1986. Details are reported in COM-SCRS/86/12.

One of the reasons for which an in-house computer was recommended by the SCRS was so that scientists could use the system during ICCAT scientific sessions. To meet this demand, the Secretariat started installing some essential analytical programs into the computer. In this respect, the laboratory of the Southeast Fisheries Center (Miami, Florida) of the U.S. National Marine Fisheries Service provided the Secretariat with great assistance. The SEFC provided the Secretariat with a package of population analysis programs, as well as two and a half weeks of Mr. M. Par-rack's time to assist in converting and installing these programs.

### 6.2 Yellowfin Year Program

The Secretariat spent much effort in coordinating the Yellowfin Year Program. Details are found in SCRS/86/16. Special mention should be made of the loan of a U.S. scientist for the tagging program in the Caribbean area.

### 6.3 Mediterranean statistics

Special efforts were made to improve the Mediterranean statistics with some success. The French Government allowed Dr. H. Farrugio to go to Tunisia on an ICCAT mission to improve Tunisian statistics. He made a five-day trip to Tunis representing ICCAT and collected various tuna statistics for 1979 through 1986. The mission was very successful thanks to his personal contacts with his former colleagues in Tunisia. The report of his trip is presented in SCRS/86/26.

## 7. Publications

As of October 15, 1986, the following publications have been issued to date in 1986:

- a) Biennial Report, 1984-1985, Part II (English, French and Spanish)
- b) Skipjack Conference Proceedings
- c) Statistical Bulletin, Vol. 15 (1984) (Final Edition)
- d) Statistical Bulletin, Vol. 16 (1985) (Provisional Edition)
- e) Data Record, Vol. 26
- f) Collective Volume of Scientific Papers, Vol. XXIV (Report of the Meeting of Working Group on Bluefin Tuna, Miami, Florida)
- g) Collective Volume of Scientific Papers, Vol. XXV (1985 SCRS documents)
- h) Newsletter (3 issues)

Since there were a series of recommendations made by the SCRS in 1985 for publication and distribution of Commission's scientific reports and publications, the Secretariat prepared and submitted special documents on publications (COM-SCRS/86/14 and SCRS/86/15) for consideration.

## 8. Secretariat and Administration

### 8.1 Staff

The Secretariat staff (as of December 31, 1986) consisted of the Executive Secretary, Assistant Executive Secretary, Biostatistician and Systems Analyst in the U.N. Professional Category, seven multi-lingual secretaries, an assistant programmer and a clerk in the U.N. General Services Category and four locally contracted staff members.

The Commission continues to follow the U.N. scheme, adjusted for Madrid, as regards salaries, allowances and reclassification of staff in the General Services category.

### 8.2 Trips

All the trips taken by the Commission staff, at the date of writing, are reported in the previous sections of this report (in relation to the meetings and special activities).

## FINANCIAL REPORT 1986

COM/86/9 (Amended)\*

### 1. REGULAR BUDGET

#### A. FISCAL YEAR 1985

##### 1. Auditor's Report

The Auditor has examined the books and accounts of the Commission up to December 31, 1985. In accordance with Articles 9-3 and 12-7 of the Financial Regulations, and following a recommendation of the Council at its Second Regular Meeting, the Secretariat mailed a copy of the Auditor's Report to all the member country governments in May, 1986. An extract of this Report has been included in the "Report for Biennial Period, 1984-85, Part II".

For information purposes, the delegates are referred to Item 3.8.d of the 1985 Auditor's Report:

"In 1985, a Digital Micro-Vax II computer system was purchased to meet the requirements of the statistical services of the Commission for a cost of \$113,929.61.

Although in principle it was agreed that the cost of this purchase would be paid in three annual installments charged to the Working Capital Fund, it was decided, in agreement with the Chairman of the Commission and of STACFAD, to pay the full cost in this Fiscal Year since the necessary amount was available in the Fund and since paying for the computer in 1985 would represent considerable savings.

This decision was made with the condition that the amount used from the Working Capital Fund be replaced from the 1986-88 budgets, as agreed by the Commission."

\*Updated to the end of Fiscal Year 1986. Modifications agreed upon by the Commission have been included.

## 2. Financial Status at the end of Fiscal Year 1985

Statement 1 shows the Balance Sheet to the end of Fiscal Year 1985. There was a balance in Cash and Bank of \$655,681.02 at that time. There were \$305,140.26 available in the Working Capital Fund after applying the amounts approved by the Commission.

Member country contributions which are pending payment amounted to \$315,243.21.

### B. FISCAL YEAR 1986

#### 1. Regular Budget 1986-1987

Statement 2 shows the Regular Budget approved by the Commission at its Ninth Regular Meeting (Palma de Mallorca, November 1985) for the 1986-1987 biennial period and indicates a total budget of \$750,000 for each of these two years. (See Appendix 3 to Annex 9 of the Report for Biennial Period 1984-85, Part II.)

Statement 3 shows the Commission budgets from 1970 to 1986. Since 1981, the Commission budgets have been maintained at practically the same level, in spite of the increase in Commission and, consequently, Secretariat activities. This has been possible because of the high professional level of the staff and the efficient use of the word processing and computer terminal equipment installed at the Secretariat.

#### 2. Review of Commission accounts -- First half of the biennial period (1986)

Statement 4 shows the status of the member country contributions to the end of Fiscal Year 1986.

Of the total 1986 budget, \$575,000 were financed by member country contributions. However, of this amount, \$434,242 have been paid, or 75 percent. There are contributions pending payment from 1986 and/or other years totaling \$358,458.50 from: Benin, Cape Verde, Côte d'Ivoire, Cuba, Gabon, Ghana, Morocco, São Tomé & Príncipe, Senegal, and Venezuela.

Statement 5 shows the Budget and Expenditures to the end of Fiscal Year 1986, which would have ended in a positive balance of \$22,482.88 if all the members countries had paid their 1986 contributions. However, the real situation is as follows:

a) Expenditures of Fiscal Year 1986		727,517.12	
b) Funds available for this period:			
--1986 country contributions	434,242.00		
--Advance paid in 1985 (Cuba)	540.76		
--Applied from WCF	<u>175,000.00</u>	<u>609,782.76</u>	
Negative Balance			117,734.36

There is only one solution to cover this negative balance and that is to apply this amount (117,734.36) from the Working Capital Fund.

### 3. General Comments on the Regular Budget

During the current Fiscal Year, there were four factors which had a considerable effect on expenses:

- i) The 30 percent decrease in the U.S. dollar/peseta exchange rate.
- ii) Inflation of 8 to 9 percent in the country of the Seat.
- iii) The 12 percent Value Added Tax levied as of January 1, 1986. (The previous tax rate was 5 percent.)
- iv) The data base transfer from the INFONET system to the new ICCAT Micro-Vax II system.

#### Chapter 1 - SALARIES

The salaries of the Executive Secretary, the Assistant Executive Secretary, six multi-lingual secretaries, an administrative assistant, a receptionist, a copy machine operator and a messenger, that is, a total of twelve staff members are included in this chapter. The wages of an outside accountant are also charged to this chapter.

There is a negative balance of \$14,578.93 in this Budget chapter at the end of the Fiscal Year.

#### Chapter 2 - TRAVEL

Trips by the Secretariat staff are detailed in the Administrative Report (COM/86/8) and the Secretariat Report on Statistics and Coordination of Research (COM/86/12).

Included in this Budget chapter are trips by the Executive Secretary to:

- Azores, to investigate the idea of holding the 1987 annual meeting on the island of San Miguel.
- Las Palmas de Gran Canaria, to attend the ICSEAF meeting.

Also included were trips by the Assistant Executive Secretary to:

- Las Palmas de Gran Canaria, to organize statistics and sampling programs.
- Vancouver, to attend a meeting on tuna resources. The Commission paid only the per diem, as the travel expenses were covered by the University of Washington.
- Montecarlo, to attend the GFCM meetings.

A substantial positive balance of \$9,979.94 is shown for this chapter.

#### Chapter 3 - ANNUAL MEETING

A breakdown of expenses from this chapter is as follows:

i) Secretariat staff (travel, per diem, overtime, etc.	\$14,408.66
ii) Simultaneous interpreters (travel, salary, per diem)	16,102.93
iii) Extra staff (1 receptionist, 1 copy machine operator)	3,462.95
iv) Hotel conference rooms, working rooms, coffee break, and miscellaneous	16,946.86
v) Electronic equipment for simultaneous translation	6,782.72
vi) Rental of 3 copy machines	6,022.69
vii) Transport of equipment and material	1,078.51
viii) Material, installation and miscellaneous expenses	<u>3,424.72</u>
TOTAL	\$68,230.04

There is a positive balance of \$9,769.96 in this Budget chapter.

#### Chapter 4 - PUBLICATIONS

The publications charged to this Budget chapter are listed in the Administrative Report (COM/86/8). In this chapter there is a positive balance of \$6,666.65.



Chapter 5 - OFFICE EQUIPMENT

Included in this chapter is the purchase of the following: filters and supports for computer screens, one chair, three heaters, one air conditioner, as well as monthly "leasing" payments for two Xerox copy machines. This Fiscal Year ends with a positive balance of \$2,394.69 in this Budget chapter.

Chapter 6 - OPERATING EXPENSES

Expenses such as office material, reproduction of documents, mailing, telephone, telegrams, telex, distribution of documents and publications, maintenance of equipment, auditor's fees, security bond, electricity, and office cleaning have been charged to this Budget chapter.

A breakdown of the expenses incurred in this Budget chapter is as follows:

1) Office material	7,073.83
ii) Reproduction of documents	5,725.55
iii) Mailing expenses	12,681.09
iv) Telephone	8,410.21
v) Telegrams and telex	6,888.34
vi) Equipment maintenance	13,000.23
vii) Auditor's fees	2,333.33
viii) Security bond	778.94
ix) Electricity	3,248.95
x) Electrical installation for computer	4,099.59
xi) Office cleaning	3,139.33
xii) Miscellaneous	<u>135.82</u>
Total	67,515.21

The Fiscal Year ends with a positive balance of \$484.79 in this Budget chapter.

Chapter 7 - MISCELLANEOUS

The expenses incurred in this Budget chapter include: minor office repairs (plumbing, furniture, etc.), office insurance (fire, theft, and liability), local transportation for office business, and other miscellaneous expenses which are not applicable to other Budget chapters. A medical checkup for Secretariat staff members is also included. There is a negative balance of \$569.73 corresponding to this Budget chapter.

## Chapter 8 - COORDINATION OF RESEARCH

## a) Staff

This chapter includes the salaries of the biostatistician, systems analyst, assistant programmer, a statistical assistant and a data entry clerk, that is, a total of five staff members. Also included are the expenses of port samplers in Abidjan (\$2,310.79), Las Palmas de Gran Canaria (\$3,777.77), St. Maarten (\$1,918.83), Montevideo (\$2,807.49), and Tenerife (\$277.62), for a total of \$11,092.50.

The Commission also has an observer in Cape Town who was paid \$5,000 for sampling carried out in 1986. This amount was accounted for during Fiscal Year 1985, and for this reason does not appear in 1986 expenses.

In addition, the amount of \$17,915.00 paid to the biostatistician upon the expiration of his contract is included in this sub-chapter.

This sub-chapter has a negative balance of \$6,601.83 at the end of the Fiscal Year.

## b) Travel

Included in this sub-chapter are the expenses of various trips having to do with statistical and sampling activities, such as:

- The Assistant Executive Secretary to the Billfish Workshop, Miami
- The biostatistician's Home Leave (biannual); attendance at the Conference on Tunas, Lake Arrowhead, combined with Home Leave; attendance at meetings on statistical training, La Coruña, return to home country upon expiration of contract.
- Transportation of the systems analyst's family (wife and three children) to Madrid.
- Official trip by H. Farrugio to Tunisia to collect bluefin statistics.
- Transportation to ICCAT for H. Farrack on official business to process data.

There is a positive balance of \$4,301.38 in this sub-chapter at the end of the Fiscal Year.

## c) Office Equipment

Only a total of \$380.13 in small accessories has been applied to this sub-chapter. There is a positive balance of \$4,619.87.

d) Data processing

Because of the high cost of transferring the data from the previous system (INFONET) to the new in-house computer, the expenses of this sub-chapter rose to \$45,598.95, and ends with a negative balance of \$11,598.95.

e) Meetings during the year (Sub-Committees, Working Groups, etc.)

No special SCRS meetings were held in 1986. Consequently, the amount budgeted for this sub-chapter (\$20,000) remains as a positive balance.

f) Miscellaneous

The purchase of 10,000 tags and lottery prizes are included in this sub-chapter. There is a negative balance of \$46.89 at the end of the Fiscal Year.

Chapter 9 - CONTINGENCIES

A meeting of the STACFAD Working Group was held in Madrid in September, 1986, to study the problem of contributions pending payment and to try to find solutions. The expenses (\$2,338.07) were low in spite of having available simultaneous interpretation. This amount was applied to Chapter 9 - Contingencies as funds were not earmarked for this meeting in other chapters and, therefore, this Budget chapter has a negative balance.

4. Income and Disbursements of the Regular Budget

Statement 6 shows the Income and Disbursements of Fiscal Year 1986.

In addition to the amount received (\$434,242.00) from 1986 contributions, the amount of \$97,001.95 was received from contributions corresponding to previous years but paid during this Fiscal Year. Bank interest (\$39,545.36), small amounts from the sale of publications (\$135.00) and a typewriter (\$185.18) no longer used in the Secretariat were also deposited.

Advances on contributions from Angola (\$32,378.00) and from Uruguay (\$5,577.00) were also deposited.

Finally, a reimbursement of \$6,665.02 was received as an exemption in the payment of the import taxes on the computer purchased in Fiscal Year 1985. We are planning to use the amount reimbursed

to purchase a laser printer, in order to be able to print all our publications without outside help.

The expenses (\$727,517.12) charged to the 1986 Regular Budget and the amount (\$19,911.69) to cover the negative balance of the International Skipjack Year Program are shown in this Statement, as well as the amount remaining in Cash and Bank (\$348,981.72) at the end of Fiscal Year 1986.

#### 5. Review of the Working Capital Fund

Statement 7 shows the present status of the Working Capital Fund. Fiscal Year 1985 ended with \$305,140.26 in the Fund. Bank interest earned in 1986, pending contributions corresponding to previous years, and the sale of a typewriter and publications are deposited to the Fund.

The following deductions were made:

- To cover the negative balance of the Regular Budget (117,734.36)
- To cover the negative balance of the Skipjack Budget (19,911.69)
- Applied to the 1987 Regular Budget (115,000.00)

At the end of Fiscal Year 1986, there are \$189,361.70 available in the Working Capital Fund. This amount is too low to cover the applications for which this Fund was established.

It should be noted that the Working Capital Fund represents an invaluable recourse:

- i) In the early part of the year before any contributions are paid;
- ii) To cover negative balances;
- iii) To cover delays in payments.

When the Fund has a moderately high balance:

- iv) To cover special research programs;
- v) To cover part of the budget, to reduce country contributions.

Consequently, it is essential to maintain this Fund in order to ensure the normal pace of Commission activities.

#### 6. Study of member country pending contributions

This matter was discussed in depth by the STACFAD Working Group (Madrid, September 23-24, 1986). The Group's Report, with all pertinent information, was presented for the study and consideration

of the Financial Committee at the time of its special meeting, held in Madrid on November 11, 1986. (See the STACFAD Reports in Report for Biennial Period, 1986-87, Part I.)

7. Balance Sheet at the end of Fiscal Year 1986

Statement 8 shows the Balance Sheet to the end of the Fiscal Year. The figures in this Statement were commented on previously.

8. Review of the second half of the Biennial Budget (1987)

and

9. Member country contributions to the 1987 Regular Budget

When the 1986-1987 budgets were approved by the Commission, considerable debate ensued on the country contributions to finance these budgets (see Biennial Report, 1984-1985, Part II, Annex 9).

The following applications of the Working Capital Fund were approved:

i) To cover part of the 1986 Budget	\$ 175,000
ii) To cover the Yellowfin Year Program	175,000
iii) Purchase of Digital Micro-Vax II computer	<u>113,929*</u>
Total	\$ 463,929

As regards the 1987 Budget, it was suggested that, in principle, the same amount be applied from the Working Capital Fund as for 1986 (i.e., \$175,000), providing that the pending contributions were paid in the course of 1986. It was noted at that time that the situation should be critically reviewed at the 1986 meeting in light of the status of the Working Capital Fund.

Various delegations expressed serious concern about the application of the Working Capital Fund to cover part of the 1987 Budget.

Two delegations reiterated this concern and noted that "in light of various uncertainties in currency fluctuation, contribution arrearages, etc. the operation of the Commission may be compromised, perhaps forcing it to the point of insolvency". (Biennial Report, 1984-85, Part II, Annex 9)

The pending payments which we had hoped to receive have not been paid. On the contrary, there were \$315,243.21 pending payment a year ago, whereas at present outstanding contributions amount to \$358,458.50.

\*Debited to Fiscal Year 1985

Also, due to a decrease in catches, some countries which normally pay their contributions on time and early in the year have reduced contributions, whereas the contributions of the other member countries have increased.

The opinion of the STACFAD Working Group which met in Madrid (September 23-24, 1986) is clearly outlined in the Group's second recommendation. (See Report for Biennial Period 1986-87, Part I, Appendix 1 to Annex 10.)

Consequently, in view of the present circumstances, and bearing in mind the austerity budgets of the member countries as well as the responsibilities of the Commission, the Executive Secretary proposed that the 1987 Budget be funded entirely by the member country contributions.

It would be a serious error to consider that for this reason the contributions will increase. This should be interpreted in the sense that because of this decision the contributions will not be lowered, as occurred last year. Instead, contributions will return to the 1981 and 1982 levels, and will even be lower than in 1983 when, as proposed for 1987, no amounts were applied from the Working Capital Fund to cover part of the Budgets.

What has occurred is that in 1984, 1985 and 1986 the total budgets were maintained but contributions decreased considerably because of the application of certain amounts from the Working Capital Fund. If circumstances so permit, this Fund could be applied again in the future for activities as decided by the Commission. In that case, country contributions will again be reduced.

This subject was discussed in detail at the STACFAD Meeting (Madrid, November, 1986), and the conclusions and the approved 1987 Budget are shown in the Report of the Standing Committee on Finance and Administration (STACFAD).

## II. SKIPJACK YEAR PROGRAM

Funds available for this Program at the end of Fiscal Year 1985 amounted to \$10,319.62. However, there were still country contributions pending payment towards this budget which amount to \$7,844.70 (Benin \$3,044.70 and Ghana \$4,800). (Biennial Report, 1984-1985, Part II)

The status of skipjack accounts at the end of Fiscal Year 1986 is as follows:

Funds available at the end of Fiscal Year 1985		\$10,319.62
Editorial expenses of the publication of the Skipjack Conference:		
1) Coordinator-editor (in Canada)	\$18,456.23	
ii) Offset printing (in Spain)	<u>11,775.08</u>	<u>\$30,231.31</u>
Negative balance .....		- \$19,911.69

In accordance with a Commission decision (Biennial Report, 1984-85, Part I), the amount to cover the negative balance will be taken from the Working Capital Fund. With this liquidation, we can consider the Skipjack Budget as closed. The country contributions still pending payment to this Budget will be deposited to the Working Capital Fund.

We would like to point out that although publication of the Skipjack Proceedings has been considerably delayed, the content and quality of this publication clearly justifies its delay. The scientists who have worked both directly and indirectly in this Program have reason to be proud of the results. We feel that this publication will have a positive influence on the overall prestige of this Commission among the world scientific community.

The cost of distributing this publication is being charged to the Regular Budget, which, due to the high cost of mailing, will be a substantial amount.

### III. YELLOWFIN YEAR PROGRAM

At its Ninth Regular Meeting (Palma de Mallorca, November, 1985), the Commission approved for the Yellowfin Year Program a budget of \$175,000, financed by the Working Capital Fund.

The Leaders of the Program's Activity Teams met in Madrid on January 21-24, 1986, at the ICCAT Secretariat to develop the Operational Plan of the Program and a breakdown of the budget by activities.

The Program is currently under way although activities this year have proceeded rather slowly. Program expenses in 1986 have amounted to \$62,695.09.

The status of the Yellowfin Year Program's accounts is as follows:

Total amount budgeted	\$175,000.00
Expenditures	<u>62,695.09</u>
Balance	\$112,304.91

Table YYP-1 shows the breakdown, by activities, of Program expenses.

Consequently, at the end of Fiscal Year 1986, there are \$112,304.91 available for Yellowfin Program activities in 1987.

#### IV. GENERAL BALANCE SHEET AT CLOSE OF FISCAL YEAR 1986

Statement 9 shows the Balance Sheet of the Commission at the end of Fiscal Year 1986.

O. Rodríguez Martín  
Executive Secretary

NOTE: Regular Budget: After closing the financial statements for Fiscal Year 1986, \$9,000.00 was received from Côte d'Ivoire, which paid the amount pending for 1986.



STATEMENT 1

Balance Sheet of the Regular Budget - Fiscal Year 1985 (US\$)

<i>ASSETS</i>		<i>LIABILITIES</i>	
Cash and Bank . . . . .	655,681.02	Applied to the 1986 Budget . . . . .	175,000.00
Contributions pending payment . . . . .	315,243.21	Applied to the Yellowfin Year Program . . . . .	175,000.00
		Advance on 1986 Budget (Cuba) . . . . .	540.76
		Available in Working Capital Fund . . . . .	<u>305,140.26</u>
			655,681.02
		Contributions pending payment:	
		i) from 1982 and before	31,165.27
		ii) from 1983	73,325.99
		iii) from 1984	79,824.00
		iv) from 1985	<u>130,927.95</u>
			<u>315,243.21</u>
TOTAL . . . . .	<u>970,924.23</u>	TOTAL . . . . .	<u>970,924.23</u>

## STATEMENT 2

## Regular Budget, 1986-1987 (US\$)

	1986 (750,000)	1987 (750,000)
<b>Chapter:</b>		
1. Salaries . . . . .	300,000	300,000
2. Travel . . . . .	15,000	15,000
3. Annual meeting . . . . .	78,000	78,000
4. Publications . . . . .	32,000	32,000
5. Office Equipment . . . . .	10,000	10,000
6. Operating Expenses . . . . .	68,000	68,000
7. Miscellaneous . . . . .	<u>10,000</u>	<u>10,000</u>
<i>Subtotal</i> . . . . .	513,000	513,000
8. Coordination of Research		
a) Staff . . . . .	160,000	160,000
b) Travel . . . . .	13,000	13,000
c) Office equipment . . . . .	5,000	5,000
d) Data processing . . . . .	34,000	34,000
e) Meetings during the year (Sub-Committees, Working groups) and/or Training courses . . . . .	20,000	20,000
f) Miscellaneous . . . . .	<u>5,000</u>	<u>5,000</u>
<i>Subtotal</i> . . . . .	237,000	237,000
9. Contingencies . . . . .	<u>0</u>	<u>0</u>
TOTAL . . . . .	750,000	750,000
<i>From Working Capital Fund</i> . . . . .	175,000	175,000*
<i>From Member Country Contributions</i> . . . . .	575,000	575,000
<b>SPECIAL FUNDING</b>		
1. Purchase of computer . . . . .	44,000	21,000
2. Yellowfin Year Program . . . . .	<u>175,000</u>	<u>0</u>
<i>Subtotal</i> . . . . .	219,000	21,000
<b>FROM WORKING CAPITAL FUND</b> . . . . .	219,000	21,000

\*This amount is tentatively set under the assumption that pending contributions will be paid during 1986. The situation must be critically reviewed at the 1986 Commission Meeting with reference to the cash available in the Working Capital Fund at that time (see text).

Regular Commission Budgets, 1970 - 1986 (US\$)

<i>Year</i>	<i>Contributions</i>	<i>Other sources</i>	<i>Total Budget</i>
1970	70,000	—	70,000
1971	100,000	1970 — 30,000*	130,000
1972	130,000	1971 — 14,000*	144,000
1973	135,000	1971 — 16,000*	
		1972 — 4,000*	155,000
1974	210,000	—	210,000
1975	230,000	1974 — 10,000*	240,000
1976	280,000	1975 — 13,000*	293,000
1977	300,000	1976 — 20,000*	320,000
1978	385,000	1977 — 13,000*	
		1977 — 10,000**	408,000
1979	429,000	—	429,000
1980	625,000	—	625,000
1981	750,000	—	750,000
1982	750,000	—	750,000
1983	825,000	—	825,000
1984	600,000	100,000**	700,000
1985	575,000	175,000**	750,000
1986	575,000	175,000**	750,000

\*Applied from the positive balance of previous years.  
 \*\*From the Working Capital Fund.

## Status of Member Country Contributions at end of Fiscal Year 1986 - Regular Commission Budget (US\$)

Country	1985 Balance	Contributions for 1986, approved by the Commission	Contributions paid towards the 1986 Budget	Past due* or Other Contributions	Balance pending payment
Angola . . . . .	16,189.00	14,547.00	14,547.00	16,189.00	0.00
Benin . . . . .	24,200.00	3,960.00	0.00	0.00	28,160.00
Brazil . . . . .	25,024.00	26,403.00	25,024.00	25,024.00	1,379.00
Canada . . . . .	0.00	16,247.00	16,247.00	0.00	0.00
Cape Verde . . . . .	20,141.00	9,381.00	0.00	20,141.00	9,381.00
Cuba . . . . .	(+540.76)	17,713.00	(540.76)	0.00	17,172.24
France . . . . .	0.00	64,088.00	64,088.00	0.00	0.00
Gabon . . . . .	23,052.11	7,831.00	0.00	0.00	30,883.11
Ghana . . . . .	98,916.27	36,578.00	0.00	0.00	135,494.27
Côte d'Ivoire . . . . .	5,074.95	19,359.00	10,359.00	5,074.95	9,000.00***
Japan . . . . .	0.00	39,633.00	39,633.00	0.00	0.00
Korea . . . . .	0.00	26,234.00	26,234.00	0.00	0.00
Morocco . . . . .	61,026.00	14,901.00	0.00	22,048.00	53,879.00
Portugal . . . . .	0.00	22,439.00	22,439.00	0.00	0.00
Sao Tomé & Príncipe . . . . .	3,971.00	4,064.00	0.00	0.00	8,035.00
Senegal . . . . .	29,123.88	12,618.00	0.00	0.00	41,741.88
South Africa . . . . .	0.00	9,674.00	9,674.00	0.00	0.00
Spain . . . . .	0.00	118,757.00	118,757.00	0.00	0.00
Uruguay . . . . .	8,525.00	5,805.00	5,805.00	8,525.00	0.00
U.S.A. . . . .	0.00	46,218.00	46,218.00	0.00	0.00
U.S.S.R. . . . .	0.00	19,877.00	19,877.00	0.00	0.00
Venezuela . . . . .	0.00	38,673.00	15,340.00	0.00	23,333.00
TOTAL . . . . .	315,243.21 (+540.76)	575,000.00	434,242.00 (540.76)**	97,001.95	358,458.50

\*Past due contributions are deposited to the Working Capital Fund.

\*\*Deposited and accounted for in 1985 (Cuba).

\*\*\*After closing Fiscal Year 1986, Côte d'Ivoire paid \$9,000.00.

## STATEMENT 5

## Budget, Expenditures and Balance of the Regular Budget for Fiscal Year 1986 (US\$)

<i>Chapter</i>	<i>I</i> <i>1986 Budget</i>	<i>II</i> <i>Actual Expense</i>	<i>III</i> <i>Difference</i>
1. Salaries . . . . .	300,000	314,578.93	- 14,578.93
2. Travel . . . . .	15,000	5,020.06	+ 9,979.94
3. Meetings . . . . .	78,000	68,230.04	+ 9,769.96
4. Publications . . . . .	32,000	25,333.35	+ 6,666.65
5. Office Equipment . . . . .	10,000	7,605.31	+ 2,394.69
6. General Operating Expenses . . . . .	68,000	67,515.21	+ 484.79
7. Miscellaneous . . . . .	<u>10,000</u>	<u>10,569.73</u>	- 569.73
<i>Sub-total</i> . . . . .	513,000	498,852.63	+ 14,147.37
8. Coordination of Research			
a) Staff . . . . .	160,000	166,601.83	- 6,601.83
b) Travel . . . . .	13,000	8,698.62	+ 4,301.38
c) Equipment . . . . .	5,000	380.13	+ 4,619.87
d) Data Processing . . . . .	34,000	45,598.95	- 11,598.95
e) Meetings during the year (Sub-Committees, Working Groups, Training Courses, etc.) . . . . .	20,000	0.00	+ 20,000.00
f) Miscellaneous . . . . .	<u>5,000</u>	<u>5,046.89</u>	- 46.89
<i>Sub-total</i> . . . . .	237,000	226,326.42	+ 10,673.58
9. Contingencies . . . . .	<u>0</u>	<u>2,338.07</u>	- 2,338.07
TOTAL . . . . .	750,000	727,517.12	+ 22,482.88

## STATEMENT 6

## Income and Disbursements of the Regular Budget, Fiscal Year 1986 (US\$)

<i>INCOME</i>		<i>DISBURSEMENTS</i>	
Cash and Bank (at the end of Fiscal Year 1985) . . . . .	480,681.02	From the 1986 Budget . . . . .	727,517.12
<i>1986 Income:</i>		To cover negative balance of	
i) From 1986 Contributions . . . . .	434,242.00	Skipjack Program . . . . .	19,911.69
ii) Past due and Other Contributions . . . . .	97,001.95*	Balance in Cash and Bank . . . . .	348,981.72
iii) Bank interest (1986) . . . . .	39,545.43*		
iv) Sale of publications . . . . .	135.00*		
v) Advance on 1987 Budget (Angola) . . . . .	32,378.00		
vi) Advance on 1987 Budget (Uruguay) . . . . .	5,577.00		
vii) Sale of IBM typewriters . . . . .	185.18*		
viii) Reimbursement from Digital Equipment . . . . .	6,665.02		
	<u>615,729.51</u>		
<b>TOTAL</b> . . . . .	<b>1,096,410.53</b>	<b>TOTAL</b> . . . . .	<b>1,096,410.53</b>

\*To the Working Capital Fund.

**STATEMENT 7**

**Regular Budget – Working Capital Fund at end of Fiscal Year 1986 (US\$)**

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*Regular Budget:*

At the end of Fiscal Year 1985 .....		305,140.26	
-- Bank Interest – 1986 .....	39,545.36		
-- Past due contributions .....	97,001.95		
-- Sale of IBM typewriters .....	185.18		
-- Sale of publications .....	<u>135.00</u>	<u>136,867.49</u>	
			442,007.75

*Deductions:*

a) To cover negative balance of Regular Budget .....		117,734.36	
b) To cover negative balance of Skipjack Program .....		19,911.69	
c) Applied to the 1987 Budget .....		<u>115,000.00</u>	<u>252,646.05</u>

Available in Working Capital Fund at end of Fiscal Year 1986 .			189,361.70
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## STATEMENT 8

## Balance Sheet of the Regular Budget at the end of Fiscal Year 1986 (US\$)

<i>ASSETS</i>		<i>LIABILITIES</i>	
Cash and Bank . . . . .	348,981.72	Available in Working Capital Fund . . . . .	189,361.70
Contributions pending payment . . . . .	358,458.50	Advance on 1987 Budget (Angola) . . . . .	32,378.00
		Advance on 1987 Budget (Uruguay) . . . . .	5,577.00
		Reimbursement from Digital Equipment . . . . .	6,665.02
		Applied to 1987 Budget . . . . .	<u>115,000.00</u>
			348,981.72
		Contributions pending payment:	
		i) from 1982 and before . . . . .	31,165.27
		ii) from 1983 . . . . .	53,469.99
		iii) from 1984 . . . . .	63,031.00
		iv) from 1985 . . . . .	70,575.00
		v) from 1986 . . . . .	<u>140,217.24</u>
			358,458.50
TOTAL . . . . .	707,440.22	TOTAL . . . . .	707,440.22



## STATEMENT 9

## General Balance Sheet at Close of Fiscal Year 1986 (US\$)

A S S E T S		L I A B I L I T I E S	
<i>Available: (Banco Exterior de España)</i>		<i>Acquired holdings and Guaranty deposit</i>	
Acct. 84-31279-Z (time deposit)	414,932.72		337,897.01
Acct. 82-31279-Q (US\$)	28,304.76	<i>Available in the Working Capital Fund</i>	
Acct. 30-17672-A (Pts.)	1,952,708.00		189,361.70
Acct. 30-17329-F (Convert. Pts.)	3,206.00	<i>Applied to the 1987 Regular Budget</i>	
Cash on hand (Pts.)	312,116.00		115,000.00
(1US\$ = 135 Pts.)	2,268,030.00	<i>Yellowfin Year Program</i>	
	<u>16,800.22</u>		112,304.91
	460,037.70	<i>Advance from:</i>	
Difference in exchange rate	1,248.93	Angola	
	461,286.63		32,378.00
			Uruguay
			5,577.00
<i>Receivables:</i>		<i>Reimbursement from Digital Equipment</i>	
From Regular Budget:			6,665.02
Benin	28,160.00	<i>Contributions pending payment:</i>	
Brazil	1,379.00	Regular Budget	
Cape Verde	9,381.00		358,458.50
Cuba	17,172.24	Skipjack Budget	
Gabon	30,883.11		7,844.70
Ghana	135,494.27		
Côte d'Ivoire	9,000.00		
Morocco	53,879.00		
Sao Tome & Principe	8,035.00		
Senegal	41,741.88		
Venezuela	23,333.00	358,458.50	
From Skipjack Budget:			
Benin	3,044.70		
Ghana	4,800.00	7,844.70	
<i>Equipment:</i>			
Acquired before 1986	335,106.92		
Acquired during 1986	1,974.45	337,081.37	
<i>Guaranty deposit</i>		815.64	
<b>TOTAL ASSETS</b>	<b>1,165,486.84</b>	<b>TOTAL LIABILITIES</b>	<b>1,165,486.84</b>
<i>Furniture ceded by Undersecretariat of Merchant Marine of Spain</i>		<i>Furniture ceded by Undersecretariat of Merchant Marine of Spain</i>	
	3,365.38		3,365.38

The Executive Secretary: *O. Rodríguez Martín*Certified by the Auditor: *B. Tahoces Acebo*

Table YYP-1

## Operational Plan for the Yellowfin Year Program – Expenditures per Activity (US\$)

<i>Items</i>	<i>Breakdown</i>		<i>Total</i>		<i>Balance</i>
	<i>Budget</i>	<i>Spent</i>	<i>Budget</i>	<i>Spent</i>	
A) Land Sampling Activities			3,400	2,065.75	1,334.25
Cape Verde beach sampling	1,000	1,003.25			
West Atlantic biological sampling	2,400	1,062.50			
B) On-board Observers Activities			24,240	18,884.77	5,355.23
Ghanaian observers/taggers	2,640	366.26			
Spanish observers	20,400	18,518.51			
West Atlantic observers	1,000				
Cape Verde landing site observers	200				
C) Tagging Activities			123,100	33,048.47	90,051.53
Fuel supply for R/V Nizery	64,000	22,274.22			
Payments for released fish					
Ghana BB	24,000	3,336.31			
Senegal BB	16,000				
West Atlantic pilot plan	5,000	2,601.45			
Rewards for recoveries					
Regular tag recoveries	9,600	1,204.24			
Seeded tag recoveries	1,500				
Tetracycline tag recoveries	1,000				
YYP special lotteries	1,000				
Materials (tags)	1,000	3,632.25			

**Table YYP-1 (Cont.)**

<i>Items</i>	<i>Breakdown</i>		<i>Total</i>		<i>Balance</i>
	<i>Budget</i>	<i>Spent</i>	<i>Budget</i>	<i>Spent</i>	
D) Hard Part Analysis			5,000		5,000.00
Tetracycline otolith reading	5,000				
E) Coordination			10,500	3,040.69	7,459.31
Traveling and shipping	5,000	498.60			
Activity Team Leaders Meeting (Jan. 1986)	2,500	2,542.09			
Data preparatory meeting (1987)	2,000				
Workshop (1988)	1,000				
F) Contingency	8,760	5,655.41	8,760	5,655.41	3,104.59
<b>TOTAL</b>	<b>175,000</b>	<b>62,695.09</b>	<b>175,000</b>	<b>62,695.09</b>	<b>112,304.91</b>

SECRETARIAT REPORT ON STATISTICS  
AND COORDINATION OF RESEARCH

SCRS/86/12

I. DATA COLLECTION AND SAMPLING

1. Collection of 1985 statistics through national offices

Progress made by the national offices and by the Secretariat is shown in Table 1 of Appendix 8 to Annex 12. The format of the Table has been simplified this year, in accordance with a decision made by the SCRS in 1985. In 1986, the overall situation has been very bad. Many countries failed to report even Task I catches on time for inclusion in the Provisional Statistical Bulletin issued before the November meeting.

Reminders, in the form of cables and telexes, were sent requesting countries to submit data immediately. However, as of September 30, 1986, total catches by species for many major fisheries including Cape Verde, Italy, Japan, Morocco, Uruguay and Venezuela were still lacking. Consequently, the catch tables prepared for the SCRS as well as for the Provisional Statistical Bulletin contain data which are very incomplete (probably only 60 percent of the total catch for 1985).

2. Improvements and remaining difficulties

2.a Venezuelan statistics

The 1984 data reported in 1985 were critically reviewed by the Secretariat. Some records for the Pacific which were still mixed in the Task II catch and effort data have been removed. Some double reporting of catches by foreign flag boats based at Venezuela was found and corrected. Data for 1985 had not yet been received as of

the time of writing this report. Since the landing data and logbook data are collected by the respective offices in Venezuela, we hope eventually to obtain these.

The biological sampling system, established in 1985 with the assistance of a U.S. expert sent by ICCAT to Venezuela, was temporarily discontinued in late 1985. Fortunately, sampling was resumed in 1986 and part of the data has been received at the Secretariat.

## 2.b Tunisian catch data

Since the Secretariat has not received adequate tuna data from Tunisia in the last few years, the Secretariat asked Dr. H. Farrugio (France), who is very familiar with Tunisia's fisheries and scientists, to visit that country for several days in September to discuss statistical problems with national scientists and statisticians. Trip expenses were assumed by the Commission. Dr. Farrugio's mission was very successful in clarifying many statistical questions regarding past data and in obtaining additional data for 1979 through 1986. The report of his trip was submitted as SCRS/86/26.

## 2.c Other Mediterranean statistics

Even though there has been considerable correspondence between the Secretariat and the local authorities and scientists of Italy, Greece and Turkey regarding tuna statistics, there has been no real improvement in the overall situation. As concerns Italian tuna statistics, catch, catch and effort and biological data seem to exist but government policy has prohibited making these data available to ICCAT until Italy's three-year research program (1985-87) has ended. However, at the GFCM meeting the delegates from Italy promised their full collaboration with ICCAT. We hope that these data will be made available to us in the near future.

Turkey is interested in establishing a data collection and sampling system for bluefin tuna with the assistance of ICCAT. However, the details still require further discussion.

The development of a new bluefin tuna industry in Greece was confirmed by contacts at the GFCM. However, the level of the catch should be much lower than what is now reported by the Greek statistical office. The Greek scientists are now critically investigating the catch data. Their preliminary estimates indicate about 500 MT of bluefin tuna per year, rather than 2,000 MT. Since no biological sampling is being conducted, the Secretariat is trying to assist the Greek scientists in establishing a sampling system. It was informed at the GFCM meeting that the European Economic Community is going to finance the tuna research program for Greece.

### 3. Port sampling by the Secretariat

#### 3.a The longline fleet

Routine port sampling from longliners at various transshipment ports was carried out as usual by ICCAT. More emphasis is now being placed on biological sampling rather than on the abstraction of logbooks. A new port sampler was contracted in Las Palmas in June, 1986, and the Assistant Executive Secretary visited a Cuban delegate in Las Palmas to request Cuba's collaboration in the program. Since then, and for the first time, we have been successful in carrying out biological sampling from Cuban longliners.

#### 3.b The Ghana-based fleet

In accordance with an SCRS decision, the Secretariat formulated a contract with the CRO-Abidjan in early 1986 to finance biological sampling from the Ghanaian surface fleet unloading at the port of Abidjan. However, as of the time of writing, no information had been received on the success of this endeavor. The results of the logbook developed and distributed in 1985 have not been reported, except for a few daily logbook records of trips made in late 1985 and early 1986 which were submitted to the Secretariat directly from the vessel captains.

## II. SECRETARIAT DATA PROCESSING

### 1. Facilities

Following the recommendation made by the SCRS at its 1985 meeting and the Commission's subsequent approval of the purchase of a mini-computer, the Secretariat tested three of five models suggested previously and the Digital "Micro-Vax II" model was selected. The purchase order was placed in December, 1985. The configuration includes 4MB real memory, two 71MB hard disks, a 1600 b.p.i. tape drive, a line printer, micro-VMS operating system, FORTRAN, 20-20 (spreadsheet modeling programs) and COBOL.

The computer arrived at the Secretariat's offices in June, 1986. This delay in delivery was due to unforeseen bureaucratic problems. During that same month, the installation of the hardware and software, a very time-consuming process, was begun to make the computer operative. Also in June, the ICCAT systems analyst and programmer participated in an on-site training course given by a Digital systems software specialist who offered advice on how to adapt the Micro-Vax VMS system to an ICCAT-tailored system. However, the system did not become operative until the end of August and is still not functioning perfectly due to various hardware and power supply problems.

The new in-house computer seems adequate for routine data processing and data management. As of the time of writing this report, the feasibility of using this computer for analytical purposes during the scientific sessions is not yet known, although the computer is theoretically sufficient for the work. We have noted that editing a large file on the editor takes considerable access time due to the software limitation. The maximum length of a file which can be edited is 984 bytes. However, running a program with a large file causes no time delay.

The INFONET system was contracted again in 1986 for ICCAT data processing, initially for 6 months. It was hoped that the data base in the INFONET could have been extracted by the end of the contract period and installed in the new in-house computer. However, due to the unforeseen delay in the delivery of the computer, considerable processing work still had to be done by the INFONET system even as late as October. Under the circumstances, the contract was extended to the end of 1986.

## 2. Data processing

### 2.a Transferring data files to the new system

The data processing work done at the Secretariat has increased steadily over the years. This year's processing was augmented by the extra work involved in transferring all the data files from the old system to the new. Because of limited financial resources, almost all the computer processing done by the INFONET system was submitted at low priority batch in order to save money.

As explained in previous paragraphs, the delay of the delivery of the new computer system upset the entire schedule of data transfer. As of the time of writing, only the bluefin files and catch and effort data have been moved from INFONET to the Micro-Vax. We expect to complete the transfer by the end of 1986. After that time, and once all the "house cleaning" is done, delays in our computer work should be eliminated and any requests by scientists will be met on a timely basis.

### 2.b Installation of analytical programs to the new system

One of the reasons for which an in-house computer was recommended by the SCRS was so that scientists could use the system during ICCAT scientific sessions. To meet this demand, the Secretariat started installing some essential analytical programs into the computer. In this respect, the Laboratory of Southeast Fisheries Center (Miami, Florida) of the U.S. National Marine Fisheries Service provided the Secretariat with considerable assistance. The SEFC has provided the Secretariat with a package of population

analysis programs as well as two and a half weeks of Mr. M. Par-rack's time to assist us in converting and installing these pro-grams. At the time of writing this report, this work is being carried out at the Secretariat.

## 2.c Data processing done by the Secretariat in 1986

### ROUTINE PROCESSING

- Updating all data bases (Task I, Task II, etc.).
- Data entry and processing of port sampling statistics.
- Separation of Task I catch data into major areas (and some-times into species) using Task II catch and effort and size data.
- Output of Statistical Bulletin tables.
- Processing of Task II data received recently (Data Record, Vol. 26).
- Preparation of species catch tables for SCRS meetings and for SCRS Reports (1985 and 1986).
- Updating tagging files and output of yearly recovery summary.
- Creation and distribution of tapes, upon request, for member countries.

### SPECIAL PROCESSING (See Sections I and III)

- Conversion of the entire data base in the INFONET system to formatted files that can be read by the Micro-Vax. Storage is on magnetic tape. Only the files to be processed are loaded onto disk and then they are restored on tape.
- Processing of bluefin data (Up to 1985 for the West Atlantic and 1984 for the East Atlantic and Mediterranean. See Docu-ment SCRS/86/10.)
- Comparison of tuna catches between the ICCAT data base and the FAO base.
- Data catalogue for bigeye data.
- Conversion of programs developed in the INFONET system to the new Micro-Vax system.

## III. FUTURE PROGRAM OF THE DATA BASE

### 1. Reorganization of Task II catch and effort and size data bases

The Secretariat has to do some "house cleaning" of these data bases. Some of the reformation work has already been done while transferring the data from the old system to the new one using new formats. The rest of the "house cleaning", which includes the application of data verification programs, will have to wait until the transfer is complete.



Some data verification programs have also been considered. They will be incorporated during the house-cleaning process.

## 2. Scientific usage of the computer

The Secretariat is also trying to obtain analytical programs for population studies from various laboratories.

With the collaboration of various laboratories, we have a compiled a significant list of programs and some of these programs have been installed into the system. The list of the programs installed was presented in SCRS/86/9.

These efforts will be continued. Only with time can such a package be improved. At the same time, the collaboration of all the scientists is important. Scientists interested in using the Commission's computer during the SCRS sessions are invited to send the programs they wish to use to the Secretariat in advance of the meeting. Scientists should let us know in advance the amount of disk storage they need for their data files.

Scientists wishing to run a program on the ICCAT computer during the SCRS sessions are welcome to do so. However, these runs will have to be done by the scientists themselves. In order to facilitate use of the ICCAT computer, the Secretariat is planning to prepare a users' manual.

## 3. Special statistical activities by the Secretariat

### 3.a Data updating and processing for the Bluefin Working Group

In September, 1986, the Secretariat reviewed the bluefin catch-by-size data base (up to 1983) used at the 1985 Working Group meeting in Miami. All the data in the base were updated using the new catch and size data (where available).

For the west Atlantic, the preliminary 1984 file created at the Miami meeting in 1985 was totally revised and a new file for 1985 was created by the beginning of October, since three major fishing countries (Canada, Japan and U.S.A.) submitted their data by the end of September. Data for the east Atlantic and Mediterranean are still very incomplete. The Secretariat waited until the last possible moment to create a file for 1984. The base is still very unsatisfactory because of the many substitutions which had to be made.

The procedures adopted for the updating of the bluefin base are reported in SCRS/86/10.

### 3.b Data catalogue of bigeye data

This year there will be a special session at the 1986 SCRS Meeting to examine the availability of bigeye data. In order to facilitate the scientists' work, the Secretariat prepared a catalogue of all bigeye data available in the Secretariat data base, which was printed and distributed in June. The updated catalogue (including the data received since June, 1986) is contained in SCRS/86/11.

### 3.c Tuna data comparison between ICCAT and FAO bases

As has been reported previously, a comparative study between the ICCAT data base and the FAO data base was begun in 1985. As a result, significant discrepancies which had existed between the two bases have been reduced drastically. In most cases, FAO adopted our figures, but in some instances, ICCAT's data were improved with a solid basis for the change. This work has continued and in 1986, ICCAT provided new comparison computer runs. A FAO statistician visited our headquarters to discuss some specific cases of discrepancies in the data.

There are still some cases where a change to either data base would affect various other agencies (NAFO, ICES, etc.). ICCAT hopes to solve these problems through tri-lateral discussions.

### 3.d Coordination of the Yellowfin Year Program

The Secretariat is responsible for coordination of the Yellowfin Year Program. Details were reported in SCRS/86/16.

### 3.e Biostatistical work

In response to a request from the Sub-Committee on Statistics, the biostatistician, in collaboration with the systems analyst and the programmer, conducted a study focusing primarily on missing and delayed Task II catch/effort and size sampling data. The catch/effort and size catalogs, which currently contain several thousand entries, were reviewed to identify gaps in series. A detailed report was prepared which will aid in filling in and/or submitting appropriate annotation of the gaps (SCRS/86/19).

The growing volume of statistical data received by the Secretariat has made it increasingly difficult for the staff to scan for errors before the data are entered in the ICCAT data banks. The biostatistician in collaboration with the systems analyst analyzed the data presently on file to establish norms against which incoming data can be matched (SCRS/ 86/20). These norms will be made

part of computer programs to be used for automated verification and quality control of incoming data, as well as for retrospective examination of information presently in the data banks.

At the request of the Spanish Institute of Oceanography, the biostatistician participated in a workshop at La Coruña aimed at optimization of the information network and sampling for catch/effort and size in the tuna fisheries of the mainland and Balearic Islands. Principal recommendations of the workshop were that emphasis should be placed on quality of sampling even at the expense of quantity, and that a system of priorities of data collection be established, especially with respect to Mediterranean fisheries.

A review of the baitboat fishery for skipjack in the Gulf of Guinea and of problems associated with catch/effort sampling was completed (SCRS/86/22).

A draft bibliography of papers on Atlantic tuna fisheries and biology not published by ICCAT was completed (SCRS/ 86/23). This bibliography will be complementary to the indexed bibliography of the Collective Volume of Scientific Papers issued in 1985. The two together will make possible inventories of Atlantic tuna publications at the Secretariat, national laboratories and universities as suggested by the SCRS in 1985.

The biostatistician submitted an invited paper on the use of fishery statistics for ocean monitoring to the Oceans '86 Special Symposium on Monitoring Strategies.

#### IV. MEETINGS AND COLLABORATION WITH OTHER INTERNATIONAL ORGANIZATIONS

These items are generally reported in detail in the "Administrative Report" This year, however, the SCRS discussed the topic of the Coordinating Working Party on Tuna statistics (CWP-Tuna) and the Indo-Pacific Tuna Program (IPTP) and made a specific recommendation that the Assistant Executive Secretary attend these meetings and report back on the results. Since there have been considerable developments in terms of recommendations, a special section of this Report has been devoted to this program.

##### 1. CWP-Tuna meeting and IOFC tuna meetings

The Assistant Executive Secretary attended the series of meetings held at Colombo, Sri Lanka, November 27 to December 7, 1985.

### 1.a Expert Consultation

This group is equivalent to the ICCAT SCRS. The scientists discussed stock conditions, fisheries development, statistics, etc. The statistical system of the Indo-Pacific Tuna Program (IPTP), which is almost identical to that of ICCAT, has improved considerably in the last few years. Stock assessments are also very similar to those of ICCAT. Progress in this area has been rapid but is still somewhat behind ICCAT due to the lack of data, particularly biological data, with the exception of data on southern bluefin tuna. A proposal was made to start an extensive tagging program.

Fisheries interaction was discussed as being a major problem, particularly between the industrialized off-shore fisheries (French and Spanish seiners around the Seychelles) and coastal artisanal fisheries (Sri Lanka and Maldives). World-wide cooperation to study fisheries interaction was proposed and ICCAT was asked to consider the problem of fisheries interaction (e.g., surface vs. longline) in planning the Yellowfin Year Program.

### 1.b Committee on Tuna Management

This Committee is equivalent to our Commission. There was some discussion on fisheries interaction between the industrialized fisheries and coastal fisheries in the Indian Ocean. The final recommendation was that the expansion of effort should be done with caution.

### 1.c Ad Hoc Consultation (Inter-Agency Tuna Statistics)

This meeting was proposed by the ICCAT Assistant Executive Secretary and was organized by FAO. The meeting was attended by representatives from all the regional agencies concerned with tuna statistics, namely the: Inter-American Tropical Tuna Commission (IATTC), South Pacific Commission (SPC), Forum Fisheries Agency (FFA), Indo-Pacific Tuna Programme (IPTP), FAO (also representing IOFC, IPFC and CWP), International Commission for the Conservation of Atlantic Tunas (ICCAT) and several country representatives from coastal and industrialized nations. The report of the group is presented as SCRS/86/8.

The group came to the conclusion that a mechanism, similar to that of CWP-Atlantic, is needed to enable all the regional tuna agencies to collaborate in improving tuna statistics. One of the first objectives is to obtain better world total tuna catch estimates by species and by country.

Topics such as the feasibility of compiling fleet statistics and establishing an up-to-date tuna catch monitoring system, the

problem of flags and standardization of reporting format, etc., would also be considered. The agencies were not in a position to commit themselves until they had an opportunity to discuss the matter at their organization's formal meetings, but it was agreed that some work could be started in an informal way.

## 2. Proposal for an International Workshop on Long-lived Tunas

At the time of the above meetings, scientists from Australia, Spain and Japan and the Assistant Executive Secretary had a chance to compare the methodology used in stock analyses of southern bluefin and Atlantic bluefin tunas. The discussions led to a proposal to hold an International Workshop on Long-Lived tunas. The Workshop would be limited to the methodology of stock analysis with no actual stock analysis of any particular species.

The proposal has been presented to the SCRS Chairman. The possibility was suggested of one country hosting the Workshop or either ICCAT or IATTC hosting it. Dr. J. Joseph of IATTC offered as one alternative that his organization host the workshop in conjunction with the Lake Arrowhead Tuna Conference. At any rate, it was agreed that some preparations should be made if the project is to be carried out.

## 3. General Fisheries Council for the Mediterranean Sea (GFCM)

See Administrative Report.

## 4. Development of a Field Manual for the Indian Ocean

At the invitation of the Indian Ocean Tuna Management Program (FAO), the Assistant Executive Secretary visited Colombo, Sri Lanka, from August 7 to 21, 1986, in assist the Program in developing a "Manual for Collecting Statistics and Sampling in the Indian Ocean". The Assistant Executive Secretary evaluated the sampling and statistical system of the Program and completed a draft text of the manual.

Since the Secretariat is considering revising its own sampling Manual for the Atlantic, and plans to include a new chapter on sampling of artisanal fisheries, the new text developed for the Indian Ocean will also be useful for the Atlantic. A copy of the draft is available for reference during the SCRS session. The Assistant Executive Secretary's trip expenses were all covered by FAO.

V. PUBLICATIONS AND DISSEMINATION OF INFORMATION

Since there were various recommendations concerning the Commission's policy on scientific publications, two separate documents (COM-SCRS/86/14 and SCRS/86/18) were prepared for presentation at the 1986 meetings.

# CHAPTER II

## Record of Meetings

### PROCEEDINGS OF THE FIFTH SPECIAL MEETING OF THE COMMISSION

Madrid, Spain, November 12-18, 1986

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#### OPENING PLENARY SESSION OF THE COMMISSION November 12, 1986

##### Item 1. OPENING OF THE MEETING

1.1 The Fifth Special Meeting of the Commission was held at the Hotel Princesa Plaza, Madrid (Spain), under the chairmanship of Mr. C. J. Blondin (U.S.A.). Mr. Blondin introduced the representative

of the Spanish Fisheries Administration and Commission officers who shared the head table. Present were Dr. M. Oliver, Secretary General of Maritime Fisheries of Spain, Mr. S. J. Makiadi López, First Vice Chairman of the Commission, Mr. J. Boavida, Second Vice Chairman, Mrs. P. García Doñoro, Chairman of the Standing Committee on Finance and Administration (STACFAD), Mr. J. S. Beckett, Chairman of the Standing Committee on Research and Statistics (SCRS), Dr. O. Rodríguez Martín, Executive Secretary and Dr. P. M. Miyake, Assistant Executive Secretary.

1.2 In his opening address Dr. Oliver, the Secretary General of Maritime Fisheries of Spain, reiterated his country's interest in the work of this Commission as well as the pleasure of having its headquarters here in Madrid. He offered the collaboration and facilities of the various laboratories of the Spanish Oceanographic Institute.

1.3 Dr. Oliver, in citing excerpts from his previous opening addresses, reiterated, among other things, the importance of the member countries' meeting their financial obligations to the Commission and the need to curtail the entry in the Mediterranean of large tuna vessels which are overfishing the tuna stocks. Dr. Oliver referred to the recent publication of the Skipjack Conference Proceedings and congratulated the scientists, authors, Secretariat and the Commission for the excellent work. He expressed his wish that all the countries present would continue to cooperate in the Commission's work for the benefit of a better utilization of marine resources, for it is only in this way that a sound future for our organization can be assured. The Secretary General's speech is attached as Annex 4.

1.4 The Commission Chairman, Mr. C. J. Blondin, also addressed the delegates at the Opening Plenary Session and pointed out the Commission's development in scientific research and statistics. He highlighted various ICCAT special research programs and made particular reference to the on-going Yellowfin Year Program. Mr. Blondin also congratulated the scientists and all concerned with the publication and editing of the Skipjack Conference Proceedings.

1.5 The Commission Chairman expressed his appreciation to the Spanish Government for hosting the meeting, and to the Executive Secretary, the Assistant Executive Secretary and the staff for their combined efforts in organizing this meeting and for their work during the course of the meeting.

1.6 In declaring the Fifth Special Meeting of the Commission officially open, Mr. Blondin welcomed all the delegates and observers and wished all present a fruitful meeting. The Chairman's opening address is attached as Annex 5.



Item 2. ADOPTION OF AGENDA, ARRANGEMENTS FOR THE MEETING AND APPOINTMENT OF SUBSIDIARY BODIES

2.1 The head delegate of each member country introduced his respective delegation. The List of Participants is attached as Annex 2.

2.2 The Commission reviewed the Tentative Agenda circulated 90 days prior to the opening of the meeting. The delegate from France noted that at the 1985 meeting his country had requested the inclusion of an Agenda item dealing with the status of the ratification of the Protocol to the ICCAT Convention (included as Item 26). The delegate of Brazil suggested a modification to Agenda Item 11. The Commission noted these modifications and the Tentative Agenda was revised accordingly and is attached herewith as Annex 1.

2.3 It was decided that Agenda Items 4-15, 23 and 25 would be referred to the Standing Committee on Finance and Administration (STACFAD). Items 21 and 24 were referred to the Infractions Committee. No subsidiary bodies were appointed for this meeting. The List of Documents presented to the Commission is attached as Annex 3.

Item 3. ADMISSION OF OBSERVERS

3.1 The observers, representing several countries and international organizations, introduced themselves. Several observers gave a brief summary of their country's tuna fisheries and their organization's interest in the Commission. All the observers were admitted and welcomed by the Chairman (see Annex 2, List of Participants).

SECOND PLENARY SESSION  
November 13, 1986

Item 16. REPORT OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS (SCRS)

16.1 The Commission Chairman submitted the SCRS Report to the Commission's Second Plenary Session. Before proceeding to a detailed review of the SCRS Report, the Chairman noted that the overall progress in the scientific field was satisfactory, although it could have been more rapid in some areas. He called the Commission's attention to the fact that budgetary constraints would affect on-going research activities. He also commented on the scientific contributions of various countries.

16.2 Mr. J. S. Beckett (Canada), Chairman of the SCRS, presented his Committee's Report and summarized the scientific findings.

16.3 The SCRS Chairman reported that 1986 was the first year that the Commission had available an in-house computer for data management to facilitate scientists in on-site stock assessment work. It is still too soon to appreciate the benefits since the computer was delivered rather late and the data files are not yet all transferred and/or tailored to the new system. However, the scientific work was facilitated by having the computer available during this year's SCRS session.

16.4 The Chairman informed the Commission that the SCRS had elected a new Chairman, Mr. A. González-García (Spain). Mr. Beckett stated that the scientific progress achieved during the five years he served as SCRS Chairman was noteworthy and he expressed pride in these achievements. However, he made special note of the difficulties which the scientists encountered in 1986 because of the unavailability at the time of the meeting of catch and effort data for a major fishery on tropical tunas. However, he was pleased with the progress made in swordfish research. Data are being accumulated on albacore but fewer studies have been made on this species in the last three years, probably due to a change in research priorities of various countries. Because of budgetary problems experienced by the member countries, there was reduced participation by scientists at this year's meeting and this resulted in some delay in the Committee's work. Since computer facilities are available and more scientists are working on-the-spot at the meeting, the lack of key people at the meeting could be problematic at future meetings.

16.5 Mr. Beckett highlighted certain aspects of the 1986 SCRS work, e.g., the "Bigeye Day" session, which focused on an in-depth study of bigeye research and enhanced the knowledge on this species.

16.6 Before going into detail on stock assessments, the SCRS Chairman explained the problem of partial recruitment in relation to population studies. He then reported on SCRS conclusions regarding changes in fishing patterns, stock structure, stock assessments, and evaluations of the effect of current regulations. These subjects are reported in detail under Agenda Item 8 of the Committee's Report. Agenda Item 8 also includes various Committee recommendations to the Commission regarding statistics, research and management.

16.7 The Chairman drew the Commission's attention to the Yellowfin Year Program and reported that this Program is currently in progress and should continue in 1987 as planned, although it is slightly behind schedule with respect to the original program plan. He noted that this would mean transferring to 1987 that portion of

the budget that was approved at the 1985 Commission Meeting and which was not used in 1986. If decided otherwise, the expenditures to date of both money and manpower would be rendered largely valueless.

16.8 The Commission's attention was also directed to the proposed "Program of Enhanced Research for Billfish" (Appendix 6 to the SCRS Report) which was developed in response to a request by the Commission in 1985. The SCRS Chairman briefly outlined the Program. He asked the Commission to give serious consideration to the modest budget proposed by his Committee to initiate this Program. He also pointed out that a Workshop on Swordfish, to be held at the ICCAT Headquarters, has been proposed for late summer or at the time of the SCRS meeting. Another proposal considered by SCRS was to hold a "Workshop on the methodology of studying tunas with a long life span". Details are given in under SCRS Agenda Item 11.

16.9 The SCRS Chairman made special reference to Agenda Item 13, in which the scientific committee proposed a new scheme for the time and place of the SCRS Meeting, i.e., holding a meeting in Madrid separate from the Commission meeting, with a three-week or one-month interval between the two. The advantage of this proposed scheme is that the Commission would then receive the Committee's advice well in advance of its meeting, and the scientists would have access to the computer at the ICCAT Headquarters, regardless of the Commission Meeting venue. Meeting costs could be reduced considerably. The disadvantage could be that some national scientists may have to travel twice and there could be some problem in having data available at the time of the meeting, should the Commission decide to move the SCRS meeting to a date considerably earlier than normally scheduled.

16.10 Mr. Blondin thanked the Chairman of SCRS for the work carried out by his Committee, especially the valuable work on stock assessments. He noted that the proposal for changes in the SCRS timetable requires very careful consideration by the Commission. The Commission adopted the Report together with the recommendations contained therein, pending a later decision by the Commission on some of the recommendations which have some financial and/or regulatory implications. The SCRS Report is attached as Annex 12.

16.11 Mr. J. Bravo Laguna, the observer from the Intergovernmental Oceanographic Committee (IOC), offered that organization's collaboration with ICCAT, particularly with respect to providing results of oceanographic research and data. His statement is attached as Annex 6.

16.12 Dr. F. Castro y Castro, the observer from Mexico, thanked the Commission for its kind invitation to attend the SCRS and Commission Meetings. At the request of Cuba, Dr. Castro y Castro's address is attached as Annex 7.

THIRD PLENARY SESSION  
November 17, 1986

## ITEM 18. REPORTS OF PANELS 1-4

18.1 Dr. A. Fonteneau (France) for Panel 1, Mr. S. J. Makiadi Lopes (Angola) for Panel 2, Mr. K. Shima (Japan) for Panel 3, and Mr. A. Kaluzniy (U.S.S.R.) for Panel 4, presented their respective Panel Reports to the Commission and highlighted the recommendations contained therein.

18.2 No changes were proposed by Panel 1 for the current size regulations on yellowfin and bigeye. Panel 2 proposed that the current management measures for bluefin tuna in effect for 1986 be maintained in 1987 for the west Atlantic stocks and that the regulations for the east Atlantic be unchanged. The Commission noted that Panel 3 did not suggest any conservation measures for 1987. Panel 4 recommended holding a workshop in 1987 to study swordfish in detail and proposed a program of enhanced research for billfish.

18.3 The delegate from Brazil commented that, in light of the budgetary difficulties faced by the Commission at this time, it would be very difficult for his country to support the billfish program.

18.4 The Commission approved the Panel Reports together with the various recommendations contained therein, but referred the question of the Swordfish Workshop and the Billfish Program to STACFAD for final consideration, as they have budgetary implications. The Panel Reports are attached as Annex 8.

## Item 19. REPORT OF THE INFRACTIONS COMMITTEE

19.1 Mr. B. Garcia Moreno (Cuba), Chairman of the Infractions Committee, presented the Report of the Committee to the Commission. The Report was adopted together with all the recommendations contained therein and is attached as Annex 9.

## Item 22. OTHER POSSIBLE REGULATORY MEASURES TO BE CONSIDERED

22.1 The recommendations for tuna management had been dealt with thoroughly by Panels 1-4 (see Annex 8) and there was no further discussion under this Agenda item.

FINAL PLENARY SESSION  
November 18, 1986

Item 17. REPORT OF THE STANDING COMMITTEE ON FINANCE AND  
ADMINISTRATION (STACFAD)

17.1 The Reports of the special and regular meetings of the Standing Committee on Finance and Administration (STACFAD) were presented by its Chairman, Ms. P. Garcia Doñoro (Spain).

17.2 The STACFAD Chairman reported that the Committee had studied various alternatives for the date and place of the next Regular Meeting of the Commission but referred this Item to the Commission for final consideration.

17.3 The Commission approved the STACFAD Reports and endorsed all the recommendations (including the Revised 1987 Budget) contained therein. The adopted STACFAD Reports are attached as Annex 10 and 11.

17.4 The Commission noted that the following Agenda Items referred to the STACFAD were dealt with and completed by the Committee, with the exception of Item 25, and endorsed all the recommendations concerning them:

- Item 4. Panel membership
- Item 5. Administrative Report
- Item 6. Relations with other organizations
- Item 7. Commission publications
- Item 8. Auditor's Report - 1985
- Item 9. Financial status of the first half of the biennial budget (1986)
- Item 10. Review of the Working Capital Fund
- Item 11. Study of the pending contributions of the member countries of the Commission and the means to reduce expenditures
- Item 12. Financial status of the Skipjack Program
- Item 13. Financial status of the Yellowfin Year Program
- Item 14. Review of the second half of the biennial budget (1987)
- Item 15. Member country contributions to the 1987 budget
- Item 23. Other activities in research and statistics

Item 25. DATE AND PLACE OF THE NEXT REGULAR MEETING OF THE  
COMMISSION

25.1 The delegate of Portugal reiterated his country's proposal to hold the 1987 meeting in the Azores. The invitation was extended to both the SCRS and Commission, but if the Commission wishes to hold the SCRS Meeting in Madrid, Portugal would welcome just the Commission Meeting. He stated that the computer facilities in the

Azores, although not completely compatible with the ICCAT system, would satisfy SCRS requirements. The Portuguese delegate also proposed that any additional costs in excess of the Commission budget allocation for this meeting would be covered by his Government. The Commission welcomed this generous offer.

25.2 The SCRS Chairman commented on the benefits of holding the SCRS session before the Commission Meeting: less cost, availability of the computer and data base at the Headquarters to be used by scientists, and receipt of the SCRS Report by Commissioners before the Commission Meeting. The disadvantages include the problem of receiving data in time, and double traveling for some scientists who must attend both the SCRS and Commission Meetings. He pointed out that in all likelihood special working groups or workshops would be held just prior to the SCRS sessions, which would help defray the costs of traveling twice. He pointed out that for the SCRS it would be preferable for the Commission Meeting to be moved to a later date instead of moving the SCRS meeting to an earlier date.

25.3 After some discussion, the Commission decided to accept the invitation extended by Portugal. The Commission recognized the benefits of holding the SCRS a few weeks in advance of the Commission Meeting and decided to hold the two meetings separately on a trial basis in 1987.

25.4 Recognizing that moving the Commission Meeting to a much later date would cause conflicts with the meetings of other organizations, it was decided that the Commission Meeting would be held, in principle, in the Azores from November 18 to 24, 1987, and the SCRS sessions from October 19 to 27, 1987, in Madrid, assuming that such arrangements could be made within the budget allocated for the 1987 Commission Meetings.

Item 26. STATUS OF THE RATIFICATION OF THE PROTOCOL TO THE ICCAT CONVENTION REGARDING ACCESSION OF THE EEC

26.1 The delegate of France, while noting that the Protocol to the Convention was adopted and signed by member countries two years ago, requested the member countries to inform the Commission of the status of ratifying the Protocol. The representative from the EEC thanked the ten countries who had already ratified the Protocol, but noted that ratification by all 22 members was needed before the EEC could become a member.

26.2 The delegate of Spain explained the bureaucratic delays that have occurred in her country and reported that steps are being taken to ratify this Protocol. The delegate from Portugal reported that his country was in a situation very similar to Spain and at present the ratification is almost ready for publication. Cuba

reported that his country had signed the Protocol and it is now pending ratification by the Council of Ministers and the State Council.

26.3 After a lengthy discussion, the Commission recommended that the Commission Chairman inquire, through correspondence, about the status of the ratification of the Protocol by the member governments who were not present at the Final Plenary session of the Commission Meeting and who had not yet ratified the Protocol. Benin, Gabon, Ghana, Morocco, Senegal and Venezuela fall into this category. The Commission Chairman agreed to do so, but first he will examine the Commission Rules of Procedures to make sure that such action is within his legal authority.

26.4 The countries who were present at the session, who had not ratified the Protocol and who did not offer any explanation at the session, were requested to clarify at a later time their status concerning the ratification of the Protocol.

#### Item 27. OTHER MATTERS

27.1 The delegate of Côte d'Ivoire referred to Item 11 of the STACFAD Report which concerned referring the matter of changing the formula for calculating contributions to the Commission (STACFAD Report, Item 11.6). He stated that the ICCAT Convention should be modified according to the new situation brought about by the Law of the Sea which created the Exclusive Economic Zones. He suggested that the member country contributions be calculated differently for developing countries with tuna fishing in their EEZ and for industrialized countries with no EEZ in the Atlantic, and that a working group be established to study this issue.

27.2 Delegates of several countries expressed the opinion that hastily changing the Convention could affect the credibility of the Commission.

27.3 The Chairman, recognizing that introduction of any change in the Convention would be a long-term process, suggested that this matter be examined at the next meeting of the Commission. In that way, the delegates would have the opportunity to receive instructions from their respective governments. This suggestion was accepted by the Commission.

27.4 The Chairman asked the delegate of Côte d'Ivoire to consider preparing a paper outlining his proposal, which the Secretariat could circulate among all the member countries for their future consideration and the delegate of Côte d'Ivoire agreed to do this.

Item 28. ADOPTION OF REPORT

28.1 The Proceedings of the Opening, Second and Third Plenary Sessions were adopted with minor changes. The Commission decided to approve the Proceedings of the Final Plenary Session by mail as soon as practicable after the meeting.

Item 29. ADJOURNMENT

29.1 The Commission Chairman thanked the outgoing SCRS Chairman, Mr. Beckett, for the five years during which he contributed his professional expertise and leadership to the scientific committee. He also thanked all the chairmen of the groups, namely Ms. García Doñoro, Mr. García Moreno and all the Panel chairmen, for their excellent leadership and collaboration. He also thanked the Executive Secretary and the Secretariat staff for their efficient work demonstrated during the meetings and above all throughout the year. The high quality services provided by the team of interpreters were also appreciated.

29.2 The meeting was adjourned.



## COMMISSION AGENDA

### Procedure of the meeting

1. Opening of the meeting
2. Adoption of Agenda, arrangements for the meeting and appointment of subsidiary bodies
3. Admission of observers

### Administration

4. Panel membership
5. Administrative Report
6. Relations with other organizations
7. Commission publications

### Finance

8. Auditor's Report - 1985
9. Financial status of the first half of the biennial budget (1986)
10. Review of the Working Capital Fund
11. Study of the pending contributions of the member countries of the Commission and the means to reduce expenditures
12. Financial status of the Skipjack Program
13. Financial status of the Yellowfin Year Program
14. Review of the second half of the biennial budget (1987)
15. Member country contributions to the 1987 budget

### Reports to the Commission

16. Report of the Standing Committee on Research and Statistics (SCRS)
17. Report of the Standing Committee on Finance and Administration (STACFAD)
18. Reports of Panels 1 - 4
19. Report of the Infractions Committee
20. Reports of subsidiary bodies appointed by the Commission for the meeting

Measures for the conservation of stocks

21. Status of the regulations adopted by the Commission regarding yellowfin, bigeye, and bluefin
22. Other possible regulatory measures to be considered
23. Other activities in research and statistics
24. Port Inspection

Other matters

25. Date and place of the next Regular Meeting of the Commission
26. Status of the ratification of the Protocol to the ICCAT Convention regarding accession of the EEC
27. Other matters
28. Adoption of Report

Adjournment

29. Adjournment

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LIST OF COMMISSION DOCUMENTS

- COM/86/1 Tentative Agenda
- COM/86/2 Annotated Tentative Agenda
- COM/86/3 Tentative Time Schedule
- COM/86/4 Tentative Agenda of the Standing Committee on Finance and Administration (STACFAD)
- COM/86/5 Tentative Agendas for Panels 1-4
- COM/86/6 Tentative Agenda of the Infractions Committee
- COM/86/7 Panels
- COM/86/8 Administrative Report
- COM/86/9 Financial Report
- COM/86/10 Report of the Working Group on the Standing Committee on Finance and Administration (STACFAD), Madrid, September 23-24, 1986
- COM/86/11 No document
- COM/86/12 Secretariat Report on Research and Statistics
- COM/86/13 Operational Plan for the Yellowfin Year Program (Madrid, January 22-24, 1986)
- COM/86/14 ICCAT Publications
- COM/86/15 Status of the Proposals Adopted by the Commission for the Conservation of Yellowfin Bigeye and Bluefin Tuna Stocks
- COM/86/16 Port Inspection

OPENING ADDRESS BY MR. M. OLIVER MASSUTI,  
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Distinguished guests, ladies and gentlemen:

Once again, and for the fourth time, I have the honor to greet the delegates of the member countries of the International Commission for the Conservation of Atlantic Tunas. It is indeed an honor to address this big family which meets each year at this time to maintain, guide and direct ICCAT activities.

I would also like to greet the delegations of the non-member countries and the representatives of the international organizations here present.

To all of you I extend a most cordial welcome.

Allow me, at this time, to reflect on some of the ideas expressed in my previous welcome speeches. The first time I addressed ICCAT was in 1983 in Madrid in this very same conference room. At that time, I said:

"...The Spanish Government would like to emphasize to this Commission its willingness to collaborate in the success of ICCAT work and to reaffirm our full support, especially since Spain, in particular Madrid, is the headquarters of ICCAT..."

At the same time I would like to point out that my country has always been well aware of its responsibilities to this Commission from the moment that Madrid was accepted as ICCAT's Headquarters.

As I reiterated on other occasions, the Spanish Fisheries Administration is happy and proud to have the Seat of the Commission here. It has offered the collaboration of the laboratories of the Spanish Oceanographic Institute at Santa Cruz de Tenerife, Santan-

der, and La Coruña as well as that of the fisheries research lab at Las Palmas de Gran Canaria to hold meetings or training courses and has provided any necessary facilities and services required for these meetings.

I would like to reconfirm to the Commission our willingness to collaborate with ICCAT and our offer of our facilities and services whenever needed.

The second time I spoke before you was in 1984 in Las Palmas de Gran Canaria when I said:

"...However, a very serious situation is hanging over the Commission which is disturbing and could become grave in a short time. I am referring to the late payment of contributions. I know that the Commission is aware of this problem and that close attention will be paid as we try to find a solution..."

Not too much time has passed since I spoke these words and it looks as if reality has confirmed my forecast. Unfortunately, the Commission is now threatened by financial difficulties over the short-term. At the same time, it is comforting to know that the Commission is trying to solve these difficulties, as shown by rapidly calling a Working Group meeting to discuss this problem. This meeting, which was open to all the member countries, was held this past September in Madrid at the Spanish General Secretariat of Maritime Fishing. The conference room facilities were provided by the Government. The Working Group discussed the Commission's financial problems at length and devised recommendations for presentation to the Commission at this meeting which opens today.

We are confident that all the delegations will study the problem and review the Working Group's Report with a spirit of understanding and collaboration.

The third time I was invited to address an ICCAT meeting was in 1985 and I was looking forward to welcoming you personally to Palma de Mallorca. Unfortunately, at the last moment and because of personal reasons, I was obliged to cancel my trip from Madrid. However, I asked the Head of the Spanish delegation to read my welcome speech to the delegates. At that time I was particularly sad for not being able to address you personally since Palma de Mallorca is my birthplace and where I spent a large part of my family and professional life. My feelings for Mallorca and for the Mediterranean are akin to those a mother feels for her child.

As I am sure you will agree, Palma is an authentically Mediterranean city, with a mild climate, a touristic atmosphere, plenty of sunshine, and sandy beaches. However, as you are aware, at times there are big storms with torrential rains and hurricane-like winds, which stir up the Mediterranean waters and cause huge waves.

which often endanger the small artisanal fishing vessels of the coast.

In my speech delivered at the 1985 meeting, I spoke out in defense of the tuna resources of the Mediterranean, not only because of my Mediterranean nature but more so because of my direct responsibility in the Fisheries Administration of my country. I shall quote from that speech.

"...I am going to ask the distinguished delegates here present to try to avoid that the large, powerful tuna vessels of their respective fleets fish in the Mediterranean since these could quickly exhaust the stocks of large tuna that are found at the bottom of this Sea and which up to now have guaranteed the survival of this species in the Mediterranean..."

We have news that this request has not been completely followed and that some large tuna vessels continue to operate in the Mediterranean using deep gears. I understand that perhaps there is no juridical basis to support my petition, but I am sure that if this request were followed the results would be highly beneficial for those artisanal vessels of the Mediterranean countries which each day go out to sea and return to port with a few kilos of fish. These catches represent the salary and only means of subsistence for thousands of fishing families.

This is the fourth time that I have welcomed you, in representation of the Spanish Minister of Agriculture, Fisheries and Food, to open the Commission meeting. First of all, I would like to call your attention to the magnificent publication which contains the results of the International Skipjack Year Program. I have just been given a copy and I am quite impressed.

I believe that this book will occupy a preferential spot on the shelves of those libraries dedicated to biological fisheries research the world over. This publication will serve as a reference to those professionals which are dedicated to skipjack studies and it will certainly be included in the bibliographies of many doctoral theses concerning marine and fisheries studies.

The Commission should be proud of this work. I would like to express my sincere congratulations to the scientists who participated in this work, to the authors of the papers contained therein, the co-authors, the ICCAT Secretariat and the Commission as a whole.

The Commission has reached a high level of maturity with respect to its knowledge on the state of the tuna stocks in the Atlantic. This knowledge has resulted in recommendations for regulatory measures to conserve these resources, which is the objective of the ICCAT Convention. There are many reasons to be optimistic and those

should serve as a motivating force to continue forward with our work.

In my opinion, the national delegations have the ultimate responsibility for the normal development of the Commission's activities and the overall future of our organization. The delegates come with specific instructions from their respective governments. However, at the same time, once the meetings have ended the delegates return to their countries as consuls of ICCAT and their mission is to inform their respective governments about the "reality" of the Commission, what it really is, what it means and what it represents.

If this philosophy proves valid, then the future of ICCAT is in your hands, and I would like us all to be optimistic about that future.

Even since this Commission was created, the level of fisheries activities has varied between the various countries. Some fish more tuna than before, others have maintained their catches at the same level, and others fish less. However, I think that all of these countries have maintained their interest in the Commission and are ready to collaborate inasmuch as possible so that the Commission continues to be the model organization that is within the world fisheries community.

I certainly hope that the discussions and work conducted this week will contribute to reach these goals, for the benefit of a better utilization of the oceans' living resources in order to feed the world's people.

Thank you.



**OPENING ADDRESS BY MR. C. J. BLONDIN,  
CHAIRMAN OF THE COMMISSION**

Distinguished delegates, fellow commissioners, observers, guests, ladies and gentlemen:

Two years ago I stood before you as your newly elected Chairman to open the Fourth Special Meeting of the International Commission for the Conservation of Atlantic Tunas. At that time I spoke of the past record of success of our organization and the excellent work of the Standing Committee on Research and Statistics (SCRS). I felt that there was good reason for looking to the future optimistically and noted that most of our problems could be solved with continued cooperation, good will, and a thorough understanding of the views of the member governments.

Today my message must be tempered by the realities of the financial situation in which we find ourselves. Some of you recently participated in the Working Group of the Standing Committee on Finance and Administration held here in Madrid. While it is not my intention to dwell on the details of this meeting which we will hear in due course, I must nevertheless note that the reasons for holding such a meeting were unprecedented in the history of our organization. There is no doubt that the continued viability of the Commission is threatened and that decisive steps must be taken if we are to ensure the future of the organization. We have started this process and must continue it here in Madrid, making every effort to devote to the problem the necessary time and energy.

The work of the Commission and that of the SCRS deserve our continued support. In our short history, we have had considerable impact in carrying out our mission to provide an effective program of international cooperation in research on and conservation of tuna and tuna-like fishes of the Atlantic Ocean.

The work of the SCRS has resulted in a formidable collection of data which has formed the basis for stock assessment and analysis. Without this broadly based international effort, consideration of the conservation and management needs of the stocks of tuna and tuna-like species throughout their range would not have been possible. The list of scientific accomplishments is long, and in past remarks I have outlined these.

Nevertheless, the SCRS continues its dedication to expanding our knowledge of the resource and is now embarked, with Commission support, upon the Yellowfin Year Program. This research is designed to increase understanding of yellowfin tuna population dynamics by taking advantage of the recent dramatic reduction in fishing effort in the eastern Atlantic fishery. Its purpose is to improve the ability of the SCRS to make management recommendations to the Commission regarding the resource. The SCRS will report to the Commission on the special attention devoted to bigeye tuna this year during the "Bigeye Day" held November 5. In response to a Commission request made during our meeting last year, the SCRS is also expected to propose a research plan and budget which would produce the data necessary for the definitive assessment of the billfish stocks.

In response to the considerable data accumulated and analyzed by the SCRS, the Commission has taken regulatory action with regard to three species of tuna: yellowfin, bluefin, and bigeye. The Atlantic bluefin tuna, which exhibited declining trends in the 1970's, appears to be responding to the restrictive measures developed by the Commission. However, we need to review the status of the spawning stock of bluefin tuna. If there is evidence that the spawning stock continues to decline, the Commission will have to address once again the conservation needs for this stock.

I also ask that the Commission review the SCRS effort in considering recommendations with regard to stocks where preliminary assessments indicate anomalies, in particular the billfish and swordfish stocks. Less data are available for these stocks, and we must continue to take the steps necessary to improve data collection. As I indicated last year, these deficiencies limit our ability to make accurate stock assessments and could mask needed conservation measures until the situation becomes serious, such as we experienced in our efforts concerning bluefin tuna conservation measures.

On behalf of all the national delegations, I would like to express our appreciation to the Government of Spain for once again serving as host and the Executive Secretary, Dr. Olegario Rodriguez Martín, the Assistant Executive Secretary, Dr. Peter Miyake, and the Secretariat staff for their collective efforts in preparing for the meeting. The necessary planning for our annual meeting is

extensive and the success of our work largely dependent on the detailed arrangements made prior to our arrival.

The days ahead will challenge our best intentions. I am confident that patience, persistence, understanding, and creativity will prevail in an atmosphere of good will, and that appropriate solutions will be developed for the difficulties we face. It gives me great pleasure to open the Fifth Special Meeting of the International Commission for the Conservation of Atlantic Tunas.

**ADDRESS BY THE OBSERVER OF THE  
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC)**

On behalf of the Intergovernmental Oceanographic Commission, I would like to express our appreciation that once again we have the honor of being invited to the meeting of the International Commission for the Conservation of Atlantic Tunas.

The Intergovernmental Oceanographic Commission maintains its interest in ICCAT activities and therefore would like to collaborate with your organization in areas of common interest to both organizations.

The IOC, in conjunction with the FAO, is conducting a program of Oceanic Sciences for Living Resources (OSLR). Through this program we are trying to discover or explain better the relations between variations in environment and fisheries resources, especially those having commercial or ecological interest. Initial efforts have centered on recruitment, by means of a project to recruit sardines and anchovies and later tropical demersal species.

The second meeting of the Steering Committee of Experts of the OSLR will be held some time during the second quarter of 1987 at the FAO Headquarters in Rome.

In order to develop an activity in the Atlantic Ocean, the IOC co-sponsored a Seminar on the Potential Applications of New Techniques in Studies of Recruitment in Coastal Pelagic Fisheries of the Iberian Platform (Vigo, Spain - September 30-October 4, 1985).

Finally, on behalf of the President of the Intergovernmental Oceanographic Commission, Professor I. Ronquillo (of the Philippines), and the Secretary of the IOC, Dr. M. Ruivo, I would like to express to the ICCAT Commission Chairman and all the participating delegations, our sincere wishes for a successful and fruitful meeting.

## STATEMENT OF THE OBSERVER DELEGATION OF MEXICO

Distinguished Chairman and Delegates:

It is once again an honor for the Government of Mexico to participate as an observer in the meetings of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

Due to the tragic earthquake which struck my country in 1985, a delegation could not be sent to the meeting last year.

We have, however, followed with great interest the work carried out by this important Commission and thanks to our friend, Olegario Rodríguez Martín, we have been present in the meetings of the Standing Committee on Research and Statistics (SCRS) and today in the activities of the Commission.

A neighboring delegation and friend asked the reason for participation at this level of an observer delegation from Mexico. The answer is quite simple. Mexico has today the second tuna purse seine fleet in the world, and its catches, until now basically from the eastern Pacific, surpass 100,000 MT per year.

In accordance with the obligations taken on by Mexico as signer and ratifier of the United Nations Convention on the Law of the Sea, we note with satisfaction the advances this Commission has been making towards improving scientific knowledge on the populations of the different tuna species in the Atlantic Ocean.

Mexico is convinced that only with the best scientific evidence as a base will conservation and rational utilization of the Atlantic tuna resources be possible for the primary benefit of our people. In this sense, it does not seem strange to us that there are the difficulties caused by the interpretation and compatibility

of information which is not always homogeneous nor complete. From this arises the need to convene, in the research that is carried out, the countries in whose waters occur the species of interest to this international organization.

On this occasion, we wish to refer in particular to the tuna fishery conditions existing in the western part of the Atlantic, as it is the area in which Mexico, as a coastal State, exercises fishery jurisdiction in an Exclusive Economic Zone, in the Gulf of Mexico as well as along its Caribbean coast.

In Mexico's Exclusive Economic Zone in the western Atlantic there is a very important recreational fishery for different billfishes, which, in accordance with the national legislation in effect, are reserved exclusively for this recreational activity within a 50-nautical-mile strip.

Along these same lines, in recent years, the development of industrial tuna fisheries has begun, as is the case of the yellowfin fishery, which uses longline and has been described in the document presented by Mexican researchers to the Standing Committee on Research and Statistics (SCRS/86/80).

This fishery, still in the beginning stages, is already contributing, within our national programs for fishery development, to the production of food, to the generation of foreign income through exports, and to the creation of new productive employment in our country.

With this spirit and motivation, the Government of Mexico is interested in seeing that the tuna resources in the western Atlantic are conserved and exploited rationally. We take note that the Commission has adopted conservation measures for bluefin in which a catch level of 2,660 MT has been set for this species in the western Atlantic, and in which no fishery may directly target the reproductive stock in spawning areas such as the Gulf of Mexico.

We have also taken note that this Commission has adopted the recommendation which states that the developing bluefin fisheries --as is the case of Cuba and Brazil--are not subject to these above-mentioned measures.

Therefore, it is important to remember that this obligation to abstain from catching a higher volume than that permitting the population to rebuild, as in the case of western Atlantic bluefin, is similar to the obligations of the northeast Pacific salmon fisheries. In this region, the coastal States, in whose rivers spawn these anadromous populations, and other States, which catch these species, protect the reproductive cycle, which permits a significant number of individuals to return to spawn in their

original rivers, through limiting catches on the high sea as well as in the jurisdictional waters of these States.

Mexico is a coastal State in whose jurisdictional waters of the western Atlantic has been detected an important spawning area of bluefin tuna in which great national efforts are being made to develop an industrial fishery for yellowfin.

Fishing activities on this species are being carried out by various members of ICCAT in the western Atlantic, and the management measures recommended by this Commission to its member countries require consideration of the duty of these countries to abstain even more in their catches, not only to guarantee the completion of the biological cycle in the spawning area, but also so that other countries with developing fisheries in whose waters these resources occur do not have the populations of these species threatened nor hinder legitimate intentions of fishery development.

It is evident that conservation and rational utilization of Atlantic tuna requires international cooperation, such has been provided for in Article 64 of the United National Convention of the Law of the Sea.

Therefore, we propose to continue participating as observers in the work of this Commission.

Thank you.

## REPORTS OF THE MEETINGS OF PANELS 1-4

Madrid, Spain, November, 1986

### REPORT OF THE MEETING OF PANEL 1

#### 1. OPENING

The meeting was called to order by the Chairman, Mr. J. B. Amon Kothias (Côte d'Ivoire).

#### 2. ADOPTION OF AGENDA

The Agenda was adopted without changes (Appendix 1).

#### 3. ELECTION OF RAPPORTEUR

Dr. A. Fonteneau (France) was appointed rapporteur.

#### 4. REVIEW OF PANEL MEMBERSHIP

There were no changes in Panel membership since the 1985 meeting. Angola, Brazil, Cape Verde, Côte d'Ivoire, Cuba, France, Japan, Korea, Portugal, Spain, United States and the U.S.S.R. were present.

#### 5. REVIEW OF THE REPORT OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS (SCRS)

The SCRS Chairman, Mr. J. S. Beckett (Canada), summarized the conclusions of the Committee regarding yellowfin and skipjack.



5.a) Yellowfin

Mr. Beckett recalled that there are probably two yellowfin stocks in the east and west Atlantic. Purse seine effort in the west Atlantic has regularly increased and has caused a recent increase in catches. There is still little known about the state of the stock due to the lack of adequate fishery statistics. In the east Atlantic, the stock has been the subject of numerous analyses by the SCRS during the last fifteen years. Fishing effort on the stock decreased to about half since 1984, following the departure to the Indian Ocean of a large number of French, Ivorian and Spanish purse seiners. Responding to this sharp drop in fishing effort, the stock abundance, which appeared low in 1982-1983 due to the high fishing effort, has now entered a phase of rapid recovery. A rapid improvement in catches has resulted, with nominal effort remaining low. The exact degree of improvement in abundance and the level of effective fishing effort on yellowfin in the east Atlantic cannot be estimated precisely due to the delay in the circulation of some statistics, and of new problems concerning the real quantity of small yellowfin caught by purse seiners and baitboats in the Gulf of Guinea.

5.b) Skipjack

In 1984 and 1985 a decrease in skipjack catches by purse seiners in the east Atlantic is due to the reduction in effort. Baitboat catches are stable in this area.

In the west Atlantic, catches are increasing sharply and went from 34,700 MT in 1984 to 51,100 MT in 1985 due to a simultaneous increase in baitboat (Brazil) and purse seine (Caribbean) catches. The exact potential of the skipjack stocks remains difficult to estimate; however, the SCRS feels that the skipjack catches could be increased further.

6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCKS

6.a) Yellowfin

The Chairman, Dr. Amon Kothias, examined the current regulations. SCRS studies show that a large number of undersized yellowfin continue to be caught by the purse seine and baitboat fisheries. The potential benefits of the strict application of the ICCAT regulation with the present fishing scheme unfortunately have not been able to be estimated by the SCRS; these potential benefits remain probable.

## 6.b) Skipjack

No management measurements seem necessary nor advisable for the present skipjack fisheries, because of the brief period of exploitation of this species and because the potential growth of skipjack is very limited.

## 7. RESEARCH NEEDED TO BE CARRIED OUT

### 7.a) Yellowfin

The SCRS Chairman presented the current status of the ICCAT Yellowfin Year Program which was proposed by the SCRS and adopted by the Commission in 1985. The program was subject of a special meeting of team leaders in January, 1986. The program activities, after a delay of four months in the initial phase, are now progressing according to the adopted plans. Fishing effort presently remains reduced and the stock seems to be recovering, which was foreseen in previous SCRS studies. This reinforces the interest in observing the recovery through the adopted program. Research in 1986 and 1987 within the Yellowfin Year Program will provide detailed understanding of this recovery.

The SCRS Chairman presented a recommendation by the SCRS to hold a meeting of a special working group to correct the current estimates of small-sized yellowfin caught by purse seiners and baitboats during recent years.

These two projects were approved by the members of the Panel after the SCRS Chairman, in answer to a question by the United States, specified that the costs of the statistical working group were very limited and would be covered by the regular budget for coordination of research.

### 7.b) Skipjack

The working group recommended by the SCRS to correct the estimates of yellowfin catches should also correct the statistics of skipjack catches, since the two species seem to have been confused in certain statistics. These corrections should be made to baitboat as well as purse seine catches.

## 8. DATE AND PLACE OF NEXT PANEL MEETING

The next meeting of Panel I will be at the same time and place as the next Commission Meeting.

9. OTHER MATTERS

No other matters were discussed.

10. ADOPTION OF REPORT

The Report of Panel 1 was adopted.

11. ADJOURNMENT

The meeting was adjourned.

REPORT OF THE MEETING OF PANEL 2

1. OPENING

The meeting was called to order by the Commission Chairman, Mr. C. J. Blondin (U.S.A.), in the absence of the Panel Chairman, Morocco. Mr. Blondin asked Mr. S. J. Makiadi Lopes, (Angola), the First Vice-Chairman of the Commission to chair the Panel for this session. Mr. Makiadi accepted the responsibility and convened the session.

2. ADOPTION OF AGENDA

The Agenda was adopted without changes (Appendix 1).

3. ELECTION OF RAPPORTEUR

Dr. P. M. Miyake was appointed rapporteur.

4. REVIEW OF PANEL MEMBERSHIP

There were no changes in Panel membership since the 1985 meeting. Canada, France, Japan, Korea, Portugal, Spain, and the United States were present.

5. REVIEW OF THE REPORT OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS (SCRS)

The SCRS Chairman, Mr. J. S. Beckett, presented the results of research by the SCRS during 1986 concerning bluefin tuna and north Atlantic albacore.

### 5.a) Bluefin

The SCRS based its analysis on the same two-stock hypothesis as previously used, that is, one stock in the east and one in the west Atlantic. The total catch declined in the 1970's but increased in the last few years. This recent increase was brought about by an increase in Mediterranean catches. The stock evaluation using Virtual Population Analysis (VPA) presented in 1985 was updated during the SCRS session.

Results for the east Atlantic stock indicated that the 1983 year-class does not seem as strong as it was considered to be in the 1985 analysis but is still considered the highest in recent years. In general, the east Atlantic stock size, as estimated by VPA, has increased in recent years. As regards the effect of the 1975 regulation to keep fishing mortality at recent levels, the catch in the east Atlantic has remained below the 1975 level. In the Mediterranean, however, catches have increased since the recommendation was put into effect. This is probably due to the increase in the catch by non-member countries. In the east Atlantic and Mediterranean, 65 percent and 22 percent (in number of fish) for 1984 and 1985, respectively, of the total catch were comprised of fish under 6.4 kg, the minimum size recommended by the Commission.

West Atlantic catches reflect the effect of ICCAT regulations on catch levels. From 1975 to 1982, catches remained at the 1975 level and, since 1982, at the level recommended by the Commission for scientific monitoring purposes. Studies using VPA made in 1985 were re-examined to answer criticism presented this year on the CPUE series to which the VPA was tuned. The Committee found some CPUE series which seem promising but which cover only a short period. The partial recruitment pattern was also found to be sensitive to analysis. The pattern has most likely changed after the new catch regulation began in 1982. According to the new analysis, mid-sized fish are being harvested at the highest level, although this requires more profound analysis.

A VPA was made with a new west Atlantic CPUE series. There were uncertainties concerning the CPUE series since the series that best fit the model was only for a three-year period. The estimated stock size was quite similar to that agreed upon at the 1985 meeting. The abundance of pre-spawning fish (less than age ten) which declined during the 1970's is now increasing. The spawning stock (age ten and over) is still declining.

As regards the regulations for the west Atlantic, the catch restrictions are being implemented satisfactorily. Fish under 6.4 kg comprise only 4 and 1 percent of the catch for 1984 and 1985, respectively. The catch of fish less than 120 cm is also well under the regulated level (15 percent).

Japan questioned the relationship between the Mediterranean and east Atlantic stocks of bluefin as well as the relationship between the west and east Atlantic stocks, referring to the trends in catches in these areas, noting that the Mediterranean catches increased sharply when the west Atlantic catches became regulated.

The SCRS Chairman responded that the west Atlantic stock size was reduced. In the Mediterranean, fishing effort has increased dramatically and has resulted in an increase in catch. Also, the reporting rate seems to have increased in the Mediterranean. Tag recoveries indicated no substantial movement of fish from the west to east Atlantic. Therefore, the increase in Mediterranean catches is not a consequence of the regulations in the west Atlantic. On the other hand, the Mediterranean Sea is a spawning area for the east Atlantic bluefin and an increase in the Mediterranean catch could affect the catch in the east Atlantic. However, the recent decline in the east Atlantic seems to be a reflection of the change in availability of fish.

#### 5.b) Albacore - north

It is uncertain as to whether albacore in the Mediterranean form a separate stock or part of the north Atlantic stock. For the time being a single stock was considered. Total north Atlantic albacore catches fluctuated between 35,000 to 50,000 MT in the past decade. In the last two years, about 40,000 MT were caught. A long data series is available but stock analyses were not done for the past few years due to decreasing interest or priorities of the scientists involved. Previous production model analyses indicated that the maximum sustainable yield is between 60,000 and 70,000 MT. Since the amount of fishing effort is uncertain, there are doubts as to what effort level is optimum.

Some concern has been expressed on the declining abundance in recent years. However, the data for these years are limited. More in-depth research is recommended on this point. No recommendations were made for management of north Atlantic albacore this year.

### 6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCK

#### 6.a) Bluefin

The SCRS Chairman informed the Panel that no changes in the existing management measures were recommended for east Atlantic bluefin.

For the west Atlantic, if the monitoring quota established for 1983 through 1986 is maintained in 1987, the spawning stock (age 10+) will continue to decline but the juvenile biomass will in-

crease. In a long run, the present catch levels are likely to stop the decline of the stock as well as allow the stock to increase in the long-term (30 years).

Japan requested that the methodology (VPA and tuning system for CPUE) adopted by the scientists be carefully reviewed and verified. Also uncertainties in the data base have to be studied. In the meantime, Japan proposed that 3,850 MT be the monitoring catch level for 1987. (The statement of the Japanese delegation is attached as Appendix 2.)

The delegate of the U.S. observed that uncertainties in tuning and CPUE series did not warrant an increase in the level of catches at this time. The U.S. requested that the present level of catch for monitoring purposes be maintained for three years in order to permit the scientists to have enough time to re-examine the methods used and to provide the industries a period of stability for planning purposes. (The U.S. statement is attached as Appendix 3).

Canada stated that strict regulations will permit rebuilding of the stock but that this process is not yet completed, and spawning populations are still declining. Noting the difficulties in assessment work by SCRS on a yearly basis, Canada proposed the present bluefin regulations be maintained for 1987 and 1988.

After a short recess, during which time the three countries presenting proposals for bluefin regulations deliberated, Canada proposed modifying the proposal to read that the regulation be extended for one year, i.e., 1987. (Canada's statement as amended is attached as Appendix 4.) The delegate from Japan withdrew the proposal for increasing the monitoring level and the U.S. withdrew its proposal to maintain the regulation for three years. The regulations adopted for 1987 are attached as Appendix 5.

#### 6.b) Albacore - north

Some concern on the declining abundance of north Atlantic albacore was expressed but further study is necessary before any conclusions can be reached. No specific management recommendations were made by the SCRS. The Panel decided not to make any management recommendations at this time.

#### 7. RESEARCH NEEDED TO BE CARRIED OUT

The Panel reiterated all the recommendations made by SCRS on statistics and research. In particular, for bluefin tuna, it recommended the SCRS examine the methodology (VPA), CPUE series and tuning procedures and that the sensitivity of the model be studied by simulations. It was also recommended that the scientists have

all necessary, well documented data in time for analysis. In addition, partial recruitment should be critically examined next year.

For albacore, more research is needed to update some of the stock analyses.

#### 8. DATE AND PLACE OF NEXT PANEL MEETING

The next meeting of Panel 2 will be at the same time and place as the next Commission Meeting.

#### 9. OTHER MATTERS

No other matters were discussed.

#### 10. ADOPTION OF REPORT

The Report of Panel 2 was adopted.

#### 11. ADJOURNMENT

The meeting was adjourned.

### REPORT OF THE MEETING OF PANEL 3

#### 1. OPENING

The meeting was called to order by the Chairman, Mr. K. Shima (Japan).

#### 2. ADOPTION OF AGENDA

The Agenda was adopted without amendment.

#### 3. ELECTION OF RAPPORTEUR

Mr. R. Stone (U.S.A.) was designated rapporteur.

#### 4. REVIEW OF PANEL MEMBERSHIP

Brazil, Japan, South Africa and U.S.A. are members of Panel 3 and were present.

## 5. REVIEW OF THE REPORT OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS (SCRS)

Mr. J. S. Beckett, SCRS Chairman, reviewed and summarized SCRS findings regarding southern bluefin and albacore in the south Atlantic.

### 5.a) Southern bluefin

Mr. Beckett noted that southern bluefin occur in all three oceans as the same stock. The stock is exploited mainly by Australian, Japanese and New Zealand fishermen with most of the catch coming from the Pacific and Indian Oceans. The catches by Japan, Australia, and New Zealand in 1985 were about 20,800, 12,500 and 100 MT, respectively. The maximum catch from the Atlantic in any year was about 6,000 MT.

There is concern over the decline in longline catch rates. It appears that catch rates may drop further. Australian, Japanese, and New Zealand scientists met in Japan this year and re-evaluated the status of this stock. As a result, quotas, which were introduced in 1985, were reduced.

### 5.b) Albacora, South

The SCRS Chairman reported that south Atlantic albacore are taken primarily by longline gear. Catches in 1985 totaled 25,000 MT, up from 13,100 MT in 1984. Much of this increase was due to longliners moving into the Atlantic from the Indian Ocean. Surface catches, which had been relatively stable in previous years, increased to 4,400 MT in 1985. The remainder of the catch (20,600 MT) was taken by longline gear.

The CPUE of the longline fishery was used as an index of stock abundance. The production model fitted to the 1967 to 1985 catch and effort data produced an MSY of about 23,000 MT. With the increase in fishing effort in 1985, catch and effort are slightly above MSY. The stock, however, appears to be in good condition to withstand the current level of fishing.

## 6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCKS

### 6.a) Southern bluefin

There were no conservation proposals for southern bluefin.



6.b) Albacore, South

There were no suggestions for conservation measures, but the SCRS Chairman did reiterate that effort was near MSY at this time.

7. RESEARCH NEEDED TO BE CARRIED OUT

7.a) Southern bluefin

No research was recommended.

7.b) Albacore, South

The SCRS Chairman did state that effort statistics were needed to compliment catch data.

8. DATE AND PLACE OF NEXT PANEL MEETING

The Panel agreed that it would meet in conjunction with the next meeting of the Commission.

9. OTHER MATTERS

No other matters were brought to the attention of the Panel.

10. ADOPTION OF REPORT

The Report of Panel 3 was adopted.

11. ADJOURNMENT

The meeting was adjourned.

REPORT OF THE MEETING OF PANEL 4

1. OPENING

The meeting of Panel 4 was opened by the Chairman, Mr. A. K. Kaluzny (U.S.S.R.).

## 2. ADOPTION OF AGENDA

The Agenda was adopted without amendment (Appendix 1).

## 3. ELECTION OF RAPPORTEUR

Mr. D. T. Furlong (U.S.A.) was designated rapporteur.

## 4. REVIEW OF PANEL MEMBERSHIP

All nine Panel members were present at the meeting. There were no changes in Panel membership.

## 5. REVIEW OF REPORT OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS (SCRS)

Mr. J. S. Beckett, SCRS Chairman, reviewed and summarized the SCRS findings regarding the species of concern to Panel 4, i.e., bigeye tuna, small tunas, billfish and swordfish.

### 5.a) Bigeye

As reported by Mr. Beckett, bigeye tuna are widely distributed in the Atlantic Ocean between the latitudes of 40°N and 40°S. The high density area is in the eastern Atlantic. During the past 10 years catch has increased over 50 percent, i.e., 44,700 MT in 1976 to 73,400 MT in 1985. This increase is directly attributable to increased effort. On average, 60 percent is taken by longliners, 20 to 30 percent by baitboats, and the balance incidentally by tropical surface fleets. The CPUE of longline fleets have stabilized at about 60 percent of initial exploitation. This fact, together with updated and revised catch/effort data and more refined production model analyses indicates an MSY range of 68,900 MT to 155,300 MT. This is a higher range than previously, but is consistent with another model.

### 5.b) Small tunas

In reporting the status of small tunas, Mr. Beckett indicated it is not possible to arrive at any conclusions regarding status of stocks because of the lack of good catch data. However, it is probable that some stocks are underexploited. Data on catches are heavily influenced by Turkish catches of Atlantic bonito (often representing over 20 percent of all small tuna catches). Data for 1985 are incomplete and probably reflect less than half of the catches.

5.c) Billfishes

Mr. Beckett presented information on the below species with the following caveat: Data used for analysis are deficient and old, consequently, only summaries of the state of the stocks were provided.

- i) Blue marlin: The catch appears to be below MSY, but new development and expansion of other longline fisheries in areas of known blue marlin abundance reinforces earlier concerns regarding overfishing of this species.
- ii) White marlin: The exact status of the stock is unsure. Landings over time (except 1983) appear to be declining.
- iii) Sailfish/spearfish: Sailfish appear to be only moderately exploited. There is nothing in the data to suggest trends. Deficiencies in data make use of sophisticated techniques difficult.

5.d) Swordfish

Mr. Beckett indicated that swordfish are distributed throughout the temperate and tropical zones of the Atlantic Ocean and Mediterranean Sea. Not enough data are yet available for Mediterranean stock assessment, but enough data are available from the Atlantic to warrant that a workshop be held to assess the status of stocks of swordfish in 1987. The principal method of catch is by longline gear in both the directed and by-catch fisheries. Drift nets are also used, as are harpoon and rod and reel. The spawning stock biomass in the western Atlantic has been reduced about 40 percent, and the mean size of landed fish is decreasing, although there are now indications of positive surplus production within this fishery.

6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCKS

No new stock conservation measures were discussed. However, the minimum size limit on bigeye tuna should be maintained at 3.2 kg. Other species should be monitored to get information necessary to determine management measures.

7. RESEARCH NEEDED TO BE CARRIED OUT

Although somewhat discussed under Agenda Item 5 of this Report, Mr. Beckett emphasized the following research needs:

- i) Bigeye tuna: Systematic multi-species sampling on the surface catch in the eastern tropical Atlantic should be continued to resolve species separation which involve juvenile bigeye, yellowfin, and skipjack tunas. This is also true of western Atlantic catches. It is also recommended that current statistical programs be continued and that research on age-structure stock analysis be continued. An index of abundance should be developed.
  
- ii) Small tunas: The problem of "lumping" can be resolved by studies aimed at distinguishing between stocks and species. Biological assessment studies need to be continued to increase knowledge and information regarding stock structures.
  
- iii) Billfishes: To correct deficiencies related to lack of basic data on growth, mortality rates, and stock structure that inhibit the ability to perform conventional population dynamics analyses, Mr. Beckett recommended that a workshop be convened in 1987 to address these research needs. These needs are common to those for swordfish, and include detailed catch and effort statistics, expanded tagging programs, on-board, at-sea observers, and age and growth studies.
  
- iv) Swordfish: There is a need for improved quantitative data for analytical assessment, especially in the Mediterranean area. Better catch and effort statistics are needed. Size and sex samples are likewise needed. Age, growth, maturity, and stock structure determinations are also needed. All of the foregoing will be assessed at a workshop for swordfish status/assessment during the summer or fall of 1987.

The delegate of the U.S., Mr. L. Weddig, indicated the U.S. pleasure regarding the SCRS proposed program of enhanced research for billfish. He noted that the proposal contained recommendations that were designed to determine the feasibility of a longer-term effort. He suggested that the Panel forward the proposal to STACFAD for funding consideration of these high priority research needs for billfish. Mr. Weddig also provided a U.S. statement on swordfish to the Panel (see Appendix 6 for the full text).

The delegate from Cuba, Mr. B. García Moreno, stated agreement with the United States proposal regarding billfish. The Panel recommended the Program of Enhanced Research for Billfish be carried out and referred it to the STACFAD for financial consideration.

8. DATE AND PLACE OF NEXT PANEL MEETING

The Panel agreed it would meet again during the next meeting of the Commission.

9. OTHER MATTERS

No other matters were discussed.

10. ADOPTION OF REPORT

The Panel adopted the Report.

11. ADJOURNMENT

The meeting was adjourned.

Agendas for Panel 1 (Tropical Tunas)  
Panel 2 (Temperate Tunas - North)  
Panel 3 (Temperate Tunas - South)  
Panel 4 (Other Species)

1. Opening
2. Adoption of Agenda
3. Election of rapporteur
4. Review of Panel membership
5. Review of Report of the Standing Committee on Research and Statistics (SCRS)
6. Review of possible measures for the conservation of stocks:

<u>PANEL 1</u>	<u>PANEL 2</u>	<u>PANEL 3</u>	<u>PANEL 4</u>
a) Yellowfin	a) Bluefin (North)	a) Southern bluefin	a) Bigeye
b) Skipjack	b) Albacore (North)	b) Albacore (South)	b) Atlantic bonito c) Billfishes d) Other species

7. Research needed to be carried out
8. Date and place of next Panel meeting
9. Other matters
10. Adoption of Report
11. Adjournment

**Japanese Statement on Bluefin Tuna**  
(Attached to Panel 2)

1. We are deeply disappointed to be informed by our scientists that the calculation of bluefin tuna stock assessment in the western Atlantic has failed to solve major problems this year. There seems to be two main reasons for this. One is the incompleteness of the VPA model that was used. The other is the imperfection of the data used for this calculation.

2. We recognize that bluefin tuna has been the most troublesome species for ICCAT to deal with for many years. It seems that many of the difficulties in reaching consensus on the status of the stock are repeated year after year. This stems from the model used in the stock analysis. Given this situation, we strongly feel that the VPA model and its tuning procedure used in bluefin tuna stock assessment by the SCRS should be examined and validated as soon as possible.

3. It is generally accepted in the Pacific as well as in the Atlantic Ocean that bluefin tuna often produce dominant year classes. The SCRS indicated previously that the 1973 cohort was found to be dominant but the SCRS later changed its view. Japan feels that 1973 is a dominant year class and we may expect it to appear strong especially in Canadian waters around 1989 when they reach sixteen years or possibly as early as 1987.

4. We would like to point out the data problem found in the bluefin analysis. The problem of overfishing of agreed quotas can occur by fishermen of any nation. Japan has experienced this difficulty with bluefin tuna and has taken significant steps to prevent a recurrence. Japan has tried its best to report bluefin catches as accurately as possible. We believe that the submission of accurate data by all countries concerned is indispensable for establishing rational management of the fish resources. It is our firm belief that inaccurate data does not lead to accurate analysis.

5. From advice from our scientists, we feel we must point out that the very low monitoring catch automatically gives a result of

a lower abundance. Additionally, the SCRS and the Commission should be aware that the monitoring catch level has been insufficient to produce reliable CPUE series used in the VPA model. Considering these facts and the recommendation made this year by the SCRS, Japan would like to propose an increase of the scientific monitoring catch to 3,850 MT as we recommended last year.

*Appendix 3 to Annex 8*

**U. S. Statement on Atlantic Bluefin Tuna**  
(Attached to Panel 2)

The United States respects the position advanced by the representative of Japan that the assessment conducted this year failed to solve the major problems existing with the western Atlantic bluefin tuna stock. We are heartened by indications that the juvenile stock is beginning to show some signs of recovery due to the management measures in place since 1982. Unfortunately, the need for fine tuning the analytical procedures pointed out by SCRS, as well as the very slow recovery of the stock, do not, in our opinion, warrant an increase in the monitoring quota at this time.

Indeed, the uncertainties of the science and the precarious nature of the stock which led to the institution of management measures, lead the United States to propose that the present monitoring quota should be extended for more than one year.

Specifically, the United States requests that the present management measures, including the monitoring quota of 2,660 MT be extended for three years. Such an extension would provide a longer period of time for the restrictions to produce the desired effect in recovery of the stock. In addition, the longer period would provide the time needed by the scientists to refine their work as well as ease the administration of the various regulatory plans.

Finally, such an extension would provide the affected industries a period of stability for planning purposes.



**Statement by Canada on Bluefin**  
(Attached to Panel 2)

Again in 1986, Canada has resisted the urging of its industry to permit an expansion of the fishing effort on bluefin tuna. Consistent with the regulations agreed to by this Commission, we have maintained our strict conservation measures to help ensure the rebuilding of the western Atlantic stock to a level that will sustain higher catches.

The Standing Committee on Research and Statistics advises that the rebuilding process is still not complete. It also advises that the present management measures will allow the juvenile stock biomass to increase although it will not prevent the continual decline in the spawning stock in the coming year. While this continued decline in the spawning component of the stock is of particular concern to Canada, we remain hopeful that the local bluefin abundance will return and that we will benefit fully from these management controls.

The Canadian delegation also notes the recurring difficulties experienced by SCRS in recent years in its assessment of the western Atlantic bluefin tuna stocks and feels that a two-year management strategy would serve to provide our scientists with time to investigate further the difficulties they continue to express. This extended time period would assist our scientists to resolve their uncertainties about the pattern of fishing mortality and test and refine their methodologies.

The Canadian delegation feels that the most prudent approach at the present time would be to maintain the current management measures for 1987.

**Proposed Regulations for the Atlantic Bluefin Tuna Catch (1987)**  
(Attached to Panel 2)

Taking into account that the SCRS has found that present catch levels are likely to stop the decline of the western Atlantic bluefin stock as well as permit gradual increases in the long term, proportional to stock recovery,

The Commission recommends that during 1987:

**FIRST:** In order to maintain and improve the data necessary to index the abundance of the stock of bluefin tuna in the western Atlantic:

- a) the Contracting Parties whose nationals have been actively fishing for bluefin tuna in the western Atlantic take measures to limit the catch for scientific monitoring in 1987 to 2,660 metric tons (MT), and
- b) the catch of 2,660 MT be taken by these Contracting Parties in the same proportions as previously agreed for 1986.

**SECOND:** That the adoption of the above measures concerning the western Atlantic must not imply any modification in the ICCAT recommendation adopted in 1975 concerning a minimum weight of 6.4 kg adopted for the entire Atlantic and fishing mortality limited to recent levels in the eastern Atlantic; this latter measure having been extended until a new decision is made by ICCAT.

**THIRD:** That in recognition of the possible lower level of abundance of small bluefin in recent years, no more than 15 percent in weight of the catch in the western Atlantic may consist of bluefin smaller than 120 cm fork length.

**FOURTH:** That the Contracting Parties take measures to prohibit any transfer of fishing effort from the western Atlantic to the eastern Atlantic in order to avoid increasing fishing mortality

of bluefin tuna in the eastern Atlantic. Such measures shall be reported in due time to the Commission for possible review at its next meeting.

FIFTH: That the developing bluefin tuna fisheries in the western Atlantic of Brazil and Cuba shall not be subject to the limitation addressed herein.

SIXTH: That there will be no directed fishery on the bluefin tuna spawning stocks in the western Atlantic in spawning areas such as the Gulf of Mexico.

SEVENTH: That, notwithstanding the provisions of Article VIII, paragraph 2 of the Convention, with respect to paragraphs a and b of the First recommendation, the Contracting Parties whose nationals have been actively fishing for bluefin tuna in the western Atlantic take steps to implement this recommendation as soon as possible in accordance with the regulatory procedures of each country.

EIGHTH: That in the event that the SCRS is not able to provide new scientific advice on the status of the stock of bluefin tuna in the western Atlantic, the Commission will consider, at the 1987 Meeting, appropriate management measures, including the continuation of the current management measures, throughout 1988.

*Appendix 6 to Annex 8*

#### U. S. Statement on Swordfish (Attached to Panel 4)

The U.S. delegation recognizes that the SCRS expresses serious concern with regard to the status of swordfish stocks even though no management recommendations are presented in the 1986 Report. However, the fact that recent swordfish stock assessments demonstrate continued declines in spawning stock biomass as well as a decrease in the mean size of fish in the landings of several fisheries in the eastern and western Atlantic, coupled with the fact that the U.S. swordfish fishery has suffered a marked reduction both in directed effort and fish caught off the U.S. coast, the U.S. takes very seriously the recommendations of SCRS to monitor carefully the swordfish fisheries. As a demonstration of the U.S. concern, our Fishery Management Councils are developing domestic fishery management regulations to address the absence of large fish off the U.S. coast and the large number of small fish being taken by U.S. fishermen.

We note that SCRS has recommended a swordfish assessment workshop and would like to stress the immediate need to accomplish several specific scientific tasks in the process of more carefully monitoring this fishery and more fully understanding this valuable resource.

We support the proposed workshop addressing the effect of exploitation including stock sizes, mortality rates, stock production, and yield per recruit. It is critical for all countries which catch swordfish to provide the catch, fishing effort, and size frequency information required for such assessment and to have their scientists participate. This is important so that management measures, if necessary in the near future, can be based on the most complete information possible.

The crux of our concern is that we find ourselves with declining catches of large fish in certain areas at the same time that the catch of small fish is increasing. The long-term interpretation of these simultaneous events will be crucial to future management.

## REPORT OF THE INFRACTIONS COMMITTEE

Madrid, November 14, 1986

### 1. OPENING OF THE MEETING

The Chairman, Mr. B. García Moreno of Cuba, opened the meeting, noting that the member nations represented were: Angola, Brazil, Canada, Cape Verde, Côte d'Ivoire, Cuba, France, Japan, Korea, Portugal, South Africa, Spain, the U.S.S.R. and the U.S.A.

### 2. ADOPTION OF AGENDA AND ORGANIZATION OF THE MEETING

Mr. García Moreno briefly reviewed the Tentative Agenda (COM/86/6), which was adopted without modification (attached as Appendix 1).

### 3. ELECTION OF RAPPORTEUR

The Chair proposed that Mr. J. P. Wise (Secretariat) serve as rapporteur for the meeting.

### 4. REVIEW OF ACCOMPLISHMENTS DURING THE CURRENT YEAR

#### 4.a) National reports on port inspection carried out

The Chair called the attention of the Committee to the list in COM/86/16 of inspections reported to the Secretariat (all carried out by South Africa) and requested clarification as to the nationality of the vessels inspected. The delegate from South Africa said that they had all been of South African fishing boats.

Mr. Garcia Moreno noted that there still seemed to be uncertainty in the minds of members of the Committee as to whether all inspections should be reported, including some doubt as to whether only inspections involving infractions were required to be reported. The delegate from the U.S.A. pointed out that her country had carried out numerous inspections, all of them on domestic vessels, and that perhaps the best way to avoid burdening the system with unnecessary paper work would be for participating States to report inspections in a summarized fashion when infractions were not involved.

#### 4.b) Updating of tables of Status of Adoption of Regulatory Measures

The attention of the delegates was directed to COM/86/15, which summarizes the actions taken by member nations to implement the ICCAT recommendations on yellowfin, bigeye and bluefin tunas. The Chair requested that the delegates review the tables and inform the Committee of any amendments or corrections necessary. The U.S.A. indicated that the date shown for implementation of the recommendation on limiting of catches of bluefin tuna in the western Atlantic indicated for 1985 also applied to 1986. The delegate of Spain pointed out that the table was accurate with regard to Spanish regulations for yellowfin and bluefin tunas. The Spanish regulations on bigeye tuna are still in process. The Chair asked for written confirmation of the comments made by the two delegations. The table showing the status of adoption of regulatory measures is attached as Appendix 2.

### 5. UPDATING OF LISTS

#### 5.a) Inspectors

Mr. Garcia Moreno reviewed the list of accredited inspectors contained in COM/86/16, noting that Spain had recently sent a list of names of inspectors to the Secretariat, and that these names would be included in subsequent lists. He also requested that the member countries keep the Secretariat informed as to any new nominations or changes of inspectors.

#### 5.b) National correspondents

Mr. Garcia Moreno also reviewed the list of national correspondents contained in COM/86/16, and asked for corrections or amendments from the floor to either enumeration. Since no new information was presented from the floor, the Chair invited the countries to send in available information as soon as possible, and to keep the Secretariat informed.

## 6. CRITIQUE OF THE PORT INSPECTION FORM

The Chair called the attention of the delegates to the revised Port Inspection Form (Appendix IV to COM/86/16), which includes the modifications suggested at the 1985 meeting. In the absence of further comments from the floor, the present version of the form was considered as approved.

## 7. FUTURE WORK OF THE COMMITTEE AND PLANS FOR IMPROVEMENT

### 7.a) Review of Chairman's letter of March 17, 1986

Mr. García Moreno pointed out that a copy of the letter was contained in COM/86/16. He briefly reviewed the text and emphasized that some of the ICCAT recommendations were not yet fully effective, especially those relating to catches of small yellowfin and bigeye tunas. It is clear that there are special problems in this respect, especially those involved in fisheries on schools of mixed species. Mr. García Moreno expressed his confidence that ways could be found to overcome these problems in the future. He stressed that the objectives of ICCAT should be kept in mind, since observance of the Commission's recommendations is to the benefit of all members over the long term.

The observer from the European Economic Community pointed out that the Community places special stress on compliance with all existing fisheries agreements by its members.

## 8. DATE AND PLACE OF THE NEXT COMMITTEE MEETING

The Infractions Committee agreed to meet at the same time and place as the next Commission Meeting.

## 9. OTHER MATTERS

No other matters were brought to the attention of the Committee.

## 10. ADOPTION OF REPORT

The report was adopted.

## 11. ADJOURNMENT

The meeting was adjourned.

### **Infractions Committee Agenda**

1. Opening of the meeting
2. Adoption of Agenda and organization of the meeting
3. Selection of Rapporteur
4. Review of accomplishments during the current year
  - a) National reports on port inspections carried out
  - b) Updating of Tables of Status of Adoption of Regulatory Measures
5. Updating of lists:
  - a) Inspectors
  - b) National correspondents
6. Critique of inspection reporting form
7. Future work of the Committee and plans for improvement
  - a) Review of Chairman's letter of March 17, 1986
8. Date and place of the next Committee meeting
9. Other matters
10. Adoption of Report
11. Adjournment



**Table 1. Status of adoption of regulatory measures on size limits by the member countries for yellowfin, bigeye and bluefin tunas  
(as of December 31, 1986)**

Species	YELLOWFIN	BIGEYE		BLUEFIN
Commission recommendation	3.2 kg limit	3.2 kg limit	3.2 kg limit	6.4 kg limit
Area of application	Entire Atlantic	Entire Atlantic	Entire Atlantic	Entire Atlantic
Date of entry into effect	July 1, 1973	September 7, 1980	July 17, 1985	August 10, 1975
Date of expiration	Indefinite period	December 31, 1983*	Indefinite period	Indefinite period
Angola . . . . .	Jun. 17, 1979			No fishing
Benin . . . . .				
Brazil . . . . .	Feb. 23, 1973	Mar. 1981		
Canada . . . . .	Sep. 4, 1973	No fishing		Feb. 17, 1973
Cape Verde . . . . .				
Cuba . . . . .	Jul. 1, 1973	Sep. 7, 1980		No fishing
France . . . . .	Jun. 29, 1973	Mar. 3, 1981		Aug. 8, 1975
Gabon . . . . .	No fishing or landings	Measures being considered		No fishing or landings
Ghana . . . . .	Jun. 19, 1976			
Côte d'Ivoire . . . . .	Mar. 2, 1970	Mar. 2, 1970		
Japan . . . . .	Jun. 14, 1973	Sep. 7, 1980	Sep. 7, 1980	Apr. 16, 1975
Korea . . . . .	Jan. 21, 1973	Sep. 15, 1980		Dec. 17, 1975
Morocco . . . . .	No fishing			
Portugal . . . . .	Nov. 26, 1973	Jul. 17, 1981	Aug. 10, 1984	Nov. 27, 1976
Sao Tome and Principe . . . . .				
Senegal . . . . .	Jul. 2, 1976	Jul. 2, 1976	Jul. 2, 1976	
South Africa . . . . .	May, 1973	Dec. 5, 1980	Dec. 5, 1980	Jun. 27, 1975
Spain . . . . .	May 29, 1974			Mar. 3, 1975
Uruguay . . . . .				
U.S.A. . . . .	Nov. 5, 1975	Mar. 30, 1981	Apr. 9, 1986	Aug. 13, 1975
U.S.S.R. . . . .	Sep. 28, 1978	Sep. 28, 1978		Sep. 28, 1978
Venezuela . . . . .				

\*Extended to December 31, 1984.

NOTE: For more details, please request information from the national administrations.

Table 2. Status of adoption of regulatory measures on bluefin tuna fishing mortality by the member countries (as of December 31, 1986)

Commission recommendation	Limiting fishing mortality to recent levels				
		1st Extension	2nd Extension	3rd Extension	4th Extension
Area of application	<i>Entire Atlantic</i>	<i>Entire Atlantic</i>	<i>Entire Atlantic</i>	<i>Entire Atlantic</i>	<i>E. Atlantic only</i>
Date of entry into effect	<i>Aug. 10, 1975</i>	<i>Aug. 10, 1976</i>	<i>Oct. 10, 1978</i>	<i>Sep. 4, 1980</i>	<i>Jul. 21, 1982</i>
Date of expiration	<i>Aug. 10, 1976</i>	<i>Aug. 10, 1978</i>	<i>Aug. 10, 1980</i>	<i>Aug. 10, 1982</i>	<i>Indefinite</i>
Angola . . . . .	-----No fishing-----				
Benin . . . . .					
Brazil . . . . .	Aug. 10, 1977	Aug. 18, 1977	Mar. 2, 1979	Nov. 17, 1980*	
Canada . . . . .	Feb. 17, 1976	Feb. 17, 1976	Feb. 15, 1979	Feb. 15, 1979	Feb. 15, 1979
Cape Verde . . . . .					
Cuba . . . . .	-----Zero catches in 1976-78-----				
France . . . . .		Dec. 27, 1974	Dec. 27, 1974	Dec. 27, 1974	Dec. 27, 1974
Gabon . . . . .	-----No fishing-----				
Ghana . . . . .					
Côte d'Ivoire . . . . .					
Japan . . . . .	Apr. 16, 1975	Apr. 16, 1975	Apr. 16, 1975	Apr. 16, 1975	Mar. 3, 1982
Korea . . . . .	Dec. 17, 1975	Dec. 17, 1975	Oct. 14, 1978	Sep. 15, 1980	
Morocco . . . . .					
Portugal . . . . .		Nov. 27, 1976	**	**	**
Sao Tomé and Principe . . . . .					
Senegal . . . . .					Mar. 11, 1982
South Africa . . . . .	Jun. 27, 1975	Oct. 19, 1976	Feb. 9, 1979	Jan. 11, 1980	
Spain . . . . .	Feb. 19, 1976	Feb. 19, 1976	Feb. 19, 1976	Jan. 24, 1980	
Uruguay . . . . .					
U.S.A. . . . .	Aug. 13, 1975	May 18, 1976	Jun. 15, 1979	Jun. 13, 1980	
U.S.S.R. . . . .					
Venezuela . . . . .					

\*In process.

\*\*Objections presented and ratified on November 16, 1978, March 19, 1980, and July 21, 1982.

NOTE: For more details, please request information from the national administrations.

Table 3. Status of adoption of regulatory measures on west Atlantic bluefin tuna catches by the member countries\* (as of December 31, 1986)

Commission recommendation	Catch prohibited, except for monitoring purposes				
Date of entry into effect	Feb. 15, 1982	Jan. 1983**	Jan. 1984	Jan. 1985	Jan. 1986
Date of expiration	Feb. 14, 1984	Jan. 1984	Jan. 1985	Jan. 1986	Jan. 1987***
Angola . . . . .	----- No fishing -----				
Benin . . . . .	----- No fishing -----				
Brazil . . . . .	----- Developing fishery not subject to limitation -----				
Canada . . . . .	Jun.14, 1982	Jun.21, 1983			
Cape Verde . . . . .	----- Developing fishery not subject to limitation -----				
Cuba . . . . .	----- Developing fishery not subject to limitation -----				
France . . . . .	----- Developing fishery not subject to limitation -----				
Gabon . . . . .	----- No fishing or landings -----				
Ghana . . . . .	----- No fishing or landings -----				
Côte d'Ivoire . . . . .	----- No fishing or landings -----				
Japan . . . . .	Mar. 3, 1982	Mar. 7, 1983	Mar. 7, 1983	Mar. 7, 1983	Mar. 7, 1983
Korea . . . . .	----- No fishing -----				
Morocco . . . . .	----- No fishing -----				
Portugal . . . . .	----- No fishing -----				
Sao Tomé & Principe . . . . .	----- No fishing -----				
Senegal . . . . .	----- No fishing -----				
South Africa . . . . .	----- No fishing or landings -----				
Spain . . . . .	----- No fishing or landings -----				
Uruguay . . . . .	----- No fishing or landings -----				
U.S.A. . . . .	Jun.11, 1982	Jun.17, 1983	Jul. 24, 1984	Nov.25, 1985	
U.S.S.R. . . . .			Feb.15, 1984	Feb.15, 1984	
Venezuela . . . . .	----- No fishing or landings -----				

\*Details on the ICCAT recommendations are given in the Biennial Reports of the Commission, starting with the "Report for Biennial Period, 1982-83, Part I".

\*\*Recommendation of February, 1982, was revised.

\*\*\*Recommendation maintained for 1987 (see Item 18.2 of the 1986 Commission Proceedings contained in this Biennial Report).

**REPORT OF THE SPECIAL MEETING OF THE STANDING  
COMMITTEE ON FINANCE AND ADMINISTRATION (STACFAD)**

Madrid, November 11, 1986

The Special Meeting of the Standing Committee on Finance and Administration (STACFAD) was held on November 11, 1986, at Hotel Princess Plaza, Madrid, as was proposed at the 1985 Commission Meeting. Ms. P. Doñoro (Spain), the STACFAD Chairman, welcomed all the delegates and explained that the meeting had been proposed to study the financial problems caused by pending contributions of Commission member countries.

The following member countries were present: Angola, Brazil, Canada, Cape Verde, Côte d'Ivoire, Cuba, France, Korea, Japan, Portugal, South Africa, Spain, U.S.A. and U.S.S.R. The Secretariat served as rapporteur.

The Chair recognized that a Working Group established by the STACFAD to study this subject met on September 23-24, 1986, at the General Secretariat of Spanish Maritime Fisheries in Madrid. The Working Group presented its Report (attached herewith as Appendix 1). The Committee reviewed the Group's Report, particularly with reference to the recommendations presented therein.

Most of the delegates expressed their support and approval of the Report. However, while doing so, some clarifications were made and reservations expressed by a few delegates on some of the recommendations it contained. Those are as follows:

**Recommendation 1**

There was some reservation expressed as to whether or not it was the duty of the Commission Chairman to become directly involved in this matter, as regards addressing those member countries which have pending contributions. However, the

Committee recognized that while some action has already been taken along these lines, the Commission should exhaust all possible alternatives that may produce positive results.

The Committee decided that Item iii of Recommendation 1 should be deleted from this section and should be a separate recommendation, since this is not really within the responsibility of the Commission Chairman but rather that of STACFAD.

Recommendation 2

There was general agreement on this recommendation.

Recommendation 3

There was general agreement on this recommendation.

Recommendation 4

While agreeing, in principle, the Committee felt that there were some ambiguities within the text and that the wording of this recommendation could be improved once the Committee's own recommendations are finalized.

Several delegates suggested that the means to cut expenses of the Commission be studied further. However, at the same time, the Committee confirmed that the Commission's activities, especially as concerns research, should in no way be curtailed.

The Committee was pleased to note that Brazil would be paying almost its entire pending contributions in a very short time. The delegate from Korea informed the Committee that his country also intends to pay its 1986 contribution before the end of this year.

The Report of the September Working Group Meeting was adopted.

**Report of the Working Group  
of the Standing Committee on Finance and Administration (STACFAD)**

Madrid, September 23-24, 1986

**1. OPENING OF THE MEETING**

The meeting of the STACFAD Working Group was held from September 23 and 24, 1986, in Madrid, at the General Secretariat of Spanish Maritime Fisheries.

In the absence of the STACFAD Chairman, Ms. P. García Doñoro, the Commission Chairman, Mr. C. J. Blondin, opened the meeting. He welcomed all the participants and observers. He commented on the financial problems which the Commission is facing and explained why this meeting had been convened. He cited the alarming accumulating pending contributions and asked everyone's collaboration in solving this problem.

The meeting was chaired by Mr. C. Blondin, Mr. L. de Andrés Ortiz, and by Ms. P. García Doñoro.

The participants introduced themselves. The List of Participants is attached as Addendum 2.

**2. ADOPTION OF AGENDA AND ELECTION OF RAPPORTEUR**

The Tentative Agenda was adopted without any changes and is attached as Addendum 1.

The Secretariat was asked to serve as rapporteur.

**3. ANALYSIS OF THE FINANCIAL STATUS OF THE COMMISSION**

Documents prepared by the Secretariat and distributed to the participants were presented by the Executive Secretary. He provided background information for the delegates, describing many of the activities of the Commission and its financial status in the past and present. The List of Documents is attached as Addendum 3.

### 3.1 Delays in payment of contributions

The attached Table 1 shows the past history of the pending contributions. The Working Group reviewed the situation (Document 1) and noted the accelerated rate of increase in the pending contributions which has so far been absorbed by reducing expenses and by the cash available in the Working Capital Fund. However, as the Working Capital Fund has been reduced by its applications to the regular budgets and the Yellowfin Year Program, the cash available in the Fund has been significantly reduced.

The Group expressed its deep concern over the accumulating contributions which are jeopardizing the Commission's activities. It was noted that generally the same three or four countries pay during the first few months of the year while payments by the remainder of the countries are unpredictable as indicated from past experience.

### 3.2 Working Capital Fund

Table 2 shows the past and present situation of the Working Capital Fund and the cash available in the Fund. The Group noted that unless some effective measures are taken to urge countries to pay their debts to the Commission, the Commission could become insolvent in two or three years.

## 4. POTENTIAL IMPACTS OF FINANCIAL PROBLEMS ON THE COMMISSION'S ACTIVITIES

In view of circumstances presented in Item 3, and even if the Commission keeps spending in line with revenue, scientific activities may have to be severely curtailed and eventually the Secretariat staff and operations may have to be drastically reduced. The meetings would be affected, in that the SCRS may only be able to meet once every two years, or working groups may have to meet much less frequently. We may have to reduce our translation services, or lower the quality of our publications.

Therefore, the choice is either that the Commission take appropriate action to reduce the pending contributions or reduce its activities. The Group considered that several aspects should be considered. If the Commission must seriously consider a cut in the Secretariat expenses, then the Yellowfin Year Program should also be reviewed as to how savings can be made. There was a consensus in the Group that an increase in the member country contributions to cover the pending contributions should not be considered.

The Group noted that there are two categories of countries with unpaid contributions: those that pay late and those that do not pay

at all, and that these should be treated separately. While the Working Group cannot make decisions, it can make recommendations. Countries should be reminded of the commitments involved in having ratified or adhered to an international convention such as ICCAT.

#### 5. POSSIBLE ALTERNATIVE MEASURES FOR SOLVING THESE PROBLEMS

The Group agreed that the pending contributions are the major cause of the Commission's financial difficulties. The Group recognized that the problem of the short-term delays in contributions can be reduced but not entirely solved, because of bureaucratic procedures of various countries. Therefore, the existence of the Working Capital Fund, kept at the required level, is essential. The problem of real unpaid contributions will be very difficult to solve, hence we should dwell on the reasons for these non-payments. The Group discussed appropriate approaches to address the problem of those countries with pending contributions.

A suggestion was made concerning the possibility of amending pertinent articles of the Convention which define the basis for calculating the member country contributions. Perhaps a new basis to calculate country contributions could be formulated. Three different categories for calculating the contributions were suggested: one for the industrialized countries which do not have coastal fishing zones in the area of the Convention; one for those developing countries which have coastal fishing zones in the area but have no tuna fishing industry; and one for those developing countries which have their fishing zones within the Convention area and also have a tuna industry. The Group considered these possibilities could be explored, but that a special group should be established to study this matter in the long-term.

A suggestion was also made to create a system of rebates to encourage prompt payment. For example, countries which pay during the first six months of the year could receive a 5 percent rebate and this rebate could come from the Working Capital Fund. At present there are no incentives to encourage countries to pay early.

The Group considered various options including the possible suspension of aid and voting rights of countries who are in arrears to the Commission. However, these options were rejected.

A suggestion was made that the Commission share equipment and personnel with other international or Spanish organizations. The Executive Secretary was also asked to compare the cost of holding the annual meetings in Madrid and outside of Madrid.



## RECOMMENDATIONS

The Working Group recommended the following to the Standing Committee on Finance and Administration (STACFAD):

1. That the Commission Chairman, on behalf of the Commission, officially address the Ministers of Foreign Affairs of the member countries which have not paid their contributions:
  - i) Urging such countries to make contributions as soon as possible, and advising them of the adverse effects on the Commission and joint international efforts;
  - ii) Requesting the intention of member countries with past-due contributions of two or more years to meet their financial obligations in support of the Commission;
  - iii) Inviting member countries that have close relations with any country that has not paid contributions over a long period, to support efforts to encourage a continued participation in the Commission and payment of these past-due obligations.
  
2. Inasmuch as the economic situation of the Commission remains as is, no systematic application of the Working Capital Fund will be made to cover parts of the budget. The budgets should, therefore, be covered in their entirety by the member country contributions.

Notwithstanding, the Commission could decide to use part of these funds to cover partially the budget only if the financial situation of the Fund and the circumstances so warrant.
  
3. In the same manner, as regards special research programs, while pursuing the objectives of the Convention, the Commission will give priority to those special research programs for which special budgetary provisions and corresponding contributions are available and will not resort to allocations from the Working Capital Fund unless the financial status of this Fund will permit such allocations.
  
4. The money available (cash) in the Working Capital Fund should be maintained at an approximate minimum level of 15 percent of the total annual budget. When the Fund is increased, the amount of this increase should not exceed the amount of the contributions pending payment at the time of the annual meeting for the year in question.

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There was considerable discussion on the following items, but no final decision was reached. However, the Group decided to list them and let STACFAD continue discussion on these items.

---The Group recommended several other alternative measures as a means to cut costs, such as sharing equipment and/or staff with other organizations, reduced travel, reconsideration of annual meetings and their duration, and the sale of all publications, etc. The Group recommended that these alternatives be studied further by STACFAD.

---Finally, in order to assist in resolving the problem of contributions, the Working Group suggested that STACFAD give consideration to establishing a special group to study over the long-term the possibility of revising the pertinent articles of the ICCAT Convention concerning the method of calculating contributions.

## 6. ADOPTION OF REPORT

After lengthy discussions on the Group's recommendations, the Report was adopted.

## 7. ADJOURNMENT

The meeting was adjourned.

Addendum 1 to Appendix 1 to Annex 10

### STACFAD Working Group Agenda

1. Opening of the Meeting
2. Adoption of Agenda and Election of Rapporteur
3. Analysis of the financial status of the Commission:
  - 3.1 Delays in payment of contributions
  - 3.2 Working Capital Fund
4. Potential impacts of financial problems on the Commission's activities
5. Possible alternative measures for solving these problems
6. Adoption of Report
7. Adjournment

Addendum 2 to Appendix 1 to Annex 10

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Interpreters

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 C. Lord  
 V. Parra

Addendum 3 to Appendix 1 to Annex 10

Documents Presented to the STACFAD Working Group

Tentative Agenda

- 86/1 Delays in the Payment of Member Country Contributions
- 86/2 Working Capital Fund
- 86/3 Balance Sheet and Forecasts Using Several Hypotheses

**Table 1. Status of member country contributions pending payment, including 1986 (as of September 24, 1986) (US \$)**

	<i>Pending (at end of FY 1985)</i>	<i>Pending from 1986</i>	<i>Grand Total Pending</i>
Angola . . . . .	0.00	14,547.00	14,547.00
Benin . . . . .	27,244.00	3,960.00	31,204.00
Brazil . . . . .	0.00	26,403.00	26,403.00
Canada . . . . .	0.00	0.00	0.00
Cabe Verde . . . . .	9,880.00	9,381.00	19,261.00
Cuba . . . . .	0.00	17,172.24	17,172.24
France . . . . .	0.00	0.00	0.00
Gabon . . . . .	23,052.11	7,831.00	30,883.11
Ghana . . . . .	103,716.27	36,578.00	140,294.27
Côte d'Ivoire . . . . .	0.00	9,000.00	9,000.00
Japan . . . . .	0.00	0.00	0.00
Korea . . . . .	0.00	26,234.00	26,234.00
Morocco . . . . .	61,026.00	14,901.00	75,927.00
Portugal . . . . .	0.00	22,439.00	22,439.00
Sao Tomé & Principe . . . . .	3,971.00	4,064.00	8,035.00
Senegal . . . . .	29,123.88	12,618.00	41,741.88
South Africa . . . . .	0.00	0.00	0.00
Spain . . . . .	0.00	0.00	0.00
United States . . . . .	0.00	0.00	0.00
Uruguay . . . . .	2,948.00	5,805.00	8,753.00
U.S.S.R. . . . .	0.00	0.00	0.00
Venezuela . . . . .	0.00	38,673.00	38,673.00
<b>Total . . . . .</b>	<b>260,961.26</b>	<b>249,606.24</b>	<b>510,567.50</b>

**Table 2. Balance Sheet showing ICCAT financial status from the beginning of the Commission to the end of 1985 (US\$ - rounded)**

<i>Year</i>	<i>Annual Budget (A)</i>	<i>Country contributions (B)</i>	<i>Applied from oth. sources (C)</i>	<i>Unpaid at end of FY (D)</i>	<i>o/o un-paid</i>	<i>Accum. pending contri. (E)</i>	<i>Actual expen. (F)</i>	<i>Budget less expen. (G)</i>	<i>o/o (G) / (A)</i>	<i>Extra bgt. expen. (H)</i>	<i>Un-bgted inc. (J)</i>	<i>Theoret. WCF avail. next FY (K)</i>	<i>Cash in WCF avail. next FY (L)</i>
1970	70,000	70,000	0	2,898	4	2,898	36,582	33,418	48		1,142	4,560	1,662
1971	130,000	100,000	30,000	0	0	0	99,679	30,321	23		9,517	30,398	30,398
1972	144,000	130,000	14,000	10,369	7	10,346	139,599	4,401	3		2,997	17,796	7,450
1973	155,000	135,000	20,000	10,655	7	14,851	154,988	12	0		5,167	22,975	8,124
1974	210,000	210,000	0	10,851	5	10,851	195,645	14,355	7		7,201	34,531	23,680
1975	240,000	230,000	10,000	7,262	3	7,267	226,974	13,026	5		8,738	43,295	36,028
1976	293,000	280,000	13,000	20,949	7	22,001	272,112	20,888	7		3,795	47,978	25,977
1977	320,000	300,000	20,000	8,096	3	8,096	306,978	13,022	4		16,393	54,393	46,297
1978	408,000	385,000	23,000	11,712	3	11,711	407,937	63	0		8,986	63,442	51,731
1979	429,000	429,000	0	28,500	7	40,393	456,712	-23,212	-5	3,068	14,119	51,281	10,888
1980	625,000	625,000	0	61,779	10	72,965	503,219	121,781	12		6,993	180,055	107,090
1981	750,000	750,000	0	140,247	19	168,055	540,531	209,469	28		42,159	431,683	263,628
1982	750,000	750,000	0	87,744	12	121,225	573,797	176,203	23		61,737	669,623	548,398
1983	825,000	825,000	0	112,905	14	230,621	615,235	209,765	25		64,206	843,594	612,973
1984	700,000	600,000	100,000	139,519	20	296,883	597,232	102,768	15		77,537	848,899	552,016
1985	750,000	575,000	175,000	121,048	16	315,243	605,476	144,524	19	113,930	90,890	620,383	305,140
1986	750,000	575,000	175,000							175,000			
1987													
1988													

A Total annual budget approved by the Commission.

B Amount financed by member country contributions.

C Amount appropriated from the Working Capital Fund or from the positive balance of the previous Fiscal Year.

D Amount of the annual contributions still unpaid by the end of the year.

E Accumulative amount of all contributions pending payment at the end of the Fiscal Year.

F Actual annual expenses.

G Budget balance at the end of the Fiscal Year (A-F).

H Expense not included in the regular budget but approved by the Commission.

J Unbudgeted income (including bank interest, contributions of new members, etc.).

K Theoretical Working Capital Fund (WCF) available for the next Fiscal Year.

= WCF (of the beginning of the year)+G+J - C - (amount reallocated to the next year's expenses).

L Cash actually available in the WCF for the next Fiscal Year.

= K - E (funds reallocated to the next year's budget not included).

**REPORT OF THE MEETING OF THE STANDING COMMITTEE  
ON FINANCE AND ADMINISTRATION (STACFAD)**

Madrid, November 12, 1986

**1. OPENING OF THE MEETING**

1.1 The 1986 meeting of the Standing Committee on Finance and Administration (STACFAD) was opened by Mrs. P. García Doñoro (Spain), its Chairman. She emphasized the need for the Committee to review the current financial problems, caused by the accumulating pending contributions of some member countries. She called the Committee's attention to the Report of the Committee's Working Group Meeting (Madrid, September 23-24, 1986) to study this problem (attached as Appendix 1 to Annex 10). The Financial Committee also held a Special Session one day prior to the Commission Meeting to review the Report (see Annex 10).

**2. ADOPTION OF AGENDA**

2.1 The Tentative Agenda was reviewed and the Committee recognized that a change made in the Commission Agenda relating to a financial and administration matter should also be introduced to the STACFAD Agenda. With this slight modification, the Committee adopted the Agenda which is attached as Appendix 1.

**3. ELECTION OF RAPPORTEUR**

3.1 The Secretariat served as Rapporteur.

**4. PANEL MEMBERSHIP**

4.1 The Committee reviewed document COM/86/7 for Panel membership and confirmed that there had not been any changes in Panel membership during the past year.



## 5. ADMINISTRATIVE REPORT

5.1 The Chairman referred the Committee to the Administrative Report (COM/86/8) which was presented by the Executive Secretary. He noted the countries which had ratified the Protocol to the Convention up to the time of the Meeting (France, São Tomé and Príncipe, Korea, South Africa, Uruguay, Japan, Senegal, Cape Verde and the U.S.S.R.).

5.2 The Executive Secretary reviewed the current membership of the Commission and noted that no new members had joined during the last year. He also reported on the activities of the Secretariat, meetings held by the Commission and those at which the Commission was represented, trips made by the Secretariat staff, and coordination of research in 1986. Various matters discussed in the Administrative Report were reviewed under each Agenda Item.

5.3 The purchase of the new, in-house computer system for the Secretariat was reported. The Committee expressed its satisfaction that the computer selected was powerful enough for data management and that it will enhance the analytical capabilities of the scientists at ICCAT meetings.

## 6. RELATIONS WITH OTHER ORGANIZATIONS

6.1 In referring to the pertinent sections of the Administrative Report, the Assistant Executive Secretary reported on various meetings at which ICCAT was represented. He also pointed out that collaboration in improving world tuna statistics has been initiated among the regional agencies involved in tuna research and statistics. He also informed the Committee of the special collaboration between ICCAT and the Food and Agriculture Organization of the United Nations (FAO) to eliminate discrepancies in tuna statistics and assistance in developing a sampling scheme for the Indian Ocean. Other activities concerning collaboration with other national and international organizations were also reported. The Committee reviewed all these activities and found them to be quite satisfactory.

6.2 The delegate from the FAO expressed his organization's appreciation for the collaboration rendered by ICCAT and emphasized the importance of such cooperation to assure adequate coverage of Mediterranean, Atlantic and Indian Ocean statistics.

## 7. COMMISSION PUBLICATIONS

7.1 The Executive Secretary reviewed ICCAT publications and made special note of the Skipjack Conference Proceedings. The Committee congratulated the scientists, editors and the Secretariat for publishing such a high quality book.

## 8. AUDITOR'S REPORT - 1985

8.1 The Executive Secretary presented the 1985 Auditor's Report which was distributed during the course of the STACFAD meeting for the delegates' review. He called the Committee's attention to the abstract of the Auditor's Report included in the "Report for the Biennial Period, 1984-85, Part II" (Statement 8 to the Financial Report).

8.2 The Executive Secretary also reported to the Committee on the purchase of the mini-computer and noted that it was paid in full, rather than in three annual installments, because this would result in considerable savings to the Commission. He indicated that the decision to pay for the computer in full was made in consultation with the STACFAD and Commission Chairmen.

8.3 The Committee endorsed the 1985 Auditor's Report.

## 9. FINANCIAL STATUS OF THE 1ST HALF OF THE BIENNIAL BUDGET (1986)

9.1 The Executive Secretary presented an updated version of the 1986 Financial Report (COM/86/4-Revised).

9.2 The Committee inquired why that some expenditures directly related to the Yellowfin Year Program (YYP) (i.e., \$11,950 for posters, tags and calipers, etc.) had been charged to the Regular Commission Budget. The Committee was informed that this procedure had been specified in the YYP Plan because some of those materials could also be used for regular Commission activities. The Committee recommended that these expenses be broken down and those corresponding to the YYP be charged to that Program's budget.

9.3 The Committee also questioned why a \$10,000 negative balance is forecast to the end of Fiscal Year 1986 for Chapter 1, "Salaries". The Executive Secretary explained that this negative balance is due to the fact that the amount budgeted to the salaries chapter had not been increased in the last few years, but that the decline in the U.S. dollar exchange rate, coupled with inflation, have contributed to a substantial increase (in dollar amounts) of salaries of employees paid in local currency. He further explained that the salaries charged to Chapter 8, "Research" were less affected by the above-mentioned factors since a greater proportion of these salaries are of staff in the Professional Category, which are based and paid in U.S. dollars. Another reason why this chapter does not show a negative balance is that it includes the salaries of many contracted port samplers (paid in the local currency of the sampling port) and these salaries are not as adversely affected by currency fluctuation and inflation as those of staff working in Madrid.

9.4 Following these clarifications, the Committee concurred with the report on the financial status of the first half of the Biennial Budget (1986).

#### 10. REVIEW OF THE WORKING CAPITAL FUND

10.1 The Executive Secretary provided the Committee with some background information on the application of the Working Capital Fund over the last few years. The Committee confirmed that any overpayment by member countries (i.e., \$32,378 from Angola and \$5,572 from Uruguay in 1986) should be applied towards payment of the respective contributions of these member countries for the following year, rather than depositing these amounts to the Working Capital Fund.

10.2 The Committee decided to discuss the Working Capital Fund further under STACFAD Agenda Items 11, 12 and 14.

#### 11. STUDY OF THE PENDING CONTRIBUTIONS OF THE MEMBER COUNTRIES AND THE MEANS TO REDUCE EXPENDITURES

11.1 The Committee Chairman referred to the Working Group meeting held in Madrid in September, 1986, and to the Special Session of STACFAD held on November 11 prior to the opening of the Commission Meeting. The Committee reviewed the report of the STACFAD Special Session (Annex 10). Canada expressed its view that cuts in expenditures cannot be achieved without curtailing research activities.

11.2 The STACFAD Recommendations were drafted and distributed to the Committee for consideration. Some discussion ensued after the presentation of the draft. The Executive Secretary commented that the majority of the countries in arrears had at least responded in one way or another to inquiries regarding their intentions to pay their delayed contributions. However, he noted that one country has not responded to any inquiries whatsoever.

11.3 Finally, the Committee adopted these Recommendations (attached as Appendix 2) as they were considered to be the best the Committee could do at this time regarding this Agenda Item. While adopting these recommendations, Angola and Brazil presented reservations on the effectiveness and some legal implications of Recommendation 2.

11.4 In adopting these recommendations, however, the Committee expressed some reservation that these might not be the only solutions. Some members were of the opinion that the problem should be considered more in-depth for a long-term solution.

11.5 Special reference was made to the Report of the September Working Group regarding a proposal made by Côte d'Ivoire as to establishing a special group to study, over the long-term, the possibility of revising the pertinent articles of the ICCAT Convention concerning the method of calculating country contributions (see Section 5, Appendix 1 to Annex 10). The Chairman noted that the Working Group could not reach a final decision on these points in September and listed them for STACFAD consideration.

11.6 Since this matter concerns amending the ICCAT Convention, the Committee pointed out that it could involve a long, time-consuming procedure and could even jeopardize the credibility of the Commission. Therefore, the Committee decided that if the formation of a working group is to be considered, it should be dealt with by the Commission rather than by the Committee.

11.7 The Committee recognized that the matter of reducing the Commission expenditures is more directly related to the discussion of the 1987 budget, and decided to discuss the matter under Agenda Item 14.

## 12. FINANCIAL STATUS OF THE SKIPJACK PROGRAM

12.1 The Executive Secretary referred the Committee to Section III of the 1986 Financial Report in which the status of the International Skipjack Year Program funds is shown. He noted a negative balance of \$19,954.57 due to the high composition and printing costs for the Skipjack Conference Proceedings and added that this amount was charged to the Working Capital Fund. He also noted that there were still \$7,844.70 in outstanding contributions pending payment to this program budget.

12.2 The Committee reiterated its previous decision that skipjack accounts be closed and that the pending contributions be considered as part of the arrears to the Regular Commission Budget for those respective countries (i.e., Benin and Ghana). It was decided that any income derived from the sale of the Skipjack publication be deposited to the Working Capital Fund.

## 13. FINANCIAL STATUS OF THE YELLOWFIN YEAR PROGRAM

13.1 The Executive Secretary discussed briefly the revised YYP Operational Plan, as concerns the financial aspects. The two YYP tables contained in the 1986 Financial Report show the expenditures as of the time the Financial Report was written.

13.2 The Committee confirmed its decision that the cost of materials for use by the Program be charged to this budget instead of to the Regular Commission Budget (see Agenda Item 9).

13.3 Some questions were asked as to the effectiveness of tagging activities. The SCRS Chairman clarified that most likely no yellowfin tagging would be carried out if it were not for the Yellowfin Year Program.

13.4 The SCRS Chairman also clarified that the 1986 balance of the YYP Budget would be applied to activities to be carried out in 1987. The Committee reviewed and approved the current financial status of the Program as presented.

## 16. OTHER ACTIVITIES IN RESEARCH AND STATISTICS

16.1 This Agenda Item was discussed before Item 14 since some of the research activities proposed by the SCRS have budgetary implications. The SCRS Chairman informed the Committee of the following programs:

- a) Yellowfin Year Program - The total budget (\$175,000) was approved in 1985. The unspent balance from this year will be used for YYP program activities carried out in 1987.
- b) Program of Enhanced Research for Billfish - In response to a 1985 Commission request, a budget of \$55,000 is proposed by the SCRS to launch this program.
- c) Swordfish Workshop - There will be no substantial budget implications for this workshop since it will be held most likely just before the 1987 SCRS meeting at the ICCAT headquarters.
- d) Separation of SCRS from Commission meeting - The SCRS made this proposal because it was felt that if the Commission meets outside Madrid, the scientists could meet in Madrid and take full advantage of the in-house computer for on-site analysis. In this way the Commissioners would have scientific advice at least a few weeks before the annual meeting and the meeting costs would be less.
- e) Workshop on the methodology of studying tunas with a long life span - This meeting would not have any budgetary implications since it would only be hosted by ICCAT if the major expenses for such a meeting are born by other sources.

16.2 The Committee recognized that the Budget for the Yellow Year Program was approved in 1985 and this Program is now under way. Funds have been set aside from the Working Capital Fund.

16.3 The United States recommended approval of the proposed "Program of Enhanced Research for Billfish" in view of the data deficiencies which prevent accurate assessments for these stocks.

Several delegations commented that the program plan was not clearly defined, that the total budget necessary for effective research was unavailable, and inquired whether or not billfish fisheries are important enough to warrant such intensive research at a time when the Commission is facing serious financial difficulties. In response to several inquiries, the SCRS Chairman commented that the pilot program could be started on minimal funding.

16.4 A suggestion was made to launch the program on a reduced budget funded by the Regular Commission budget within Chapter, 8 "Coordination of Research", rather than establishing a special budget using the Working Capital Fund. The Committee decided to consider this matter further when discussing the review of the budget for 1987.

16.5 The Secretariat was requested to present an estimate on the possible savings to be obtained by holding separate SCRS and Commission Meetings. The Committee was informed that if both meetings are held in Madrid, then the cost of holding separate meetings would be roughly \$6,000 (8 percent) less than joint meeting costs. This difference in costs would be greater if the Commission holds its meeting outside Madrid.

16.6 The delegate from Portugal expressed his country's intention to invite the Commission to hold its next meeting in the Azores Islands. In doing so, he indicated that Portugal would assume any meeting expenses which exceed the amount budgeted by the Commission for the 1987 meeting.

16.7 Some delegations expressed that the savings of separate meetings should be carefully weighed against the increase in costs to the member countries since some scientists would have to attend both meetings.

16.8 It was pointed out, however, that only if a laboratory has compatible computer facilities coupled with the installation of an essential part of the ICCAT data base, would the SCRS consider meeting at a location other than Madrid. In response to an inquiry about the availability of adequate data if the SCRS meets at an earlier date, the SCRS Chairman noted that this could be a problem and asked the Committee to consider the possibility of holding the Commission meeting slightly later, rather than holding the SCRS meeting earlier.

#### 14. REVIEW OF THE SECOND HALF OF THE BIENNIAL BUDGET (1987)

14.1 The Executive Secretary presented the Financial Report (COM/86/9-Revised) and made special note of the difficulties he encountered in Fiscal Year 1986 because of the declining dollar value and the accumulating pending contributions. He proposed

maintaining the total 1987 budget as was approved in 1985 (i.e., \$750,000) and further proposed that the entire budget be funded by the member country contributions.

14.2 Brazil, although recognizing the problems caused by pending contributions, emphasized that his country could not accept any increase in contributions. He suggested a 10 percent reduction in the total budget for 1987 (i.e., reduced to \$675,000). Of this amount \$100,000 should be taken from the Working Capital Fund and \$575,000 should be funded by the member country contributions. This proposal was supported by several member country delegations.

14.3 Various suggestions were made as to how to reduce costs. The Committee concurred with the suggestion made to resort to the member country embassies to assist in the distribution of ICCAT publications and correspondence. Other suggestions to cut costs were that ICCAT be represented by member countries at various international meetings to reduce travel costs and perhaps downgrading Commission publications.

14.4 The U.S. proposed a reduction in the total budget to \$725,000, including 100,000 application from the Working Capital Fund. In making this proposal, the U.S. delegate asked that \$10,000 start-up funds be budgeted under Chapter 8 for the billfish research program. The U.S. delegate noted that approval of this program by the Commission backed by limited Commission funding would stimulate interest of the private sector of the United States to contribute matching funds, as much as \$25,000. Thus, a total allotment of \$35,000 would give the program a good sound basis for its work.

14.5 Some clarification was made as to the amount in the Working Capital Fund, particularly with relation to payment in full for the computer. It was confirmed that the cash available at present in the Working Capital Fund is \$266,000. It was also noted that the Commission can expect about \$80,000 to be paid in member country contributions by the end of the year, thereby bringing the total amount in the Fund to about \$346,000 by early 1987.

14.6 With this in mind, the delegate from France proposed maintaining the country contributions at the 1986 level (i.e., \$575,000) and applying \$115,000 from the Working Capital Fund, for a total 1987 budget of \$690,000. This will allow the Commission to initiate the billfish research program as well as maintain the Working Capital Fund at the level recommended by the Working Group in September.

14.7 After detailed discussion on four distinct budget scenarios, the Committee decided to recommend that the second half of the 1986-87 Biennial Budget approved at the 1985 meeting be modified as proposed by France (i.e., \$690,000 total budget; \$115,000

from Working Capital Fund and \$575,000 funded by contributions, including \$10,000 for billfish research). (Appendix 3)

14.8 While accepting the French proposal for modification to the 1987 budget, (total budget of \$690,000), the Committee then proceeded to a discussion on the reallocation of the total budget by budget chapter. Considerable debate ensued as to the reductions to be applied to each chapter. The Committee decided that there should be a balance in these reductions between Chapters 1 through 7 (administrative matters) and Chapter 8 (Research).

14.9 The SCRS Chairman stated with regard to Chapter 8.a (research staff) that it was important to maintain the funding since biostatistical assignments will be carried out by short-term contract with experts in the field, rather than by a full-time biostatistician.

14.10 In approving the inclusion of \$10,000 in the budget for billfish research, several countries expressed reservation on launching a new research program at a time when the Commission already has one program under way and we are faced with serious financial difficulties. The Committee recognized that this program will be reviewed as to its feasibility at the 1987 meeting.

14.11 The SCRS Chairman confirmed that the limited funding of the 1987 budget will meet the minimum requirements to allow the Commission's research activities to proceed.

#### 15. MEMBER COUNTRY CONTRIBUTIONS TO THE 1987 BUDGET

15.1 The delegate from France proposed updating the base catch and canning figures on which the country contributions are calculated. At the 1985 meeting, the annual country contributions for the 1986-1987 biennial budget were calculated based on 1983 catch and canning figures. However, France referred the Committee to Article X of the Convention, and noted that although the budget is defined on a biennial basis, the Article states that the latest catch and canning information should be used. He noted that in August, 1985, France submitted information for 1984. The French delegate added that in recent years, there has been a major change in fisheries in the Atlantic and hence he felt it was more feasible to recalculate the contributions on an annual basis using the latest catch and canning information available.

15.2 This view was supported by a few countries. The delegate from Côte d'Ivoire pointed out that despite not fishing for the past two years, his country's contribution continues to be based on a 1983 catch of 14,000 MT. There were opinions expressed that the budget is indeed biennial according to Article X of the Convention and that the 1986-87 biennial budget was calculated on the latest information available at the time it was adopted.



15.3 Responding to an inquiry, the Secretariat clarified that the Committee had considered 1983 catch and canning figures as the base since 1984 figures were not complete for all countries at the time of the 1985 meeting. No formal questionnaires were sent in 1986 to the member country governments since it was the mid-biennial period. Therefore, 1984 data are still incomplete for many countries. The Committee was informed that it generally takes about two to three months to get the catch and canning figures from all 22 member countries.

15.4 The French delegation expressed the view that the fact of its being the mid-biennial period was an insufficient reason for not updating the catch and canning figures.

15.5 The Committee agreed that the use of one year's figures for one country and another year's figures for other countries should not be accepted. It was also noted that the matter of interpretation of Article X of the Convention should be referred to the Commission rather than discussed in STACFAD.

15.6 After these interventions, the Committee agreed that the 1987 country contributions calculated at the 1985 meeting should be maintained especially since there were no changes made in the amount of the budget funded by contributions. (Appendix 4)

#### 17. DATE AND PLACE OF THE NEXT REGULAR MEETING OF THE COMMISSION

17.1 The date and place of the next regular meeting of the Commission was discussed. The Committee referred the Commission to the discussions held under the Agenda Items 14 and 16 regarding the issue of separating the SCRS meeting from the Commission meeting and to the comparative studies on the cost of holding meetings under various scenarios. The invitation extended by the delegate of Portugal to hold the 1987 Commission Meeting in the Azores Islands was also referred to the Commission.

#### 18. OTHER MATTERS

18.1 No other matters were discussed.

#### 19. ADOPTION OF REPORT

19.1 The report was adopted.

#### 20. ADJOURNMENT

20.1 The meeting was adjourned.

### **STACFAD Agenda**

1. Opening of the meeting
2. Adoption of Agenda
3. Election of Rapporteur
4. Panel membership
5. Administrative Report
6. Relations with other organizations
7. Commission publications
8. Auditor's Report - 1985
9. Financial status of the first half of the biennial budget (1986)
10. Review of the Working Capital Fund
11. Study of the pending contributions of the member countries of the Commission and the means to reduce expenditures
12. Financial status of the Skipjack Program
13. Financial status of the Yellowfin Year Program
14. Review of the second half of the biennial budget (1987)
15. Member country contributions to the 1987 budget
16. Other activities in research and statistics
17. Date and place of the next Regular Meeting of the Commission
18. Other matters
19. Adoption of Report
20. Adjournment

### **Recommendations Adopted by STACFAD**

Madrid, November, 1986

1. That the Commission Chairman, on behalf of the Commission, officially address the Ministers of Foreign Affairs of the member countries which have not paid their contributions:
  - i) Urging such countries to make contributions as soon as possible and advising them of the adverse effects on the Commission and joint international efforts;
  - ii) Requesting the intention of member countries with past-due contributions of two or more years to meet their financial obligations in support of the Commission;
2. That member countries that have close relations with any country that has not paid contributions over a long period, support efforts to encourage continued participation in the Commission and payment of these past-due obligations.
3. Inasmuch as the economic situation of the Commission remains as is, no systematic application of the Working Capital Fund will be made to cover parts of the budget. The budgets should, therefore, be covered in their entirety by the member country contributions.

Notwithstanding, the Commission could decide to use part of these funds to cover partially the budget only if the financial situation of the Fund and circumstances so warrant.
4. In the same manner, as regards special research programs, while pursuing the objectives of the Convention, the Commission will give priority to those special research programs for which special budgetary provisions and corresponding contributions are available and will not resort to allocations from the Working Capital Fund unless the financial status of this Fund will permit such allocations.
5. The money available (cash) in the Working Capital Fund should be maintained at an approximate minimum level of 15 percent of the total annual budget. This could be increased by the amount corresponding to the contributions pending payment at the time of the annual meeting for that particular year only.

*Appendix 3 to Annex 11***Modified Budget for the second half of biennial period (1987)**

<i>Chapter</i>	<i>Total Budget US \$ 690,000</i>
1. Salaries . . . . .	317,000
2. Travel . . . . .	12,000
3. Annual Meeting . . . . .	63,000
4. Publications . . . . .	22,000
5. Office Equipment . . . . .	8,000
6. Operating Expenses . . . . .	68,000
7. Miscellaneous . . . . .	<u>5,000</u>
<i>Sub-total</i> . . . . .	495,000
8. Research	
a) Staff . . . . .	135,000
b) Travel . . . . .	10,000
c) Office Equipment . . . . .	10,000
d) Data Processing . . . . .	15,000
e) Meetings during the year . . . . .	10,000
f) Miscellaneous . . . . .	5,000
Program of Enhanced Research for Billfish . . . . .	<u>10,000</u>
Sub-total . . . . .	195,000
<b>From the Working Capital Fund . . . . .</b>	<b>115,000</b>
<b>From member country contributions . . . . .</b>	<b>575,000</b>

Table of Member Country Contributions to the 1987 Regular Commission Budget

Country	Total Budget - \$690,000 - Contributions (K) \$575,000										
	A No.	B	C	D (1,000 MT)	E	F	G \$	H \$	I \$	J \$	K \$
Angola . . . . .	2	5.08	3.212	1.536	4.748	0.81	1,000	2,000	8,746	2,801	14,547
Benin . . . . .	0	1.69	75	0	75	0.01	1,000	0	2,915	44	3,960
Brazil . . . . .	2	5.08	24.043	801	24.844	4.26	1,000	2,000	8,746	14,658	26,403
Canada . . . . .	2	5.08	1.482	6.147	7.629	1.31	1,000	2,000	8,746	4,501	16,247
Cape Verde . . . . .	1	3.39	2.628	0	2.628	0.45	1,000	1,000	5,831	1,550	9,381
Cuba . . . . .	2	5.08	8.984	1.130	10.114	1.73	1,000	2,000	8,746	5,967	17,713
France . . . . .	2	5.08	62.420	26.300	88.720	15.22	1,000	2,000	8,746	52,343	64,088
Gabon . . . . .	1	3.39	0	0	0	0.00	1,000	1,000	5,831	0	7,831
Ghana . . . . .	1	3.39	45.673	3.053	48.726	8.36	1,000	1,000	5,831	28,747	36,578
Côte d'Ivoire . . . . .	1	3.39	14.841	4.700	19.541	3.35	1,000	1,000	5,831	11,529	19,359
Japan . . . . .	4	8.47	33.995	0	33.995	5.83	1,000	4,000	14,576	20,056	39,633
Korea . . . . .	3	6.78	17.921	0	17.921	3.07	1,000	3,000	11,661	10,573	26,234
Morocco . . . . .	2	5.08	4.848	500	5.348	0.92	1,000	2,000	8,746	3,155	14,901
Portugal . . . . .	3	6.78	8.556	2.932	11.488	1.97	1,000	3,000	11,661	6,778	22,439
Sao Tomé & Principe . . . . .	0	1.69	252	0	252	0.04	1,000	0	2,915	149	4,064
Senegal . . . . .	1	3.39	6.740	1.374	8.114	1.39	1,000	1,000	5,831	4,787	12,618
South Africa . . . . .	1	3.39	2.956	168	3.124	0.54	1,000	1,000	5,831	1,843	9,674
Spain . . . . .	3	6.78	142.746	32.000	174.746	29.97	1,000	3,000	11,661	103,097	118,757
Uruguay . . . . .	0	1.69	3.197	6	3.203	0.55	1,000	0	2,915	1,890	5,805
U.S.A. . . . .	4	8.47	11.879	33.278	45.157	7.74	1,000	4,000	14,576	26,642	46,218
U.S.S.R. . . . .	2	5.08	13.461	322	13.783	2.36	1,000	2,000	8,746	8,132	19,877
Venezuela . . . . .	0	1.69	41.844	17.069	58.913	10.10	1,000	0	2,915	34,758	38,673
<b>Total . . . . .</b>	<b>37</b>	<b>100.00</b>	<b>451.753</b>	<b>131.316</b>	<b>583.069</b>	<b>100.00</b>	<b>22,000</b>	<b>37,000</b>	<b>172,000</b>	<b>344,000</b>	<b>575,000</b>

A - Panel membership.

B - Percentage of payments for annual membership and panel membership (G + H).

C - 1983 catch (live weight).

D - 1983 canned production (net product weight).

E - Total (C + D).

F - Percentage distribution of E.

G - Payment of \$1,000 annual membership contribution.

H - Payment of \$1,000 for each panel membership.

I - 1/3 of \$516,000 = (575,000 - \$59,000 (G + H)) distributed percentage-wise according to column B.

J - 2/3 of \$516,000 = (575,000 - \$59,000 (G + H)) distributed percentage-wise according to column F.

K - Total (G + H + I + J).

**REPORT OF THE STANDING COMMITTEE ON  
RESEARCH AND STATISTICS (SCRS)**

Madrid, November 6-11, 1986

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**Item 1. OPENING OF THE MEETING**

The Standing Committee on Research and Statistics (SCRS) met in Madrid, Spain, at the Hotel Princesa Plaza from November 6 to 11, 1986, under the chairmanship of Mr. J. S. Beckett (Canada). Groups of scientists met during the preceding three days to help rapporteurs draft the species sections of the SCRS Report. A special meeting was held on November 5 to consider in-depth studies on bigeye tuna.

The SCRS Chairman opened the Seventeenth Regular Meeting of the Committee and welcomed all the scientific delegations. Mr. Beckett reviewed the achievements made in tuna research by the scientists during 1986. He called the attention of the Sub-Committee on Statistics to delays in submitting data, particularly 1985 data. He also referred to the fact that the new computer is now installed at the Headquarters and added that the scientists now have the opportunity to analyze stock conditions during the meeting. On the other

hand, this on-site analysis will require more of the scientists' time. He also noted that if the meeting is held outside Madrid, the scientists would lose this opportunity since the computer is in Madrid, and suggested that the SCRS give serious consideration to holding the SCRS Meeting separate from the Commission Meeting.

## Item 2. ADOPTION OF AGENDA AND ARRANGEMENTS FOR THE MEETING

The Tentative Agenda, circulated prior to the meeting, was adopted and is attached as Appendix 1. The scientists nominated as rapporteurs and coordinators of the Report are as follows:

For Agenda Item 8:

Tropical Tunas	A. Fonteneau (General), F. X. Bard (YFT), S. Kume (BET), P. Cayré (SKJ)
ALB - Albacore	H. C. Liu
BFT - Bluefin tuna	S. Turner
BIL - Billfish	E. Prince
SWO - Swordfish	J. Hoey
SBF - Southern bluefin	S. Kume
SMT - Small tunas	J. P. Wise
MLT - Multi-Species	A. Fonteneau
For all other Agenda items:	P. M. Miyake

## Item 3. INTRODUCTION OF DELEGATIONS

Each member country introduced its scientific delegation. (The List of Participants is attached as Annex 2 to the Commission Proceedings.)

## Item 4. ADMISSION OF OBSERVERS

The observers, as shown in the List of Participants, were introduced, admitted and welcomed to the 1986 SCRS Meeting. In recognizing the international organizations attending the meeting as observers, the SCRS Chairman emphasized the importance of collaboration between the organizations.

## Item 5. ADMISSION OF SCIENTIFIC PAPERS

The Chairman reviewed the guidelines established for accepting SCRS papers. The Committee was informed that five documents submitted this year did not meet the criteria set up by the SCRS in that they either were not submitted by the deadline or had not been

accompanied by the necessary number of copies. The Chairman established a document review group headed by Dr. A. Fonteneau. (The List of SCRS Documents is attached as Appendix 2).

At a later session, Dr. Fonteneau reported on the conclusions reached by his group in reviewing the documents for acceptance by the SCRS. The group's report was adopted and is attached as Appendix 3. Although this year the SCRS accepted a few documents which had not met the criteria, he insisted that these criteria be strictly applied next year.

The Committee noted that towards the end of the SCRS Meeting, after the scientific deliberations were finished, further papers were received. The SCRS decided not to accept them, but they were available for information purposes. These documents will be submitted to the 1987 SCRS.

#### Item 6. REVIEW OF NATIONAL FISHERIES AND RESEARCH PAPERS

##### 6.1 ANGOLA

No report was submitted.

##### 6.2 BENIN

No report was submitted.

##### 6.3 BRAZIL

No report was submitted.

##### 6.4 CANADA

Catches of bluefin tuna of 142 MT were again substantially lower than in the previous year, while swordfish catches of 585 MT were slightly higher than in 1984. The lower tuna landings have created added difficulties for sampling, although limited research continues, including some age determination and analysis of log-books from the handline fleet.

##### 6.5 CAPE VERDE

There are two types of tuna fisheries in Cape Verde: (1) the artisanal fishery, which is conducted by artisanal fishermen from wooden vessels which are 4.5 m long, 1.5 m wide, and some of which are equipped with an outboard motor, and (2) the industrial fishery which operates a fleet of 38 vessels. Of these, only three vessels have freezer facilities. These are small vessels which have been in use for many years.



The main gear used by the artisanal fishermen is deep line (ranging in size from 150 to 450 m), harpoons and hooks. The major species taken is yellowfin, followed by bigeye and skipjack.

The industrial fishery is by baitboats; skipjack make up the majority of the catch of this fishery.

Fishing is carried out basically in Cape Verde waters throughout the year. Catches in the last five years have fluctuated for both fisheries. In 1985, the artisanal fishery catch reached 1,558 MT and the industrial fishery catch was 2,777 MT.

#### 6.6 COTE D'IVOIRE

See Chapter III, "National Reports", included in the 1986 Biennial Report.

#### 6.7 CUBA

The number of Cuban tuna vessels which operated in 1985 declined since 14 vessels discontinued operations.

Drift longline was the main fishing gear used by the Cuban fleet for tuna and tuna-like fish (67.4 percent), followed by live bait (20.4 percent), purse seine (7.9 percent), gillnet (3.8 percent) and troll (0.5 percent).

The total catch of tunas and tuna-like fish reached 8,846 MT in 1985, and represents a slight decrease over the previous year (9,610 MT).

The target species in the catches of the long-range longline fleet was yellowfin tuna, whose catches reached 3,491 MT. Other species caught, in order of importance, were: skipjack (1,878 MT), swordfish (1,463 MT), billfishes (661 MT), blue marlin (451 MT), spotted Spanish mackerel (443 MT), bigeye (239 MT), blackfin tuna (157 MT), white marlin (47 MT) and Atlantic little tuna (16 MT).

Copies of Form 1.1, 1.2 and 2 were completed and submitted to ICCAT, as well as biological information derived from sampling at Cuban ports on skipjack, blackfin, blue marlin and billfish (Form 3.4 and 3.5).

#### 6.8 FRANCE

French catches in 1985 reached 30,100 MT, of which 7,700 MT were temperate tunas (albacore and bluefin) and 22,400 MT were tropical tunas (yellowfin, skipjack and bigeye). The major part of

the French purse seine fleet operated in the Indian Ocean in 1985 and continued to exert very reduced fishing effort in the Atlantic.

Research conducted by IFREMER on temperate tunas continued in 1985. Analysis continued on the relationship between oceanographic conditions and catchability of the albacore stock taken by trolling. French research on tropical tunas is carried out by ORSTOM in cooperation with Senegal, Côte d'Ivoire and Venezuela. Collection and sampling of the French fleet was carried out as well as diverse analyses on the biology and population dynamics of Atlantic tunas. Special effort has been devoted to the study of the yellowfin stock as regards the current status of the stock. A French scientist is in charge of coordinating the Yellowfin Year Program which is being carried out in 1986 and 1987.

#### 6.9 GABON

No report was submitted.

#### 6.10 GHANA

The introduction of the Economic Recovery Programme in Ghana imposed a tight lid on expenditures, especially in foreign exchange. This step led to a considerable constraint on the tuna industry, especially the supply of fuel to and the rehabilitation of the fleet. An outlet and relief were provided by the relocation of landings and transshipments to Abidjan.

The 33 vessels landed 34,406 MT of tuna and tuna-like species in 1985, which was a 10 percent increase over the previous year.

In the field of research, collection of Task I and Task II data, as well as biological data continued, although on a reduced scale.

Length frequency measurements continued on 6,210 skipjack, 5,060 yellowfin and 710 bigeye tuna. Port sampling was rather poor.

Even though Ghana participated actively in cooperation with the Côte d'Ivoire in the Yellowfin Year Program, only two tags were recovered by Ghanaian vessels.

#### 6.11 JAPAN

In 1985, the Japanese catches of Atlantic tuna and billfish were 54,200 MT, 90 percent of which were taken by the longline fishery. The bigeye catch of 31,500 MT predominated in the longline catch, followed by yellowfin tuna (5,600 MT) and swordfish (4,700 MT). Two purse seiners in the Gulf of Guinea produced 5,226 MT of tropical tunas (yellowfin and skipjack).

Japanese fishermen have been under national measures relating to the ICCAT regulations. To monitor the longline fleets, governmental patrol boats have been dispatched to the Atlantic, especially to the Mediterranean Sea during May-June.

The Far Seas Fisheries Research Laboratory has been in charge of collecting and compiling Atlantic tuna fishery data, on which scientific research on biology and population dynamics are based. Current research activities have been focused on stock assessment studies on bluefin and bigeye tunas and swordfish. The outcome was presented to the SCRS in seven research documents.

#### 6.12 KOREA

In 1985 about six Korean longliners based in the Atlantic had departed to the other oceans. There were 45 longliners and one baitboat in operation in the Atlantic during the 1985 season. Tuna and tuna-like fish catches by longliners amounted to 17,454 MT, more than 60 percent of which were comprised of bigeye tuna. Yellowfin and albacore were caught incidentally, amounting to 3,329 MT and 901 MT respectively.

One Tema-based baitboat caught 250 MT of skipjack in the Gulf of Guinea in early 1985.

Catch and effort statistics and size frequency data for Atlantic tunas were collected from the commercial fishing vessels. The National Fisheries Research and Development Agency (NFRDA) has been in charge of collecting and processing the fishery data, which have been routinely submitted to ICCAT.

An intensive effort was made by the NFRDA to improve the coverage rate (63.5 percent for 1985 data) and accuracy of Task II data in light of SCRS work.

Research results on fishing efficiency for tunas by deep longline, based on catch and effort by branch lines of 16,198 baskets in 1985, were presented to the SCRS.

#### 6.13 MOROCCO

No report was submitted.

#### 6.14 PORTUGAL

The Portuguese catches of tunas and tuna-like species in 1985 reached 9,550 MT, of which 6,439 MT were bigeye, 2,374 MT skipjack, 632 MT albacore and 105 MT other species. The 1985 bigeye catch represents the highest catch of this species in recent years.

The preliminary estimates of the catches during the first three quarters of 1986 show a total catch of about 13,000 MT, of which 2,000 MT were caught in Madeira and 11,000 MT in the Azores.

Concerning the development of the fleet, since 1984, five new freezer baitboats have started to operate in the Azores. For 1987, other new baitboats are expected to start in the fishery.

As far as research is concerned, sampling activities and data collection are being carried out as in the past. An experimental longline fishery for swordfish has been operating in Azores in 1985-86.

#### 6.15 SAO TOME AND PRINCIPE

No report was submitted.

#### 6.16 SENEGAL

See Chapter III, "National Reports", included in the 1986 Biennial Report.

#### 6.17 SOUTH AFRICA

No report was submitted.

#### 6.18 SPAIN

The catches of tunas and tuna-like species in 1985 rose to 156,261 MT, an increase of 5 percent with respect to 1984. By fisheries, the east tropical purse seine fishery increased by 3,766 MT (4 percent) with respect to 1984, in spite of the fact that from 1984 to 1985 the carrying capacity was reduced by 10 percent. In the west tropical fishery, catches decreased due to only one vessel fishing in this area in 1985. The Canary Islands fisheries increased their catches considerably in 1985, reaching 15,000 MT, almost double the catch of 1984. In the northeast Atlantic, catches increased with respect to the low 1984 figures, but were still close to the average catches made in this area during the last few years. In the Mediterranean, catches decreased with respect to 1984, returning to the same levels as 1982 and 1983.

The most important species caught were: yellowfin and bigeye (72,526 MT), skipjack (40,670 MT), albacore (21,358 MT), swordfish (8,688 MT) and bluefin (5,796 MT); the catches of other species reached 7,223 MT.

Research in the tropical area was based on the analysis of fishery statistics for 1979-1984. In addition, an observation

cruise with scientists on board a purse seiner was carried out. In the Canary Islands, two tagging cruises were made in 1985-86. A program of biological studies was begun on the local species, mainly directed towards growth of bigeye and identifying albacore stocks. In the northeast Atlantic, four tagging cruises were carried out in these two years and work continued on the problems of evaluating the state of the stock of the three principal species in the area: albacore, bluefin and swordfish. In the Mediterranean, work centered on the optimization of the system to collect the information necessary to complete ICCAT Task II data.

In general, Spain tried to increase its coverage of Task II statistics in all areas, reaching levels of 85-90 percent in most of the fisheries. In size sampling, the sampling levels of previous years were maintained, that is, around 150,000 individuals of different species.

#### 6.19 U.S.A.

United States fishermen landed in excess of 14,000 MT of Atlantic tuna and tuna-like species in 1985, all caught in the west Atlantic including the Gulf of Mexico and the Caribbean Sea. The U.S. fishery includes a variety of fishing gears with significant landings recorded by both large and small purse seines, coastal longlines, rod and reel, handlines, trolls, harpoons, traps, gill-nets and trawls.

Tropical tuna catches (yellowfin, skipjack, bigeye) totaled 8,400 MT and were taken both by large seiners in the Caribbean Sea and by small purse seiners, longliners, handliners and trollers along the east coast of the U.S. and in the Gulf of Mexico. Bluefin tuna catches, controlled by strict quotas, totaled 1,423 MT taken by small purse seine, rod and reel, longline, handline and harpoon gears along the U.S. east coast and in the Gulf of Mexico. Catches of albacore, swordfish and marlins were approximately 4,700 MT.

In 1985, U.S. scientists conducted research on bluefin tunas, marlin, swordfish, and on longline fisheries. Research topics range from biological studies of age and growth and larval distributions to development and analysis of fishery and tagging information to assess the condition of fishery stocks. Results of many of the studies have been reported to the SCRS.

#### 5.20 URUGUAY

No report was submitted.

## 6.21 U.S.S.R.

In 1985 the Soviet catch amounted to 15,496 MT, broken down as follows: 3,768 MT yellowfin, 870 MT bigeye, 1,404 MT skipjack, 1,040 MT Atlantic little tuna, 6,055 MT frigate and bullet tunas, 73 MT swordfish, 7 MT blue marlin, 2,073 MT bonito, and 206 MT king mackerel. The 1985 catch was 2,892 MT more than the previous year due to increased catches in the purse seine fishery for yellowfin tuna, skipjack and Atlantic little tuna. There was a reduction in the bigeye catch taken by longline. Scientific research dealt with the peculiarities of behavior and distribution of tunas in the purse seine fishery in the eastern central Atlantic, and on bigeye tuna stock assessment based on longline catches. Four scientific research cruises were carried out; three observers were on board commercial vessels. A total of 10,416 measurements and 295 biological analyses were made; 497 samples were collected for ageing, 144 for fecundity studies, 15 for feeding studies, 12 for parasitological studies and 25 samples were collected for biochemical studies.

## 6.22 VENEZUELA

No report was submitted.

## 6.23 AUSTRALIA (Observer)

The most important Australian tuna fishery (in the Indian Ocean) is directed at southern bluefin tuna. Australian catches of other tuna species are very small (below 1,000 MT per year). They are mainly composed of yellowfin and bigeye tunas.

In the 1982-83 fishing season, the Australian catch of southern bluefin tuna reached a maximum of about 21,000 MT. From that catch 13,800 MT were taken off southern Australia, 5,600 MT off western Australia, and the remainder off New South Wales. In response to scientific advice these catches have been subsequently reduced as a result of fisheries management. At present, the Australian catch is limited by transferable individual quota to 11,500 MT per year.

In the 1985-86 season 13,205 MT were caught by Australian fishermen. The south and western Australian catches were 12,031 and 1,120 MT respectively. No fish were caught off New South Wales. Poling, purse-seining and, to a small extent, trolling were used for fishing.

In recent years, the CSIRO Division of Fisheries Research has developed a computer package for assessing the state of the southern bluefin tuna population and for determining biologically optimal fishing strategies. This package is being made more effi-

cient, more user-friendly and is being documented. The reliability of the package is being further examined using computer simulation methods.

One of the biggest difficulties in making management recommendations for the southern bluefin tuna fishery is the lag of several years in evaluating the level of recruitment. The ways to overcome this difficulty are presently being examined.

About 4,000 recaptures from the 1983-84 tagging program (about 10,000 southern bluefin tuna tagged) are being analyzed to update the existing information on fish growth, migration, abundance, mortality, fishery interactions and yield-per-recruit.

A study to determine the spawning pattern for southern bluefin tuna, physical and biological oceanographic factors determining the spawning success and sampling schemes suitable for derivation of an index of larvae abundance will also be examined.

#### 6.24 CHINA (TAIWAN) (Observer)

The total number of Taiwanese longliners in the Atlantic Ocean increased from 116 vessels in 1984 to 180 at the end of 1985, about a 55 percent increase. The total landings made by Taiwanese longliners also increased from 24,964 MT in 1984 to 37,738 MT in 1985. Albacore was still the target species in 1985 and comprised 91.56 percent (34,542 MT) of the total landings (37,728 MT). Of the albacore landings, 14,899 MT were from the north Atlantic and 19,643 MT were from the south Atlantic.

The Institute of Oceanography of the National Taiwan University has been in charge of collecting and processing the fishery data, which have been routinely reported to ICCAT.

Size measurements of the ten most important species caught by longline were carried out in 1985. About 379,000 individuals were measured, including 362,100 albacore, 7,200 yellowfin and 8,300 bigeye tunas.

The standardization of total longline effort on albacore was updated to 1985. Based on this, fishing intensity and CPUE of the albacore longline fishery were analyzed. Evaluation of the south Atlantic albacore stock was also updated to 1985.

#### 6.25 EUROPEAN ECONOMIC COMMUNITY (Observer)

The observer from the European Economic Community (EEC) noted that his organization, while awaiting the ratification of the Protocol to the ICCAT Convention, did not have, at this time, a

report to present. He pointed out that EEC member countries, some of which are also members of ICCAT, and others attending ICCAT as observers, had already presented individual national reports.

He added that, as regards research, a study on tunas in Greek waters will be carried out in collaboration with Italian and Greek scientists and will be co-financed by both governments. A request for funds has been sent to the EEC member countries as regards financing biological studies that will take place in 1987 and which will also include research on tunas, particularly in the Mediterranean.

#### 6.26 ITALY (Observer)

Italy started a three-year national tuna research program to improve the knowledge of this fishery. Initial results confirm the vitality and variety of the gears used by the Italian fishery for bluefin, albacore and swordfish.

Six groups of scientists have studied these fisheries along the major part of the Italian coast. The information recorded includes the number of vessels, the different gears used, the fishing seasons by gear, the catches by gear, the fishing areas, the breakdown of the catches by size and several biological parameters. The catch data by gear have been transmitted to ICCAT for 1984 and 1985.

The fisheries concerned comprise more than 3,000 vessels which use almost all known fishing methods. A very significant aspect of this fleet is the flexibility of the majority of the vessels which conduct the type of fishing that offers the best economic yield at the moment. These vessels change from longline to trammel net, trawl to seine, thereby involving a variability of fishing effort on tuna that is very difficult to follow and to monitor.

#### Item 7. REVIEW OF THE REPORT OF THE BIGEYE DAY

The Convener of "Bigeye Day", Dr. S. Kume (Japan), reported that the day's activities were very successful, thanks to the collaboration of many scientists. (The Report is attached as Appendix 4.) He added that the Bigeye Day was very useful, since much information and knowledge were assembled and made available to the scientists as a result of paying particular attention to this species.

The introduction of the overview studies was also commended and recognized as very useful. The conclusions of the Bigeye Day are incorporated into the bigeye section of the SCRS Report.



Item 8. REVIEW OF CONDITIONS OF STOCKS, WITH BRIEF PRESENTATION OF  
MAJOR PAPERS ON THESE SUBJECTS

YFT-Y E L L O W F I N

YFT-1. Description of fisheries

Yellowfin are caught throughout the entire tropical Atlantic, between about 20°N and 20°S by surface gears (purse seine and baitboat) and by longline. The surface fisheries operate either in the east or in the west, along the coasts and sometimes extending quite far from shore. The longline fisheries operate in all the inter-tropical area.

The catch figures for these gears, broken down for the east and west Atlantic, are presented in Table 1 and Figure 1 for 1973-85. The following can be noted:

For the Atlantic as a whole, the catches have increased from 94,600 MT in 1973 to a maximum of 164,500 MT in 1983. Since then catches have been slightly lower.

In the east Atlantic, catches have increased from 1973 to a peak of 134,000 MT in 1981-82. Since 1983 and especially in 1984, the catches have decreased considerably. They rose somewhat in 1985. This decrease in catches is basically due to the departure of a large part of the French and Spanish purse seiners to the Indian Ocean.

However, from recently available size sampling data, the low figures for 1985 for the Tema-based baitboats seem biased and the real catches could be considerably higher. It is, however, difficult to determine at present up to what point such a bias has affected the Tema-based baitboat catch figures for previous years.

In the west Atlantic, the surface fisheries have developed rapidly since 1982 and reached a peak of 31,000 MT in 1985. These catches are essentially made by the purse seiners and baitboats based in Venezuela. The longline catches, on the other hand, decreased during the same period. A small longline fishery has begun in Mexico.

Nominal fishing effort for the east Atlantic surface fleets is shown in Table 2 and Figure 2 in the form of carrying capacity of the fleets. A decrease in effort is clearly observed since 1984, and confirmed in 1985, caused by the departure of the FISM and Spanish purse seiners to the Indian Ocean where they seem to have remained ever since.

For 1985, and the beginning of 1986, in the east Atlantic, a clear improvement in nominal catch rates is observed for purse seine fleets as well as for some baitboats.

## YFT-2. State of the stocks

As in the past, there are alternative hypotheses for the yellowfin stock structure: either two stocks separated into east and west around  $30^{\circ}W$ , or a single Atlantic stock. The separate-stock hypothesis remains the most likely, despite the fact that two transatlantic migrations have been observed for the first time. It should be recalled that the majority of the catches up to 1983 were made in the east Atlantic, and because of the lack of analyses on the new west Atlantic fisheries, most of the analyses and conclusions presented here concern the east stock.

### YFT-2.1 East Atlantic stock

Up to 1983, east Atlantic stock abundance has been monitored by an index calculated on the detailed statistics of the FISM fleet. After its quasi-emigration towards the Indian Ocean, it was decided to use Spanish purse seine fleet statistics in a similar fashion. A calibration study was done for this reason.

Unfortunately, detailed statistics for 1985 for the Spanish fleet have not been available until recently. This has prevented making precise estimates of the present abundance of the stock. This could also be worsened by the differences in the methods used for 1985 to correct the species composition; consequently, the relation between the high purse seine nominal CPUE obtained in 1985 and the real stock abundance is difficult to determine at present. It can only be supposed, therefore, that the high CPUE is, in fact, a positive reaction of the stock to the decreased effort since 1984. However, the possibility that the increase in CPUE is principally a result of the changes in fishing strategies of the Spanish and FIS fleets should not be excluded.

Therefore, the classic production model, shown in Figure 3, is affected by the doubts on the statistics mentioned above. This is represented on the figure by a line for 1984, because of the uncertainties on the effective effort, and by a rectangle for 1985, because of doubts on both effort and catches. The stock status for the east Atlantic can be situated between the following two extremes:

In one extreme, the high CPUE registered in 1985 corresponds well to the rise in abundance resulting from the sharp decrease in fishing effort in 1984 and 1985. In this case, the values for 1984 and 1985 move in such a way on Figure 3 so that the state of the

stock changes towards the 1978-79 situation. This would, therefore, correspond to a state of exploitation below the MSY.

In the other extreme, the reduced competition among the Spanish purse seiners could have brought about an improvement in their efficiency and the high CPUE could in reality correspond to lower abundance and to high effective fishing effort. In this case, on Figure 3, the state of the stock would move towards the year 1980, which would be a strong exploitation under a fishing scheme different to that used up to 1983.

The reduction in purse seine effort in the eastern Atlantic, provided that the age composition of the catches by the remaining purse seiners does not change, is likely to result in a proportionally greater reduction of fishing mortality on older ages than on younger ages. This would change the estimates of yield per recruit.

However, because of the lack of statistical data mentioned above, there are doubts on the age composition of catches for a certain number of years. Therefore, the catch-by-age tables for recent years, the basis for cohort analysis, should be considered with caution. The resulting yield-per-recruit analysis can be affected.

It is difficult, therefore, to determine whether the increase in the 1985 catches results from stock recovery, from an increase in effective effort or from a combination of the two factors.

#### YFT-2.2 West Atlantic stock

As in the past, due to the lack of adequate statistical data, in particular the absence of a reliable abundance index, it is not possible to draw conclusions on the state of the west Atlantic stock. The rapid increase in catches from 1983 to 1985 has already been interpreted as a favorable index of yellowfin productivity in the area. This is all that can be said at present.

#### YFT-2.3 Total Atlantic Stock

No new analyses have been made available since last year; thus, the conclusions in the 1983 SCRS Report are maintained. However, because the CPUE used comes mainly from the east Atlantic fisheries, the analysis can be biased if the CPUE in the east Atlantic does not represent the total Atlantic abundance. Consequently, no conclusions are available on the reaction of a possible single Atlantic stock to the recent variations in effort in 1984 and 1985.

### YFT-3. Effects of current regulations

Juvenile yellowfin of less than 3.2 kg are caught in large numbers in the eastern tropical Atlantic, often in schools mixed with skipjack and small bigeye. In 1978, ICCAT introduced a regulation to reduce the catch of juvenile yellowfin in order to increase the yield per recruit of the stock. This regulation seems to have had only a minor effect on the fisheries, as has been stated in previous SCRS Reports, and is ineffective in reducing the mortality of juvenile yellowfin. A large number of juvenile yellowfin continue to be caught.

### YFT-4. Recommendations

#### YFT-4.a Statistics

- i) The new species composition proposed for the Tema baitboat catches for 1984 (fourth quarter), 1985 and 1986 (in part) should be analyzed carefully. Moreover, estimates of declining yellowfin baitboat catches for the past ten years should be re-examined and compared according to the latest information presented. Finally, a difference is noted in the techniques used to correct the species composition of the FISM and Spanish purse seine catches.

For all these reasons, it is recommended to hold a meeting of the Working Group on Juvenile Multi-species statistics to study all the statistical problems and to find a solution to them.

- ii) It is recommended that the statistics of the Spanish purse seine fleet, of extremely important value for the assessment of the eastern stock, be submitted in due time in the format ready to use.
- iii) It is also recommended to continue and to expand multi-species sampling of small-sized tunas to all the purse seiners and baitboats which catch them. It is advisable to develop contacts between the flag countries and the authorities conducting the port sampling.
- iv) In the west Atlantic, statistics have improved recently. Some catch and effort data from the surface fisheries are now available, although they still have to be updated and analyzed. However, the biological data necessary for more pressing analyses are urgently needed.

YFT-4.b Research

- 1) All analyses on the state of the east Atlantic yellowfin stock should be carried out incorporating all the data available at ICCAT, particularly those which will be revised by the Ad Hoc working group on tropical tuna statistics.

YFT-4.c Management

1) The effective fishing effort carried out on yellowfin in the eastern Atlantic from 1981 to 1983 had probably surpassed the optimum level of effort which corresponds to the MSY theory. The great drop in yield resulting from this high effort has provoked the departure of a very large number of purse seiners of France, Côte d'Ivoire and Spain towards the Indian Ocean. This reduced nominal effort has been maintained from 1984 to 1986. This has resulted in 1985 and 1986 in a marked improvement of the catches by most of the boats. This is probably due to the rapid recovery of the stock according to the theoretical model. It is impossible at the present time to determine the exact level of the biomass of the eastern stock and of the effective fishing effort which is carried out.

Furthermore, it is possible that the fishing mortality of juvenile yellowfin exerted by baitboats as well as by purse seiners, has been underestimated.

Finally, it should be recalled that the purse seiners operating in the Indian Ocean remain in that area because of good catches, but could easily return to the east Atlantic.

For all these reasons, the Committee reiterates its assertion that the scientific base on which the present recommendation for management measures is established is still viable. With the intensive exploitation of 1982-1983, the effective application of the regulation could have brought about gains in yield per recruit. The potential gains would probably also exist under the pattern of fisheries for the period 1985-1986, but this cannot be estimated at the present time.

BET-B I G E Y E

BET-1. Description of fisheries

Bigeye tuna are distributed widely in tropical and temperate waters of the Atlantic Ocean, between 40°N and 40°S. The high density area is located in the eastern Atlantic. The longline

fleets from Asian countries which operate in the whole range of the bigeye distribution are major bigeye fisheries and catch large-sized fish. There are several local baitboat fisheries targeting bigeye tuna seasonally in the areas around the Azoras, Madeira, the Canary Islands and off Dakar. Purse seiners and baitboats in the eastern equatorial Atlantic catch juvenile bigeye tuna incidentally mixed with yellowfin tuna and skipjack.

During the last decade, the bigeye catch showed an increasing trend, from 44,700 MT in 1976 to 73,400 MT in 1985 (Table 3 and Figure 4), reflecting the corresponding increase in fishing effort. The highest catch in 1985 was achieved by the increased catches of the longline and baitboat fisheries targeting bigeye tuna. On the average, longline catches have constituted more than 60 percent of the total catch in weight. The bigeye baitboat fishery has been harvesting 20-30 percent and the rest has been the incidental catch by tropical surface fleets.

#### BET-2. State of the stocks

The Bigeye Day session, which was held during the SCRS according to the recommendation made last year, provided much useful biological information to better understand the bigeye stock. The report of the session is attached as Appendix 4.

The Atlantic bigeye tuna has been assessed on the basis of a single-stock hypothesis. The present review of the stock structure strengthened the evidence towards this hypothesis.

The trend of longline CPUE, as an index of abundance of the adult biomass, indicated that its level has stabilized during the recent decade at about 60 percent of the initial exploitation (Figure 5).

A production model analysis, based on updated and revised catch/effort data, showed results similar to those obtained previously, and reaffirmed that recent exploitation of the Atlantic bigeye stock has been at a high level (Figure 6). New estimates indicate an MSY range of 68,900 MT ( $m=2$ ) to 155,300 MT, depending on the parameter ( $m$ ) of the model selected. The present results gave slightly higher values of MSY compared to the previous ones, but the general form of the yield curves remained unchanged. Another production model analysis with revised CPUE and possible values of model parameters ( $k$ ) also reached similar results.

New yield-per-recruit (Y/R) analyses on bigeye tuna indicated that under the present conditions of the bigeye fishery, no gain in Y/R could be achieved by an increase in the size at first capture, and that the gain could only be obtained by an increase in fishing mortality (Figure 7). From multi-gear Y/R analysis, it was suggest

ed that maximum Y/R could be attained by increasing the fishing mortality of the large-fish fishery coupled with reducing that of the small fish fishery (Figure 8).

The Committee, however, noted that the above summary on the status of the stock should be interpreted as preliminary, since the catch data used in the analyses contained some uncertainty, such as the complexity of species separation in the catches of juvenile tropical tunas. Further research on this is to be undertaken.

#### BET-3. Effects of current regulations

The minimum size regulation of 3.2 kg on bigeye tuna was adopted in 1980 and has been in effect until now, simultaneously with the same size regulation for yellowfin tuna. The Committee noted that a fairly large amount, especially in terms of number, of juvenile bigeye tuna has continued to be landed by the tropical surface fleets. Since the species separation among juvenile bigeye and yellowfin tunas and skipjack in the reported catches of the fleets is very complex, the Committee could not evaluate the effects of the regulation. The Committee hoped to be able to examine in the future whether or not the past catch performance of juvenile bigeye tuna could have influenced the recent increase in the catch of large bigeye tuna.

#### BET-4. Recommendations

##### BET-4.a Statistics

- 1) Systematic multi-species sampling of the surface catch in the eastern tropical Atlantic should be continued to resolve species separation in the reported surface catch which contains juvenile bigeye and yellowfin tunas and skipjack. Multi-species size sampling is also necessary in the west Atlantic.
- ii) Size sampling of catches transshipped to Puerto Rico should be continued. The sampling on east and west Atlantic catches at Puerto Rico is useful to complement sampling in African ports, by which the extent of bias due to size sorting of catches for different markets can be investigated.
- iii) Calibration of gear efficiency between regular and deep longline operations should be continued to obtain a common measure of effective effort.

## BET-4.b Research

- 1) An index of abundance that incorporates information from the bigeye surface tuna fisheries should be developed.
- 1i) Age-structured stock analysis, such as cohort and yield-per-recruit analyses, should be continued.

## BET-4.c Management

The Committee has no new findings to alter the advice given to the Commission in 1984.

## SKJ-S K I P J A C K

SKJ-i. Description of fisheries

Skipjack is caught almost exclusively by surface gear (baitboat, purse seine, handline) in the east and west Atlantic. During the last few years west Atlantic catches have regularly increased as the development of Venezuelan and Brazilian fisheries has advanced. Skipjack catches made in the west Atlantic reached a record of 37 percent of the 139,700 MT of skipjack caught in 1985 in the entire Atlantic (Table 4, Figure 9).

In the east Atlantic, the 1985 skipjack catch (84,600 MT) followed the decreasing trend observed after the record 1982 catches (120,100 MT). This decrease is mainly due to fewer skipjack being taken by purse seiners (49,200 MT in 1985 compared to 64,400 MT in 1984, see Table 4 and Figure 9). The 1985 baitboat catches (32,900 MT) are, on the other hand, similar to those of 1984. Some doubts remain, however, concerning the real level of the total catches taken in the east Atlantic. This is due to the uncertainties in the species composition of the total tropical tuna catches (yellowfin, skipjack, bigeye) taken in 1985 by the Spanish purse seiners and Ghana-based baitboats operating in the Gulf of Guinea.

In the west Atlantic, catches increased sharply in 1985 (51,100 MT compared to 34,700 MT in 1984, see Table 4 and Figure 9). This increase in catch is partly due to increased purse seine catches (21,800 MT in 1985), and is mainly due to the sharp rise in baitboat catches (29,200 MT), of which the majority are taken by the Brazil-based baitboats (25,100 MT in 1985, see Table 4 and Figure 9). This increase in the west Atlantic catches greatly compensates for the decrease observed in the east Atlantic, and the total catches in the entire Atlantic in 1985 (139,700 MT) are slightly higher than those of 1984.



East Atlantic fishing effort for 1985, roughly illustrated by the carrying capacity of the vessels (Table 2), has slightly decreased for baitboats and has again experienced a noticeable decrease by purse seiners. This decrease is essentially due to the fact that many purse seiners (FISM and Spanish) now fish in the Indian Ocean.

Neither adequate nor rough data are available for estimating the amount of effort in the west Atlantic. However, nominal effort may be increasing for both the baitboat and purse seine fisheries.

#### SKJ-2. State of the stocks

Since 1984, we have been unable to estimate the effective effort on skipjack based on east Atlantic surface (purse seine) Task II statistics. Thus, any estimate of east Atlantic skipjack CPUE trends to be used for a production model analysis on this species is very hazardous. However, east Atlantic skipjack catches seem to fluctuate without trend regarding fishing effort as roughly represented by the carrying capacity of the fishing vessels (Figure 10). Furthermore, the catch rates observed in the different fisheries (FISM purse seine, baitboat) do not present a clear decreasing trend. As in the past, it can probably be concluded that the present exploitation does not significantly affect the skipjack population which is not fully exploited.

As regards the west Atlantic, an abundance index to be used in estimating the state of the stock is still lacking. As in the past, it is more and more important that measures be taken to have available adequate catch and effort statistics in order to monitor the changes in the state of this stock.

#### SKJ-3. Effects of current regulations

No regulation has been adopted or recommended for skipjack tuna. According to the evaluations made in the past (Working Group on Juvenile Tropical Tunas, Brest, 1984), it appears that the regulations presently in effect for yellowfin and bigeye do not affect skipjack.

#### SKJ-4. Recommendations

##### SKJ-4.a Statistics

- 1) Continue and, in particular, improve the collection of catch and effort statistics for all fleets (baitboats and purse seiners) which operate in the west Atlantic.

- ii) Prepare and transmit data from the Spanish purse seine fleet, as in the past, according to the schedule and in an appropriate format because of the importance of this fleet's skipjack catches.
- iii) Continue and improve biological sampling of catches taken in the Caribbean Sea and continue sampling in Puerto Rico.
- iv) Compare port sampling and observer data in order to detect sampling bias.
- v) Verify the degree of precision in the present carrying capacity tables for baitboats and purse seiners in the east and west Atlantic.

#### SKJ-4.b Research

- 1) Carry out supplementary research on maturity, fecundity and spawning for the sectors which are not yet being studied, such as around the Antilles and the west Atlantic.
- ii) Continue research on the relationship between environmental factors and catch, abundance, availability and recruitment of skipjack.
- iii) Carry out supplementary tagging which is necessary to define the stock structure; evaluate tagging done previously, and reach conclusions on what new studies should be made.
- iv) Develop studies on interaction, from a behavioral point of view, of skipjack schools and the fleets that exploit them.
- v) Compare the relationships between catch and fleet carrying capacity, and catch and effort; the effort could be estimated by using various combinations of different CPUE indices.
- vi) Hold a working group meeting to update the procedure to improve the precision of estimating species composition of tropical tunas taken by surface gears (baitboat and purse seine).

#### SKJ-4.c Management

There is no apparent reason to modify the conclusions reached earlier by the SCRS; in accordance with the results obtained by the Working Group on Juvenile Tropical Tunas (Brest, 1984), management measures are neither necessary nor advisable for skipjack in the Atlantic. As in the past, the Committee notes that skipjack are

underexploited and that the catches can be increased. Intensified fishing effort is the only means to increase the yield per recruit of this species.

## ALB-A L B A C O R E

### ALB-1. Description of fisheries

Albacore in the Atlantic Ocean are assumed to comprise at least two stocks separated, by convention, at 5°N Lat. A Mediterranean Sea stock may exist. Historical catches by gear and by country are shown in Table 5.

North Atlantic albacore are taken by surface fisheries (troll and baitboat) and by longline. The surface fisheries catch mostly young fish (1-5 years) and the longline fishery catches mostly adults (5+ years). Total catches from the North Atlantic albacore stock in 1985 were 40,700 MT, up from 39,400 MT in 1984. Surface catches in 1985 were 23,600 MT, up from 19,900 MT in 1984. The 1984 surface catch was the lowest in recent years due primarily to reduced baitboat effort. Longline catches in 1985 were 17,100 MT, down from 19,500 MT in 1984. The Mediterranean Sea produced albacore catches in excess of 4,000 MT in 1985.

South Atlantic albacore are taken primarily by longline gear. Catches in 1985 totaled 25,000 MT, up from 13,100 MT in 1984. Surface catches have been relatively constant for the last four years (1981-1984) and increased to 4,400 MT in 1985. The remainder of the catch, 20,600 MT, was taken by longline.

### ALB-2. State of the stocks

#### ALB-2.1 North stock

The Committee states with regret that it has no new substantial analysis available since 1984 on the fisheries exploiting the albacore north stock. The Committee is forced to repeat, after two years, the same conclusions on the state of the stock. It is even more regrettable in that the Committee does have at its disposal a long historical data series on the stock which in the past has allowed detailed analyses on the reaction of the stock to exploitation. Moreover, the Committee, without recent estimates, is unable to reach a conclusion on the real effect of a possible decline in recruitment, at least since 1983.

Catch (in weight) per unit of effort by gear may be used as an abundance index. The juvenile portion of the stock, indexed by the

surface (troll and baitboat) fisheries (Figure 11), remained constant in trend but with variation from 1957 through the early 1970's. Since then, surface CPUE has shown a general increasing trend, with increased variations.

Over the same period (1970's to present), overall effort and catch in the troll fishery has declined steadily at almost a constant rate (Figure 11). This pattern, combined with a trend in increasing CPUE in weight, suggests the average weight per fish in the catch has been increasing. The baitboat catch and effort (Figure 11) remained more constant over the same period suggesting that the average weight per fish in the catch has remained more nearly the same. The general increase in average weight per fish can be explained by changes in selectivity towards larger fish or reduced numbers of smaller fish recruited to the fishery.

The CPUE of the longline fishery is considered as a possible index of adult stock abundance (Figure 11). Based on catch in weight per 10<sup>3</sup> hooks of Taiwanese tuna longline data from 1973 to 1985, the nominal CPUE remained approximately constant, except for 1979 and 1980 which were higher, probably due to differences in availability rather than abundance.

The CPUE of cohorts of age-3 fish taken in the combined surface fisheries appears to be an index of recruitment to the fishery. From 1954 to the present, a decreasing trend is seen (Figure 12) with variability increasing since about 1969. The most recent cohorts indexed, 1978 through 1982, show recruitment to be lower by about 50 percent than the average recruitment in the 1950's and 1960's. However, the extreme lowness in recruitment may be due in part to fishing ground access problems or to changing catchability in the past four years. This generally lower recruitment may be in part responsible for the increase in average weight per fish in the catch described previously.

No new production model analyses were undertaken. The adult stock abundance appears relatively constant since 1973. Juvenile abundance is less certain. CPUE in weight indicates increasing abundance. However, increasing average weight per fish caught and decreasing recruitment at age-3 suggests juvenile abundance is decreasing somewhat. The stock, however, appears to be in good condition to withstand the current level of fishing.

#### ALB-2.2 South stock

The CPUE of the longline fishery operating in the south Atlantic may be used as an index of adult stock abundance. Figure 13 shows the longline CPUE from 1967 to 1985. Since the mid-1970's the CPUE has remained relatively stable. No CPUE index is available for the juvenile stock although in the last few years surface fisheries have begun to take increasing quantities of juvenile albacore.

The production model was fitted to the 1967 to 1985 catch and effort data.

Two measures of effort were used: Case 1 using fishing intensity expressed in number of effective hooks, and Case 2 using fishing intensity expressed in number of hooks per five-degree square. Both cases gave estimates of MSY that are very similar. However, only results obtained with effort expressed in numbers of hooks per five-degree square (Figure 14) were compared with the results of 1984's analyses which also used this effort measure. With this type of analysis, the highest MSY corresponds to the  $m = 0$  form, which assumes an MSY with a continuous increase in fishing effort, an assumption that does not seem too realistic from a biological standpoint. The range of MSY obtained with the model is 23,700 MT ( $f_{op} = 96.24 \times 10^4$  hooks per five-degree square with  $m = 2, k = 3$ ) and 22,300 MT ( $f_{op} = 106.78 \times 10^4$  hooks per five-degree square with  $m = 1, k = 4$ ). These values, although lower than those estimated by the Committee in 1984, are within the precision range of the technique and therefore similar to the 1984 estimates.

No reliable index of recruitment to the south stock has been developed. The absence of an intensive directed fishery for juveniles combined with relatively low catches from the adult stock make the risk of a reduction in recruitment due to fishing unlikely.

The catch (24,900 MT) and effort ( $129.6 \times 10^4$  hooks per five-degree square) in 1985 were slightly above the levels appropriate to MSY, resulting from a sharp increase in fishing effort of longliners moving into the Atlantic from the Indian Ocean. The stock, however, appears to be in a good condition to withstand the current level of fishing.

### ALB-3. Effects of current regulations

Currently there are no management measures in force for Atlantic albacore.

### ALB-4. Recommendations

#### ALB-4.a Statistics

- 1) There is a need for basic statistics from countries fishing in the Mediterranean Sea not currently reporting data to ICCAT.
- 11) Effort on surface fisheries in the south Atlantic needs to be collected and analyzed.

- iii) The files of longline data should be entered into the Commission's new computer system together with programs appropriate to calculate effective effort.

#### ALB-4.b Research

The following recommendations require the most immediate attention:

- i) Sex ratio of catches by age-class should be collected from the longline fishery.
- ii) The VPA on the north stock (multi-cohort analyses), analytical model, and recruitment estimates which proceed from them should be continued. A regular updating of the production model is also necessary.
- iii) An index of recruitment for the south stock should be developed.
- iv) The relationship between Atlantic and Mediterranean albacore should be investigated to determine if there are separate stocks. Growth, recruitment, morphometrics, etc., might be used.
- v) A relationship between oceanographic conditions (variables) and albacore abundance, availability and recruitment should be investigated.

#### ALB-4.c Management

The north stock seems to be in good condition although it is variable and possibly declining. Because of the changing nature of the fishery and since a relatively long period has elapsed since the last detailed assessment was made, the fishery needs to be watched closely. The Committee did not change its assessment from the previous year and therefore has no specific management recommendations.

The Committee does not have any management recommendations for the south stock at this time. It feels that the stock is in good condition, but recommends continued close monitoring.

## BFT-B L U E F I N T U N A

BFT-1. Description of fisheries

There are fisheries for bluefin tuna in the east and west Atlantic Ocean and in the Mediterranean Sea. Some of these fisheries are geographically and/or temporally distinct, and some fisheries differ in the size of the fish they catch while others overlap in time and the sizes they exploit. Atlantic bluefin are currently managed under a two-stock hypothesis with one stock occurring in the west and the other in the east Atlantic and Mediterranean (Figure 15).

The estimated total 1985 catch (26,000 MT) decreased slightly from the 1984 level, and both the 1984 and 1985 catches exceeded all others after 1976. The west Atlantic catch decreased about 75 percent from the 1976-1981 levels to 1,500 MT in 1982 as a result of regulation and has been relatively stable (2,400-2,700 MT) since then under a catch limitation of 2,660 MT (Table 6 and Figure 16). The estimated catch in the east Atlantic for 1985 was 4,800 MT, a large decrease from 1984 (7,400 MT). Catches increased slightly in the Mediterranean to 18,500 MT in 1985 from 17,400 MT in 1984; the 1985 catch was the highest in 1973-1985.

West Atlantic catches were restricted by regulation to 1,660 MT in 1982 and 2,660 MT in 1983-1985; 2,660 MT was about 40 percent of the largest catch in 1973-1981. Longline catches increased by 50 percent from 1983 to 1985, catches by purse seine and rod and reel remained stable while catches by other gears (600 MT) decreased to about 70 percent of the 1983 level.

In the east Atlantic, trap catches were stable in 1973-1979 (400-600 MT), they were 3-4 times higher in 1982-1984 and declined by about 30 percent in 1985. Longline catches were relatively high in 1982-1983 (2,600-2,700 MT), and declined in both 1984 and 1985 when the lowest catch (500 MT) since 1974 was taken. Baitboat-reported landings for 1973-1985 indicate that the 1983-1985 catches were high compared to 1980-1982, but similar to 1973-1979 catches; the 1985 catch was about 20 percent lower than the reported 1984 catch.

The 1985 estimated catches in the Mediterranean (18,500 MT) were the highest for 1973-1985 and the 1984 catches were the next highest. With the exception of the high 1976 catch, the catches in 1973-1981 ranged from 35-65 percent of current levels. Purse seines accounted for most of the total Mediterranean catch in 1973-1983 (70-85 percent), but only 56 percent and 63 percent of that total in 1984-1985, as the catches in other fisheries increased. The estimated catches by "other gears" were 200 to 600 MT in 1973-1980; they increased 3-4 fold in 1981-1983 and in 1984-1985 they were 8-9 times higher than in 1973-1980. Longline catches were relatively

high in 1974-1976 (1,300-2,400 MT), about 80-90 percent lower in 1978-1981 and higher in 1982-1985 but generally not as high as in 1974-1976.

There was no change in the effort expended by Japanese longliners in the west Atlantic from 1982 to 1985. A U.S. longline fishery for yellowfin in the Gulf of Mexico was developing in 1984 and 1985 and by-catches of bluefin from that area increased. In the east Atlantic Japanese longline effort directed at bluefin tuna was reduced in 1985 for two reasons: (1) coastal governments restrictions, and (2) unfavorable oceanographic conditions. Estimated effort by baitboats in the Bay of Biscay declined to the lowest level in 1976-1985. The number of Spanish traps in the east Atlantic increased from three in 1984 to four in 1985, but the number of Spanish traps in the Mediterranean remained constant. Japanese longline effort in the Mediterranean was lower in 1985 than in 1984 because the Japanese government reduced the number of vessels allowed to fish there. The Italian fleet size is thought to have remained stable in recent years, though the effort by small vessels is influenced by oceanographic and fishery conditions. Italian scientists report that there has recently been fishing for large bluefin in months in which fishing has not occurred in the past.

#### BFT-2. State of the stocks

Two tag returns of bluefin tuna marked when they were juveniles in the west Atlantic and recaptured several years later in the Mediterranean Sea were reported to the Secretariat. The Committee noted that these returns were consistent with the hypothesis that stocks exist in the east Atlantic-Mediterranean Sea and in the west Atlantic but with some interchange. The Committee conducted its investigations using the two-stock hypothesis, and the growth and natural mortality rate parameters for each stock were the same as those used by the 1985 Bluefin Working Group (BFWG).

##### BFT-2.1 East Atlantic

The Committee analyzed catch at age in the east Atlantic from 1970-1984. Catch-at-age data prior to 1970 were considered to be too poor to use. The Committee observed that the quality of most of the information since 1970 was also low, though not as poor as in the 1960's. It was reported that the quality of information has recently begun to improve. VPA analyses were run using the same partial recruitment values as used by the BFWG that met in 1985. The terminal full F was estimated from Spanish trap catch at age using an M of 0.18 as used by the BFWG in 1985. Estimates of the abundance of bluefin aged 5-30 showed an increasing trend to 1980, remained stable in 1981-1982, increased again in 1984 and decreased slightly in 1985 (Figure 17).



## BFT-2.2 West Atlantic

The Committee examined several indices of abundance and analyses of the pattern of partial recruitment in 1982-1985 (since the imposition of quotas in 1982). The method of tuning VPA's used by the BFWG in 1985 involved using indices of abundance for variable age ranges. Additional information was provided for the Gulf of Mexico larval index (1984 and 1986) and the index from the Canadian handline fishery (1985). New indices were derived for 3-5, 6-7, and 8-9 year-old bluefin tuna from records of U.S. observers on Japanese longline vessels. In initial analyses, the Committee used the Canadian 1985 handline catch rate. Subsequently that data point was excluded, because it was not well documented. The Committee questioned the pattern of partial recruitment used in 1985 because it was thought that the pattern might have changed after the imposition of regulations which limited the catches of small and large fish. Three patterns of partial recruitment were estimated from the catch at age for 1982 to 1985 for ages 1-15 and 1-25 using separable VPA (SVPA). They were quite different from the partial recruitment pattern used by the Bluefin Working Group in 1985. It was noted that the 1985 BFWG considered such analyses, but believed that insufficient time had elapsed for the partial recruitment pattern to have stabilized during 1982-1984.

Statistical analysis indicated that the pattern used by the 1985 BFWG had the poorest fit to the 1983 and 1984 partial recruitment patterns. The three patterns estimated with SVPA were examined with the same criteria. The pattern for 1-15 year-olds for 1983-1985 appeared to be the best. One view of these analyses was that it was inappropriate to derive a partial recruitment pattern from only three years of catch-at-age data. Additional discussions about those patterns focused on the maximum age to include in the analyses.

An attempt to tune VPA's was initiated using all three partial recruitment patterns estimated by SVPA. The aim was to narrow the selection of the partial recruitment patterns to one and then to generate a final VPA with the best partial recruitment. There were differing opinions on the criteria for selecting the best indices for testing. The Committee, however, agreed that one index for 6-7 year-olds could be used, but it was considered unreasonable to tune a VPA with one index for a limited age range that spanned only three years. Therefore, to provide the Commission with advice on the current status of the stocks, it was agreed that criteria used by the BFWG in 1985 would be used. In addition, the sensitivity of the tuning procedure was discussed. The partial recruitment for ages 1-15 based on 1983-85 catch-at-age data was used for the VPA. The results were reviewed and estimates of stock sizes accepted. Estimates of stock sizes and other population parameters were quite

consistent with those estimated last year by the 1985 BFWG. The abundance of 1-5 and 6-9 year olds declined in the 1970's and both increased substantially after 1982. The abundance of adults (10+ year-olds) continued to decline. (Figure 18).

### BFT-3. Effects of current regulations

The ICCAT regulation limiting fishing mortality for the entire Atlantic Ocean and the Mediterranean Sea went into effect in August, 1975. If that regulation is interpreted as limiting catches, its effects can be investigated by examining catch trends. Estimated total Atlantic and Mediterranean catches declined from 28,400 MT in 1976 to 18,400 MT in 1979 and have averaged about 25,600 MT in 1982-1985. In the west Atlantic, catches averaged approximately 6,100 MT from 1976 to 1981. The effects of additional regulations applied in the west Atlantic after 1981 will be discussed below. Catches in the east Atlantic declined from 10,000 MT in 1975 to 5,200 MT in 1976, increased to 7,000 MT in 1977, declined regularly to 3,300 MT in 1981 and increased again in the following three years to approximately 7,000 MT. In the Mediterranean, catches increased from 11,100 MT in 1975 to 17,300 MT in 1976, declined to 7,300 MT in 1979, increased thereafter to 15,100 MT in 1982, decreased in 1983 to 12,900 MT and increased to 18,500 MT in 1985.

A regulation prohibiting the catching and landing of bluefin tuna less than 6.4 kg for the entire Atlantic stock went into effect in August, 1975, though an exemption for incidental catches of 15 percent (by number) or less was included. After the regulations, the percentage of individuals less than 6.4 kg was low in the west Atlantic from 1976 to 1981 (1.7 to 7.6 percent), but it increased to 22.4 and 17.8 percent in 1982 and 1983 (Table 7) The percentage declined to 4.2 percent in 1984 and 1.2 percent in 1985. In contrast the percentage of undersized fish is still high (22 to 65 percent) in the east Atlantic and Mediterranean Sea.

A regulation limited west Atlantic catches in 1982 to 1,160 MT and 2,660 MT each year during 1983-1986, and prohibited fishing directed at the spawning stock in the Gulf of Mexico. As a result catches declined (Table 6).

A regulation limiting catches of bluefin tuna less than 120 cm straight fork length (SFL) to no more than 15 percent in weight in the west Atlantic went into effect in November, 1983. The percentage (in weight) of bluefin less than 120 cm SFL steadily decreased from 1977-1980, and since 1979 less than 15 percent of the total west Atlantic catch has been below that size (Table 8).

**BFT-4. Recommendations**

**BFT-4.a Statistics**

- i) That, as recommended in 1984, the ICCAT Secretariat implement a sampling program for Mediterranean fisheries to acquire catch estimates and length frequency samples (Yugoslavia, Turkey, etc.) and to obtain catch statistics and biological samples for developing fisheries such as the one in Greece.
- ii) That all countries submit catch estimates, size samples, and catch-at-length estimates two months prior to any SCRS meetings so that analyses involving updated catch-at-age data will be possible at the meetings.

**BFT-4.b Research**

- i) That interested scientists from member countries exchange papers prior to SCRS and bluefin workshops to facilitate the exchange of ideas.
- ii) That all countries that prepared indices used in tuning VPA's at recent SCRS meetings submit revised indices with relevant information on fishery oceanographic and other relevant conditions, if new data are available.
- iii) That the tables prepared by the Secretariat for each meeting, which in the past have been:
  - (a) nominal catches,
  - (b) estimated numbers of fish <6.4 kg and >6.4 kg, and
  - (c) estimated weight of catch in the west Atlantic <120 cm and >120 cm

be changed to:

- (d) A table of nominal catches in weight by year, gear and country with no small/large distinction.
- (e) A table based on the estimated catch at length showing the numbers of fish caught <6.4 kg and >6.4 kg by year, country and gear for the west Atlantic, east Atlantic, Mediterranean Sea and the east Atlantic-Mediterranean Sea combined.
- (f) A table based on the estimated catch at length showing the weight of fish caught <120 cm straight fork length (SFL) and >120 cm SFL by year, country and gear for the west Atlantic.

- iv) Further investigation is needed on the partial recruitment pattern, criteria for selecting abundance indices individually and/or together. The sensitivity of the VPA tuning procedure used at this meeting should be examined with simulation studies. The use of this procedure for assessing the status of other tuna stocks should be investigated.
- v) Research on the level of natural mortality rate in the east Atlantic and Mediterranean Sea should be conducted.

## BFT-4.c

## Management

## BFT-4.c.1 West Atlantic stock

In 1984, it was advised that present catch levels were "likely to stop the decline of the stock as well as allow stock increases in the long-term (30 years)". This year's analysis results are compatible with that advice. The SCRS further noted in 1984 that following confirmation that the stock was responding to the present management regime, it would be possible to increase gradually the allowable catch in proportion to the recovery rather than to hold the catch constant for the recovery period (30 years).

As recommended last year, this year's analysis indicates that a 2,660 MT catch in the coming year will not prevent a continual decline in the spawning stock (ages 10+) but that it will allow the juvenile stock biomass (ages 1-9) to increase (rebuild) again in 1987.

## BFT-4.c.2 East Atlantic and Mediterranean Sea stock

The Committee advises no changes in existing management measures.

## BIL-B I L L F I S H E S

BIL-1. Description of fisheries

Billfishes are distributed over the tropical and temperate waters of the Atlantic Ocean. Blue marlin, white marlin, sailfish and longbill spearfish are caught by many fisheries, both directed and incidental, throughout their ranges. Black marlin are also present in the Atlantic Ocean, but they are rare and negligible in the landings. Major catches of billfishes are incidental to the tuna and swordfish longline fisheries of numerous countries. Secondary fisheries are the directed recreational fisheries of the

U.S.A., Senegal, Cuba, Mexico, Venezuela, Costa Rica, Bahamas, Azores, Madeira, Bermuda, and numerous other countries in the Caribbean. There are developing industrial and artisanal fisheries for sailfish, especially in Ghana and Senegal, as well as incidental catches in the tropical tuna purse seine fisheries. In addition, recent development and expansion of industrial longline fisheries in the Gulf of Mexico and Caribbean Sea for tuna and swordfish have been reported by the U.S.A., Mexico, Taiwan, and Venezuela. Because the Gulf of Mexico and the Caribbean Sea are known to have significant concentrations of billfishes, increased incidental catches of these species can be expected. The most important species in terms of incidental landings in recent years are sailfish/spearfish, followed by blue marlin and white marlin. However, incidental catches can vary according to area and deployment of gear. Sailfish and spearfish are often treated as a species group, since the longline statistics for these species are mixed. The catch statistics for blue marlin and white marlin, by countries are given in Tables 9 and 10, respectively. Catch statistics for sailfish/ spearfish are provided in Table 11.

#### BIL-2. State of the stocks

Considerable effort was expended in revising and compiling the data base in preparation for the ICCAT Billfish Workshop in 1981 and afterwards. However, catch, effort, and size data for billfishes is still plagued with deficiencies, as are data to determine basic biological parameters which are needed for definitive stock assessment. Largely due to these problems, no new analyses on the status of stocks of billfishes have been presented to the SCRS since 1983. Consequently, only summaries of the state of the stocks (based on analyses presented in previous years) are provided.

#### BIL-2.1 Blue marlin

Total Atlantic landings of blue marlin (Table 9) show a continual decline over the period 1975 to 1979. Landings then increased through 1982, mostly due to increases in the Japanese catch. The 1983 landings show a substantial decline to 1,600 MT, principally due to a reduction in the Japanese catch. Preliminary estimates of the 1984 and 1985 catch show an increase to about 2,100 MT. Landings, separated into North and South Atlantic regions, show trends similar to those for the total Atlantic.

Japanese CPUE indices, 1962-80, were presented at the 1982 SCRS Meeting. Catch-per-unit-effort increased slightly during 1977-80, but only to a level well below the 1965-75 average. Production model results based on these indices, (SCRS, 1982) indicate that some over-exploitation may have occurred during the early to mid-1970's, but fishing effort in 1978-80 appears to have been below

the level associated with maximum sustainable yield. United States rod and reel CPUE in the west Atlantic was stable from 1972-80, then doubled in 1981-82, and declined back to the 1972-80 level by 1984. The Committee had previously expressed concern about any increase in effort on the stock because of the relatively low CPUE levels (through 1980) and the production model results discussed above. The new development and expansion of longline fisheries in areas of known blue marlin abundance (Gulf of Mexico and Caribbean Sea) reinforces initial feelings of past committees, and at this point are of particular concern.

#### BIL-2.2 White marlin

Landings from the total Atlantic (Table 10) show a generally negative trend (with fluctuation) over the period 1974-82 (1,750 to 1,100 MT). Landings increased in 1983 (1,700 MT) and decreased to about 1,100 MT in 1984 and 1985 (preliminary estimates). It was noted that Japanese CPUE indices have declined substantially over the period 1962-80 (SCRS, 1982). Although the Committee remains unsure of the exact status of white marlin, the declining trend and low CPUE levels (through 1980) presented in previous years is of significant concern.

#### BIL-2.3 Sailfish/spearfish

The landings from the total Atlantic (Table 11) from 1975-1979 increased from 1,200 to 3,300 MT. Landings were about 2,200 MT between 1980-1982 and then increased substantially to about 3,600 MT in 1983-1985. This increase was due largely to increased landings from Ghana. Longline statistics are reported as sailfish/spearfish, whereas recreational landings concern sailfish only.

#### BIL-2.3.a West Atlantic

Studies presented in previous years indicated that hook rates from the Japanese longline fishery have fluctuated without apparent trend (SCRS, 1982). Size composition of samples from the U.S. recreational fishery indicates that average size has declined since the 1950's but the size composition appears to be quite stable over the past ten years or so (SCRS, 1983). Size composition for the Japanese longline fishery, available only for 1971-76, is also stable (SCRS, 1983). Yield-per-recruit analysis indicates that recent fishing mortality levels are about 20 percent below  $F_{0.1}$  (SCRS, 1983). Considering these data collectively, sailfish appear to be only moderately exploited. The Committee cautioned that further analysis (e.g., VPA and/or production model analysis), in conjunction with Y/R analysis, would be needed before a more definitive assessment of the status of stocks could be made. However,

deficiencies in these data make use of the more sophisticated techniques difficult at the present time.

#### BIL-2.3.b East Atlantic

Japanese CPUE of sailfish/spearfish (SCRS, 1982) declined from the mid-1960's to the early 1970's, then fluctuated without trend. Senegalese CPUE of sailfish, 1970-80, has also fluctuated without apparent trend (SCRS, 1980). There are no other means to evaluate the east Atlantic stock at this time and the Committee remains uncertain of the status of the stock.

#### BIL-3. Effects of current regulations

No ICCAT regulations are currently in force for billfishes.

#### BIL-4. Recommendations

##### BIL-4.a Statistics

- i) Catch and effort statistics (both commercial and recreational) from all countries should be reported by five-degree area and by month. The catch of the billfish species should be reported separately. While the Committee noted that some progress has been made in this area, continued adherence and improvement on these items are still necessary, particularly for the new and expanding longline fisheries in the Gulf of Mexico and Caribbean Sea. Monthly size frequency data should also be reported by sex, whenever possible, for each species. The Committee noted the need for progress in this area as well.
  
- ii) Several longlining nations reported that some of their fishing operations were deploying longline gear in non-traditional ways, e.g., deep longlining for bigeye tuna (Japan and Korea). Such differences in the deployment of longline gear appear to affect the catchability of some species of billfishes (as well as other species), as indicated in a recent preliminary analysis (SCRS/86/81). It is requested that nations employing longline gear initiate collection of data and more rigorous analysis of the catchability of billfish using traditional and deep (or shallow) deployment of longline gear. If these catchabilities are found to be significantly different, it may become necessary to stratify catch and effort data (by depth of fishing) for the purpose of effort standardization for stock assessment. In addition, it may be possible to apply these results in certain instances to reduce the harvest of incidental longline catches, such as marlin and sailfish.

- iii) Catch statistics for sailfish and spearfish, in particular, should be reported separately in the future by all countries in order to facilitate stock assessment work on both species. Sailfish statistics (separated from spearfish statistics) should be reported for the east/west Atlantic. The historical statistics should also be separated in this manner. ICCAT billfish areas should also be adjusted to accommodate the east/west stock structure hypothesis.
- iv) The Committee noted that much of the basic data from the Brazilian fishery, on which studies have been presented in various SCRS documents, have not been reported to ICCAT. These data (i.e., primarily effort and size samples) are valuable for future work and should be reported.
- v) Improved data collection in Ghana is still needed and should be carried out due to the development of commercial fisheries on this species during apparent spawning aggregations.

#### BIL-4.b Research

The lack of basic data on growth, mortality rates, and stock structure severely hampers many of the conventional population dynamics analyses. To correct these deficiencies and to provide a better theoretical base for future analyses, the Committee recommends that:

- i) Studies be continued on age and growth of marlins and sailfish and that findings be reported.
- ii) Further analyses be done from both the commercial and recreational fisheries for billfishes to determine indices of abundance which account for changes in the effectiveness of fishing effort. Data on catch and effort should be summarized and made as complete as possible (including estimation of unrecorded by-catch) for use in assessment.
- iii) Stock assessment work on sailfish should continue, in particular, VPA on the eastern Atlantic stock should be conducted. Improvements in the data base and better estimates of population parameters (due to recent advancements) should enable more progress to be made in this area.
- iv) An accelerated tag, release and recapture program for billfishes would increase our knowledge of movement and migration patterns and when sizes are available, estimation of growth rates. In addition, the recapture of tagged billfish and particularly the recovery of their skeletal structures would greatly improve estimates of age and growth rates. ICCAT has made attempts to acquire these data in the past



(1983) and should incorporate this approach on a continuous basis, (i.e., every year).

- v) The section on recovering data from tagged fish in the 1978 ICCAT Field Manual (pages 105-108, English version) should be reviewed by the national correspondents in light of the need to obtain skeletal structures from tag-recaptured fish. In addition, adjustments of the reward system may be necessary to encourage the return of skeletal structures from tag-recaptured fish, as well as the traditional information retrieved in the past. A report on this matter should be made to the 1987 SCRS.
- vi) Research evaluating the survival of released billfish should be initiated.
- vii) A further discussion of these issues can be found in the Report of the planning group for developing the Program of Enhanced Research for Billfish (attached as Appendix 6).

#### BIL-4.c Management

No management recommendations are made at this time, except to stress the need to monitor closely the billfish fisheries, particularly the CPUE and catch for blue marlin and white marlin, which have shown sharp downward trends, but with fluctuations. Considering these points, increased monitoring of landings are particularly important at this time in light of the development and expansion of industrial longline activities in the Gulf of Mexico and Caribbean Sea, and changes in traditional deployment of longline gear. Should future analyses indicate that the downward trends in catch rates have continued with the present or increased level of effort, it may be necessary to impose some form of regulation in the future.

#### SWO-S W O R D F I S H

##### SWO-1. Description of fisheries

Swordfish are distributed throughout the temperate and tropical zones of the Atlantic Ocean and Mediterranean Sea. In the Atlantic, the main gear used is longline in both directed and by-catch fisheries. In the Mediterranean, where Italy accounts for the major portion of the catch, large and small-fish longline fisheries exist, and surface drift nets may be deployed by 20 percent of the Italian large-fish fleet. Minor secondary gears in all oceans include harpoon and rod and reel.

Table 12 shows the landings of swordfish by major fishing countries. Total swordfish landings during 1984 and 1985 amounted to 31.6 and 34.0 thousand MT, respectively. Atlantic landings of 19 to 21 thousand MT have been reported for the past three years. The significant increase in Mediterranean landings between 1983 and recent 1984 and 1985 values, reflect improved Italian data.

#### SWO-2. State of the stocks

A panel of experts, convened for the purpose of assessing the status of the northwest Atlantic swordfish resource, reviewed geographical plots of mean CPUEs from Japanese longline records, mark-recapture data, spawning, and larval distribution information. These data indicate that: (1) swordfish are continuously distributed across the Atlantic; (2) transatlantic movement is not shown in the tag-recapture data; (3) north-south movement in the north Atlantic is extensive; and (4) separate spawning areas as indicated by records of ripe fish, exist on both sides of the Atlantic and in the Mediterranean. The Committee supported the conclusions of the stock assessment panel that the multi-stock hypothesis is useful from the standpoint of defining a manageable resource in the western North Atlantic, that absolute boundaries between stocks are not supportable, and that a single Atlantic-wide stock or a more complex stock structure is possible.

Although many problems remain with respect to evaluating the status of stocks in the Mediterranean and Atlantic, improvements in the ICCAT data base, increased scientific study over the past four years, and recent developments in specific fisheries, demand careful consideration by SCRS in terms of recommendations. Particular concerns include:

- a) The absence of reliable Mediterranean Sea landing data before 1984, prevents an evaluation of landing trends.
- b) Biological sampling of the Spanish fishery in the western Mediterranean Sea indicate directed effort at small fish (<150 cm LJ-FL). Qualitative reports indicate that central and eastern Mediterranean fisheries are taking significant numbers of small fish. There are increased proportions of small fish in East Atlantic landings.
- c) Current total Atlantic harvest levels (even excluding the Mediterranean) are the highest on record (1950-1985).
- d) Increased fishing effort in directed fisheries in the eastern Atlantic, and increased effectiveness of deep longline gear at capturing swordfish in the tropical bigeye fishery off Angola.

- e) The continued expansion of directed fisheries in the eastern Atlantic both to the southwest and to the northwest.
- f) Analytical assessment results (SCRS/85/71 and SCRS/86/25) which documented stock biomass reductions in the western North Atlantic associated with removals that exceeded annual stock production from 1978 through 1981 (estimated production exceeded removals thereafter).

#### SWO-3. Effects of current regulations

There are no ICCAT regulations for swordfish. The SCRS was informed that Italian laws specify a minimum size of 1.4 meters. The effectiveness of that regulation could not be evaluated by the Committee.

#### SWO-4. Recommendations

##### SWO-4.a Statistics

Implementation of previous SCRS recommendations have greatly improved the quality of available quantitative data suitable for analytical assessments. For example, specific recent improvements include corrections suggested in the 1985 SCRS Report with respect to Canadian and U.S. historical landing records. Significant deficiencies still exist in Task I and II statistics for many areas, particularly for the Mediterranean. The SCRS recommends the following:

- i) Evaluate the appropriate size of swordfish statistical reporting areas required for testing multi-stock hypothesis. All countries should report swordfish catch and effort statistics by five-degree squares (or smaller area) by month.
- ii) All countries catching swordfish (directed or by-catch) should carry out adequate levels of size sampling and sample for sex when possible.
- iii) Because of the under-reporting problems in the Mediterranean, the Secretariat should contact the appropriate governments to acquire more accurate, current and historical data.

##### SWO-4.b Research

It is recommended that:

- i) Studies be initiated on age, growth, maturity, and stock structure determination. Tagging programs, in particular, are recommended.

- ii) Analysis of changes in the effectiveness of fishing effort (such as those presented in SCRS/86/25) should be continued in order to improve indices of abundance.
- iii) Studies be carried out using existing geographically specific size frequency samples to investigate stock structure and migration.
- iv) Theoretical studies be undertaken to investigate the effects of systematic differences in sex ratio at size on stock assessment methods used for swordfish.
- v) That a Workshop be held before the 1987 SCRS Meeting to assess the status of swordfish in the Atlantic. That Workshop required sufficient time (1-2 weeks) and adequate computer facilities such as are now available at the ICCAT Secretariat. Data required from each nation to ensure suitable analytical assessments should be specified. A draft report should be produced during the meeting so that it is available on the last day.

#### SWD-4.c Management

No management recommendations are presented. However, spawning stock biomass in the west Atlantic is estimated to have decreased 40 percent from 1978 to 1984 and the mean size of fish in the landings of several fisheries in the east and west Atlantic is decreasing. Therefore, these fisheries should be carefully monitored.

## SBF-S O U T H E R N B L U E F I N T U N A

### SBF-1. Description of fisheries

Southern bluefin tuna constitute a single stock in mainly the temperate waters of the southern hemisphere. The only known spawning ground is located in the middle latitudes of the east Indian Ocean. Juveniles are found in the coastal waters around southern Australia. As they grow, they migrate circumpolarly throughout the Pacific, Indian and Atlantic Oceans.

The stock has been exploited by Australians (with pole and line, purse seine and, to a small extent, troll) and Japanese (longline) since the early 1950's. The Japanese catch increased to the maximum of 77,500 MT in 1961. Since then it has been decreasing. The Australian surface fishery, catching mainly immature fish, has gradually grown to the extent allowing catches of 10-12,000 MT in the late 1970's and the maximum catch of 21,500 MT in 1982, but

recently its catches have decreased due to new restrictions. Recently, New Zealand fishermen have also indicated interest in exploiting large fish by handline and troll, but their catches are still very small (below 200 MT per year). The catches by Japanese, Australian and New Zealand fishermen in 1985 were about 20,800, 12,500 and 100 MT, respectively. In the Atlantic, southern bluefin are caught by the longline fishery in the area off the southern coast of Africa, and the annual catches varied between 500 and 6,200 MT during 1974-1985 (Table 13), reflecting the shifts in fishing effort among oceans.

### SBF-2. State of the stock

At the Fifth Meeting of Australian, Japanese and New Zealand Scientists held in Shimizu, Japan, in June, 1986, the status of the stock was re-evaluated on the basis of data on gross catches, catch length frequencies, fishing effort and tag releases and recaptures. The significant reduction in the parental biomass from the pre-exploitation level, identified during the past four Meetings, was re-confirmed. Computer simulations as well as the continued failure of the domestic New South Wales fishery and a recent decline in the longline catch rates of 80-140 cm fish suggested that the parental biomass is likely to decline further in coming years. It was pointed out that there was a possibility that recruitment (at age 1 year) had fallen recently and might continue to fall if, as expected, the parental biomass was further reduced. Therefore, a conservative approach to managing the global fishery was recommended: a substantial reduction in the present southern bluefin tuna catches in short term was suggested. Specific recommendations were made regarding the minimization of risk of future decline in recruitment.

### SBF-3. Effects of current regulations

The first management regulation for the fishery was introduced independently by Australia and Japan in the early 1970's. Australia limited the number of purse seiners to six and their operation to the waters off southeastern Australia. This was done for both biological and economic reasons. Since 1971, Japan has voluntarily restricted fishing in areas where juveniles are abundant. This measure was introduced to increase the age-at-first capture to obtain a higher yield per recruit. Subsequently, several other restraints on the fishery were imposed. Since October, 1983, Australia has implemented a new management program. The major elements of the 1984-85 program were a national quota of 14,500 MT and a seasonal area closure off western Australia. In 1985, Japan and New Zealand introduced national quotas of 23,150 and 1,000 MT for the 1986 fishing season, respectively. Recently, Australia and Japan decided to reduce their catches to 11,500 MT and 19,500 MT, respectively.

#### SBF-4. Recommendations

The Committee recommended no management measures for southern bluefin tuna in the Atlantic Ocean.

#### SMT-S M A L L T U N A S

##### SMT-1. Description of fisheries

Table 14 shows the best available current data on catches of small tunas in the Atlantic and Mediterranean. The data for 1985 are incomplete; they probably represent less than half of the catches. In addition, data on incidental catches by large purse seiners fishing off west Africa, probably on the order of 10,000 tons a year, principally frigate tunas and Atlantic little tuna, are not complete. (A substantial part of the catch by Spanish purse seiners is included in the Task I data bank under "others".)

The total reported catch of small tunas in the Atlantic and Mediterranean increased at an average annual rate of 2-3 percent during 1971-84. The figures for any one year are heavily influenced by Turkish catches of Atlantic bonito, often over 20 percent of the total small tuna catch. Turkish catches have varied by an order of magnitude, from 3,000 MT to approaching 30,000 tons in some years, but without any significant trend.

Some of the increase is due to improved statistical coverage. The number of countries reporting catches of small tunas increased from 28 in 1971 to 43 in 1984, at a rate roughly the same as the reported catches. As examples, Cape Verde and Senegal reported no catches of small tunas in 1971, but catches totaling 5,000-7,000 tons/year, principally Atlantic little tuna, in recent years.

Other important changes have been in Ghanaian and U.S.S.R. catches of Atlantic little tuna. Taken together, the reported catches of the two countries were: nil before 1974, less than 2,000 tons/year before 1977, over 10,000 tons in 1983. Another important change has been in reported U.S.S.R. catches of frigate tunas: nil before 1976, less than 1,000 tons/year before 1982, nearly 6,000 tons in 1984.

The increase in reported catches of Atlantic little tuna is perhaps the most striking feature of Table 14. The species accounted for only 3-5 percent of the small tuna catches in 1971-72. In 1983-84 it approached 20 percent. At least some but probably not all of the increase is due to improved statistics. As mentioned above, the substantial catches of Atlantic little tuna by purse seiners are not included in these figures.

Other notable increases in reported catches have been for West African Spanish mackerel and wahoo. The principal fishery for West African Spanish mackerel is in Ghana, where reported catches quadrupled during 1971-84. Reported wahoo catches by Cape Verde were nil before 1980, but lately have been over 1,000 tons/year. Most if not all of the latter increase is due to improved reporting.

In addition to the changes mentioned above, there are increases in catches of West African Spanish mackerel by artisanal fisheries in Senegal and Ghana in recent years although they are not clear from Table 14. Part of this increase is due to improved reporting. U.S.S.R. catches of this species by surface gear are also important for some years.

#### SMT-2. State of the stocks

It is not possible to arrive at any conclusions concerning the status of the stocks on the basis of the available information, although it appears probable that at least some of the stocks are underexploited.

#### SMT-3. Effects of current regulations

The U.S. Fishery Management Plan for Coastal Migratory Pelagic Resources (Mackerels) in the Gulf of Mexico and South Atlantic Region has been approved and implemented for the U.S.A. Fishery Conservation Zone. It provides for a total allowable annual catch quotas (TAC) for king mackerel and for Spanish spotted mackerel. The TACs are allocated by area and between commercial and recreational fisheries. The TACs and the allocations are adjusted annually. The results of these regulations have been to restrict overall fishing mortality.

#### SMT-4. Recommendations

##### SMT-4.a Statistics

Overall data on small tunas for the Atlantic and Mediterranean continue to be less than adequate, even though the species make up a substantial proportion of the total catch and are important sources of food, especially in developing countries. There are no fishing effort data and some of the data that are collected do not find their way into the ICCAT data bank.

The Committee recommends that:

- 1) Member countries make special efforts to report their catches of small tuna by artisanal, industrial and recreational

fisheries, as well as discards of small tunas by industrial fisheries. (If there is doubt about the exact species distribution in the catch, it should be reported under the presumed principal species with appropriate notes rather than reported as "others").

- ii) Member countries collect fishing effort and size data and submit them to the Secretariat for inclusion in the ICCAT data banks. Special efforts should be devoted to these activities in countries where the small tunas are particularly important.
- iii) The Secretariat take the necessary steps to secure appropriate data from non-member countries.
- iv) That the "species table" (Table 14) prepared by the Secretariat be expanded to specify Greek catches of Atlantic bonito, Ghanaian catches of West African Spanish mackerel, Cape Verde catches of wahoo, and also of plain bonito and west African Spanish mackerel by various countries, including Ghana, the U.S.S.R, and Senegal.

#### SMT-4.b Research

The Committee recommends that:

- i) Collection of information on spawning areas, times, etc., be continued, especially in areas where there are important fisheries for small tunas.
- ii) Studies aimed at distinguishing between stocks be continued. Tagging studies may be particularly appropriate.
- iii) Studies on biological parameters be carried out, especially in cases where there is almost no information, e.g., wahoo.
- iv) Studies of geographic distribution of species and ecological relations by means such as the examination of predator stomachs be continued.
- v) Studies of the amount of mixing of small tunas, which are frequently discarded, in the catches of purse seiners in tropical waters be continued, or initiated in cases where the phenomenon occurs.

#### SMT-4.c Management

The Committee has no recommendations at this time for management of small tunas.



## MLT-MULTI-SPECIES INTERACTIONS

Only one document, SCRS/86/81, specifically dealt with this problem and analyzed the longline catches which are observed at various depths. These direct observations are very valuable in analyzing the effects of the introduction of the deep longlines on the CPUE of various species. Such work is essential for analyzing and understanding the variations of the longline CPUE during the recent period. No document concerning the problem of the multi-species interaction of the surface fisheries has been presented to the SCRS. This problem is probably particularly important for all the fisheries operating in the tropical Atlantic. Actually, these fleets seem to have changed, at least to a certain degree, the target species by aiming preferentially for skipjack when the abundance of yellowfin was reduced. These fleets seem now to be looking mainly for yellowfin. The detailed study of these multi-species interactions and of the changes of the target species will have to be carried out as soon as possible with the aim of understanding the exact process of recovery of the yellowfin stock.

## Item 9. REPORT OF THE PROGRESS MADE BY THE YELLOWFIN YEAR PROGRAM

The progress made by the Yellowfin Year Program was reviewed by a small group and the results were reported to the Committee. The Committee noted that the reduced fishing effort on yellowfin, started in 1983 by the shift of a major part of the tropical fleet to the Indian Ocean, continued in 1986.

The comprehensive Yellowfin Year Program, proposed by the Committee at its 1985 meeting, suffered a serious budget curback at the Commission Meeting in 1985. The SCRS Chairman nominated Dr. A. Fonteneau as Coordinator, and Messrs. J. Ariz, F. X. Bard, and N. Bartoo as leaders of teams of the observer, tagging and data processing programs. (Dr. Bartoo resigned later and a replacement has not yet been nominated.)

These Team Leaders and some other scientists met in Madrid in January, 1986, revised the Program to fit the reduced budget as adopted by the Commission, and drew up a detailed Operational Plan (SCRS/86/13). Although the Program started immediately after the meeting according to this Plan and has been in operation for some time, the Plan was reviewed by the Committee. The Committee found the Plan to be very satisfactory.

The Committee also reviewed the progress made by the various nations as concerns this Plan:

-- Statistics and sampling

Substantial improvements in biological sampling systems were reported for Cape Verde, Cuba, Ghana and Venezuela.

-- On-Board Observers Program

One trip each was made on FIS, Spanish and Venezuelan seiners. Another trip is scheduled on a FIS vessel later this year; one on a Spanish seiner is just about to start and another on a Venezuelan seiner is scheduled for the very near future.

-- Tagging

The results of two tagging cruises of the French research vessel "Nizery", for which the fuel costs were financed by ICCAT, are reported in SCRS/86/28 which also includes information on early tag returns under the Yellowfin Year Program. A third "Nizery" tagging cruise is just about to start and three more are planned for early 1987. In the latter part of 1987, two tagging cruises by the "Nizery" are planned in the Caribbean Sea as part of the joint French-Venezuelan program.

As regards opportunistic tagging, two cruises were successfully carried out using Ghanaian baitboats with the collaboration of Ghanaian and Côte d'Ivoire scientists. Four more cruises are planned for late 1986 and early 1987. Opportunistic tagging has proven to be economical and effective, although there have been some technical difficulties on the over-crowded commercial vessels. Some recoveries have already been reported.

One opportunistic tagging cruise was also made in the Caribbean area using a Venezuelan baitboat and another is being planned and will take place shortly. In Senegal one cruise may take place in late 1986 and another next year. In the Azores, one trip was made but no small yellowfin were taken, unlike the situation in 1985. In the Canary Islands a Spanish cruise was carried out and some 100 yellowfin were tagged.

A tag seeding experiment was carried out on a French seiner but met with some problem due to the difficulty in keeping the experiment confidential from the crew. Another experiment will be made after corrective measures are taken.

The Committee noted that the actual start of field work was delayed partly due to the scientists having to readjust the Plan according to the new budget adopted by the Commission and partly due to an initial delay in the preparations. The Program is about four months behind schedule. However, the Committee noted that the Program, once started, has been running as planned. Therefore, the schedules outlined in the Plan should be shifted ahead by approxi-

mately four months. The data processing meeting originally scheduled for mid-1987 will be postponed until late 1987, i.e., about the time of 1987 SCRS meeting.

The initial delay has resulted in less expenditure in 1986 but will mean more expenses in 1987. The unused part of the Yellowfin Year Program budget will be sufficient to carry out and complete the Plan through 1987.

Preliminary analysis of the data from the Program suggest that the yellowfin stock in the eastern tropical Atlantic is recovering rapidly and that the data are quite useful for understanding the dynamics of the population. If, for any reason, the Program is curtailed or reduced, all the effort spent up to now will be wasted. The SCRS strongly recommended that the Program continue in 1987 as originally planned.

**Item 10. REPORT OF THE SUB-COMMITTEE ON STATISTICS AND REVIEW  
OF ATLANTIC TUNA STATISTICS AND DATA MANAGEMENT SYSTEM**

The Report of the Sub-Committee on Statistics was presented by its Convener, Dr. R. Conser (U.S.A.). He summarized the discussions carried on at the meeting and pointed out all the recommendations which the Sub-Committee forwarded to the SCRS.

The Committee was informed that there had been a major problem in 1986 in the timeliness of submission of data for the major fisheries. The Committee urged that all data be presented to the Secretariat on time so that scientists have available the most current information on the status of the stocks.

The delay of the data dissemination by the Secretariat was also one of the major points of discussion and the Committee reiterated the suggestion made by the Sub-Committee as to work priorities, i.e., the transfer of the data base from the old system (INFONET) to the new in-house computer system, house cleaning and data verification, meeting the scientists' requests for copies of data files, continuation of routine data updating, and improvement and expansion of the analytical capability at the Secretariat.

The Committee reviewed other various recommendations made by the Sub-Committee. The Report of the Sub-Committee on Statistics was adopted by the SCRS and is attached herewith as Appendix 8.

**Item 11. PROPOSED WORKSHOP ON THE METHODOLOGY OF STUDYING TUNAS  
WITH A LONG LIFE SPAN**

The Committee was informed that a workshop on the methodology for studying tunas with a long life span has been proposed by various scientists, including those working within ICCAT. The

objective of the proposed workshop is limited to the consideration of theoretical aspects of assessment methodology and excludes any actual assessment of a particular stock or species. The Committee considered that this approach would be more desirable.

The Committee noted that such a workshop would be useful for ICCAT scientific work, not only for studies on bluefin tuna, but also for billfish, swordfish and even for some of the long-lived tropical tunas, since the techniques to be discussed in such a workshop can also be applied to bigeye and yellowfin.

As regards the meeting time and place, three possibilities were considered: at the time and place of the ICCAT Meeting, in La Jolla at the time of the Lake Arrowhead Tuna Conference, or in Hobart, Australia, in early 1988. The need for computer facilities was also mentioned. Since the Committee was well aware of recent difficulties for many scientists in securing travel authorization, it was suggested that the group organizing the workshop conduct a survey of potential participants to identify the likely impact of the choice of site on their ability of an adequate number of participants to obtain authorization. The choice of the meeting time and place could then be made in the context ensuring adequate attendance.

The Committee recommended that ICCAT not host the workshop, or at least only if other organizations assume much of the responsibility for organizing the meeting. On the other hand, the Committee felt that ICCAT should be directly involved in the workshop since it has a very keen interest in such work. The Committee decided that ICCAT should collaborate with other interested institutes (e.g., IATTC, CSIRO, IEO, FSFRL, etc.) in organizing this workshop, might offer assistance in the form of printing the proceedings, and could offer a representative to any steering committee that might be established.

#### Item 12. REVIEW OF EDITORIAL AND PUBLICATION POLICY

The Committee reviewed COM-SCRS/86/14, which had been prepared by the Secretariat to follow up changes adopted in 1985 with respect to the policy on scientific publications.

The Committee noted that most of the National Reports presented this year did not have a special section on new regulations or economic factors which had some effect on stock assessments, but it was hoped that this information would be included in the Reports in the future.

The Committee reconfirmed its policy as regards Report A: clean copies will be distributed only among the SCRS attendants and those scientists who generally attend the SCRS although they were not present this year.

In 1985, it was suggested that the sections entitled, "Review of Current Research" be included in the annual report of the Commission. However, these sections were not prepared with this in mind in 1985, and hence, they were included in the "Collective Volume of Scientific Papers". There was considerable discussion on the future fate of this section. One point of view was that since almost all the scientific documents are available in the Collective Volume series, it may not be necessary to have a research summary section. Another viewpoint was that since there are some documents which are not included in the "Collective Volume", the research summary section should be maintained.

Finally, the Committee decided that the "Review of Current Research" sections will only be included in Report A. The inclusion of these sections in either the "Biennial Report" or the "Collective Volume of Scientific Papers" was not considered proper since it would imply significance and approval of the sections, which would be inappropriate unless the SCRS started providing commentary on the quality of papers. Such a review would have to be carefully phrased, which would be very difficult during the rush of the meeting. On the other hand, the Committee suggested that the Secretariat include in the Collective Volume a list of those papers which had been withdrawn from the series, to avoid any confusion by the users of this publication.

The table contained in document COM-SCRS/86/14 which shows the number of copies of ICCAT publications distributed (free of charge) was reviewed and it was agreed that the distribution policy revised at the 1985 SCRS Meeting was implemented satisfactorily.

As the Committee had recommended to the Secretariat, a Draft Guide for Authors of Collective Volume of Scientific Papers was presented in document SCRS/86/18. The Committee reviewed this document and found it satisfactory in principle. However, it was noted that the Draft Guide should be carefully considered by various experienced scientists. It was decided that the Draft be tentatively accepted while detailed comments are invited and these should be sent directly to the Secretariat before the Guide is finalized (i.e., before July, 1987).

The Skipjack Conference Proceedings were finally published in mid-1986. The Committee reviewed the publication and noted that considerable experience has been gained with respect to the balance between professional-quality reports and timeliness of the publication.

## Item 13. REVIEW OF SCRS RESEARCH PROGRAMS AND CONSIDERATION OF WORKING PROCEDURES

### A. Special Activities

The SCRS reviewed the recommendations contained elsewhere in this Report and, in particular, proposals for the following special work activities:

#### 1. Working Group on Juvenile Multi-species Statistics

The Committee reviewed the proposals of the ad hoc group established earlier by the SCRS Chairman to discuss the terms of reference to be given to the Working Group on Juvenile Multi-species Statistics. The rationale for the Working Group is discussed in the "Yellowfin" section of Agenda Item 8. After minor amendments, the Committee adopted the recommendations (Appendix 5).

The Committee discussed the venue for the meeting and decided that the Working Group would need about a week in May or June, 1987, at a site with suitable computer facilities. The exact dates and place will be agreed upon by the group members through correspondence.

#### 2. Planning Group for Program of Enhanced Research for Billfish

The SCRS was asked by the Commission (Panel 4) to develop a comprehensive program for billfish research, including the costs of essential activities and to present this to the Commission at its 1986 meeting. Dr. B. Brown (U.S.A.) convened a meeting during the session. Details are given presented to the Committee and reviewed.

The report was adopted with minor modifications. The proposed program of research activity was also accepted together with an estimated budget (Appendix 6). The timing and period of implementation were discussed. It was confirmed that the program and budget presented at this time would be for 1987, but that the program would be incremental in nature and could be readjusted based on experience. The program can be initiated early in 1987, as soon as the arrangements are made and it could be reviewed at the 1987 SCRS meeting in light of the experience obtained throughout the year.

#### 3. Swordfish Workshop

The rationale for the proposed Swordfish Workshop is described in the "Swordfish" section of Agenda Item 8. The terms of reference for this Workshop were presented to the Committee. It was agreed that the workshop would consider only swordfish in the Atlantic Ocean and not in the Mediterranean Sea because of lack of data for the latter area. The terms of reference (Appendix 7) were adopted.

## B. Meeting Organization

The SCRS Chairman proposed a new scheme for selecting the time and place of the SCRS meeting. Under the new scheme, the SCRS would meet in Madrid separately from the Commission Meeting with at least three weeks or a month between the two meetings. The SCRS meeting should be a nine- to ten-day formal session, during which scientists can carry out the stock assessment work previously assigned to the Rapporteurs Groups which have met during the three days prior to the formal session. The various items of the SCRS agenda would now be spread through the full session.

### 1. Advantages

Separate meetings would allow scientists to use the ICCAT computer and facilities, should the Commission itself meet outside Madrid;

It would allow the SCRS Report to be in the hands of the Commissioners at least three weeks before their meeting;

It would allow the Secretariat to handle the SCRS meeting, and thereafter to pack and ship material, should the Commission meeting be held elsewhere. The Secretariat staff could work in the headquarters during SCRS without moving their equipment, while SCRS meetings could be held in a nearby hotel;

It would allow special sessions (e.g., the Swordfish Workshop as proposed for 1987) to be held right before the SCRS meeting if necessary;

It would reduce the tendency for SCRS agenda items to be delayed pending receipt of reports from species groups (which would still be needed).

It would likely reduce costs as there would be reductions in equipment rental and accommodation requirements, both for the SCRS and the Commission meetings.

### 2. Disadvantages

Scientists who are required by their Commissioners to attend the Commission meeting would have to travel twice, but this might be balanced by scheduling species working groups, etc., to meet immediately before the SCRS;

It would cause some difficulties with data availability, particularly for tropical tunas and total nominal catches, but less than if the SCRS meeting were to be held in May or June;

Rescheduling may cause some logistic problems such as one of the meetings might coincide with other international meetings such as ICES, IOFC and ICSEAF.

There was general support for this proposal. The value of the scheme would be that it would allow the use of the Secretariat computer even when the Commission meeting is scheduled elsewhere, it would allow scientists to work without as many time constraints as now, and would provide Commissioners with the SCRS Report in advance of their meeting.

Concerning the difficulties with data availability, the ideal would be to keep the SCRS meeting dates as now scheduled and move the Commission meeting later. If this were difficult, the SCRS would try to get the data a little earlier, and would probably have to change the deadline for submission of data to accommodate the new situation.

The Committee recommended that this new scheme be pursued and tried at the 1987 SCRS meeting. Some technical and logistic problems may be solved during the year.

With respect to a special theme day during the 1987 SCRS session, one suggestion was that should a Swordfish Workshop be held, the special day could be dedicated to its results. Another suggestion was that the topic be a review of the effects of environmental variation on the abundance and availability of tuna. It was agreed that if the proposed changes in meeting arrangements are adopted, that there be no theme day in the first year until experience is gained with the new arrangements. Should the existing meeting organization be maintained, then a theme day could be reinstated and a topic selected by the Chairman.

#### Item 14. COOPERATION WITH OTHER ORGANIZATIONS

The Committee noted with satisfaction that ICCAT maintained close cooperation with various organizations regarding tuna statistics, as reviewed and presented in the Report of the Sub-Committee on Statistics (Appendix 8). The Committee recommended that such activities be continued. In this respect, the SCRS recognized that ICCAT statistical system is considered to be an excellent model for other regional agencies, and that our system is being followed by many agencies.

The representative from the Food and Agriculture Organization of the United Nations (FAO) informed the Committee that the collection of tuna statistics in the Indian Ocean has been revitalized. He expressed his gratitude to the Committee for the assistance rendered by the ICCAT Secretariat for this project, particularly in the development of a Field Manual for that region. He also comment-



ed that ICCAT scientific work stood out in all aspects and noted that the IOFC is following the ICCAT system. He stated the example that the style and policy of the ICCAT "Collective Volume of Scientific Papers" has been copied, and noted that the Indian Ocean version is available on request. The representative from FAO also asked that as many ICCAT scientists as possible participate in the ITP tuna meeting scheduled in December, 1986, in Colombo.

In addition to the above-mentioned cooperation with other organizations, the Assistant Executive Secretary reported on his participation in the General Fisheries Conference of the Mediterranean (GFCM), held in Monaco in October, 1986, and noted that the meeting was useful for the improvement of tuna statistics since contacts were made with delegates of Mediterranean countries whose statistics need many clarifications. He also reported that the GFCM is very interested in tuna assessment work and assured their collaboration with ICCAT.

The SCRS Chairman reported on various activities such as the Workshop held by University of Washington (U.S.A.) on the topic of future research on and the management of tuna. The Workshop was held at University of British Columbia (Canada) in July, 1986, and various researchers involved in ICCAT work, including the Assistant Executive Secretary and the SCRS Chairman, had attended the session and contributed to the discussions.

#### Item 15. RECOMMENDATIONS

The SCRS wishes to draw the Commission's attention to Agenda Item 9 and the conclusion that the Yellowfin Year Program should continue in 1987 as originally planned although with a slight delay. This would mean transferring to 1987 that portion of the budget that was approved at the 1985 Commission Meeting which will not be used in 1986. The SCRS notes that reductions in the total Yellowfin Year Program budget at this stage would mean that expenditures to date of money and manpower would be rendered largely valueless.

The SCRS, in responding to the assignment given to it by the Commission in 1985 regarding development of a program for comprehensive billfish research, presented the "Program of Enhanced Research for Billfish" and a budget for the first year's activity. Details are given in Agenda Item 13 and Appendix 6.

The SCRS recommended that a Swordfish Workshop be held during the intersessional period and the terms of reference for the Workshop are given in Appendix 7.

The Commission's particular attention was drawn to the discussion held under Agenda Item 13, in respect to the possibility of holding the SCRS meeting at a separate location, and a few weeks in advance of the Commission Meeting. When the Commission decides the place and time of its next meeting, these discussions and conclusions might be borne in mind.

The SCRS's recommendations concerning statistics, research and management of tuna species are found in Section 4 of each of the respective species sections under Agenda Item 8 of this Report and in the Report of the Sub-Committee on Statistics (Appendix 8).

#### Item 16. OTHER MATTERS

No other matters were discussed.

#### Item 17. ELECTION OF CHAIRMAN

Dr. G. Sakagawa was asked to supervise the election of Chairman. He explained the usual procedures for electing a new chairman; that is, nomination by secret ballot and one or more rounds of secret balloting as necessary.

Fourteen of the 22 members of the Commission were represented at the SCRS Plenary Sessions. Drs. Brown, Fonteneau and Sakagawa and Messrs. Beckett and González Garcés were nominated. Mr. Beckett stated that he was not a candidate and on the first vote Mr. González Garcés (Spain) was elected Chairman for the two-year period. The Committee and outgoing SCRS Chairman congratulated Mr. González Garcés on his election as the new SCRS Chairman. Mr. González Garcés thanked the Committee for the confidence in him expressed by the SCRS members. He promised to do his best in his new assignments.

#### Item 18. ADOPTION OF REPORT

The Report was adopted.

#### Item 19. ADJOURNMENT

The meeting was adjourned.



<b>West Atlantic . . . . .</b>	<b>15.0</b>	<b>14.4</b>	<b>16.6</b>	<b>13.9</b>	<b>13.3</b>	<b>15.0</b>	<b>13.3</b>	<b>13.2</b>	<b>16.6</b>	<b>29.6</b>	<b>45.9</b>	<b>41.2</b>	<b>38.3</b>
–Surface . . . . .	2.3	1.6	2.0	.7	1.4	4.7	3.6	5.6	4.8	15.0	29.4	27.0	31.0
Venezuela . . . . .	0.	.1	.1	0.	0.	0.	1.8	4.4	3.5	13.9	25.3	20.2	20.0
Others . . . . .	2.3	1.5	1.9	.7	1.4	4.7	1.8	1.2	1.3	1.1	4.1	6.8	11.0
–Longline . . . . .	12.4	12.5	14.2	12.7	11.3	9.6	9.0	6.5	11.4	9.9	6.7	7.9	6.7
China (Taiwan) . . . . .	1.2	1.3	1.1	1.1	.1	.2	.8	.5	.4	.4	.1	.5	.6
Cuba . . . . .	0.	.4	.6	1.2	.9	.7	.2	.7	2.0	1.5	.8	2.5	.3
Japan . . . . .	2.5	2.8	2.4	3.1	1.4	1.6	1.7	1.1	3.0	3.3	1.2	1.0	2.0
Korea-Panama . . . . .	6.5	6.5	8.9	5.9	7.1	5.0	4.4	2.7	3.6	2.9	2.0	1.2	1.7
Others . . . . .	2.2	1.5	1.2	1.4	1.8	2.1	1.9	1.5	2.4	1.8	2.6	2.7	2.1
–Unclassified gears . . . . .	.3	.3	.4	.5	.6	.7	.7	1.1	.4	4.7	9.8	6.3	.6

**Table 2. Estimated carrying capacity (1,000 MT) of yellowfin and skipjack surface fisheries in the eastern Atlantic Ocean (as of November 10, 1986)**

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985*
<b>-- BB</b>														
FISM .....	2.7	2.1	2.0	1.8	1.5	1.3	1.3	1.4	1.3	1.3	1.3	1.2	1.2	1.1
Tema-based .....	3.2	4.0	8.7	9.2	7.3	11.0	12.8	11.6	9.7	8.7	8.1	8.0	7.2	6.6
Spain (Canary Islands) .....	.6	1.0	1.9	1.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
Angola .....	.3					.5	.5	.5	.4	.5	.4	.4	.4	.4
Cape Verde .....									.2	.2	1.0	1.0	1.0	1.2
Portugal .....	.5	.5	.4	.6	.3	.3	.3	.6	.6	.5	.3	.3	.3	.4
<b>TOTAL BB .....</b>	<b>7.3</b>	<b>7.6</b>	<b>13.0</b>	<b>13.2</b>	<b>9.7</b>	<b>13.7</b>	<b>15.5</b>	<b>14.7</b>	<b>12.8</b>	<b>11.8</b>	<b>11.7</b>	<b>11.5</b>	<b>10.7</b>	<b>10.3</b>
<b>-- PS</b>														
FISM .....	9.2	12.4	14.5	17.2	17.5	14.6	17.6	16.5	17.2	16.8	16.3	16.8	4.8	3.0
Spain .....	5.2	7.1	8.4	12.6	16.8	20.7	24.4	25.9	29.5	30.6	31.7	38.0	33.5	30.3
U.S.A. ....	11.9	2.9	5.5	10.4	1.7	4.2	10.5	3.2	2.2	1.6	1.3	0.	0.	0.
Japan .....	1.9	1.9	.6	.2							.4	.4	.4	.8
U.S.S.R. ....	.1	.1	.1	.1	.1	.1	.2	1.0	3.0	3.9	4.9	4.9	4.9	5.4
Others** .....	.9	.2	.2	.4	.2	.2	.2	.7	2.9	4.9	10.8	10.2	6.4	2.0
<b>TOTAL PS .....</b>	<b>29.2</b>	<b>24.6</b>	<b>29.3</b>	<b>40.9</b>	<b>36.3</b>	<b>39.8</b>	<b>52.9</b>	<b>47.3</b>	<b>54.8</b>	<b>57.8</b>	<b>65.4</b>	<b>70.3</b>	<b>50.0</b>	<b>41.5</b>
<b>TOTAL BB &amp; PS .....</b>	<b>36.5</b>	<b>32.2</b>	<b>42.3</b>	<b>54.1</b>	<b>46.0</b>	<b>53.5</b>	<b>68.4</b>	<b>62.0</b>	<b>67.6</b>	<b>69.6</b>	<b>77.1</b>	<b>81.8</b>	<b>60.7</b>	<b>51.8</b>

\*Provisional.

\*\*Ghana (1982-85), Mexico (1983), Congo (1980-81), Gran Cayman (1982-83), Portugal (1979-81), Venezuela (1983).

Source: SCRS/83/27 (1984 and 1985).

Table 3. Nominal reported catches (in 1,000 MT) of Atlantic bigeye tuna (as of November 7, 1986)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<i>Total</i>	56.4	63.7	60.5	44.7	54.1	51.9	45.2	62.8	67.0	72.7	63.4	64.6	73.5
-Surface . . . . .	18.4	24.5	19.7	17.3	24.9	23.6	18.0	21.4	25.6	21.0	30.0	22.9	27.1
Baitboat . . . . .	13.5	17.9	14.5	10.0	12.7	14.8	9.6	12.1	9.6	6.8	11.1	11.0	16.1
FIS* . . . . .	1.2	1.0	1.3	1.4	2.6	3.6	2.0	2.4	2.2	1.8	2.1	2.1	4.0
Ghana* . . . . .	.0	.1	.1	.1	.2	.1	.2	.3	.5	.4	1.6	1.1	.6
Japan* . . . . .	1.7	1.9	.1	.9	1.0	.6	.2	.4	1.0	.6	0.	.0	0.
Kor Pan.* . . . . .	.2	.7	.4	.4	.8	.7	.8	1.3	.6	.4	0.	.0	0.
Portugal . . . . .	5.9	10.9	6.8	2.9	4.5	5.4	3.3	3.5	2.6	1.8	3.8	3.9	6.4
Spain . . . . .	4.4	3.2	5.7	4.2	3.6	3.9	3.0	4.0	2.4	1.5	2.5	2.8	5.0
Others . . . . .	.1	.1	.1	.1	.0	.5	.1	.2	.3	.3	1.1	1.1	.1
Purse seine . . . . .	4.9	6.6	5.2	6.9	11.5	8.6	7.9	8.7	15.2	13.9	18.7	11.7	10.8
FISMP* . . . . .	3.2	4.2	3.5	5.1	6.4	5.3	5.3	3.7	6.0	5.4	6.4	2.6	1.7
Japan . . . . .	.3	.2	.0	0.	0.	0.	0.	0.	0.	.0	.0	.0	0.
Spain . . . . .	1.3	1.3	1.6	1.7	4.8	3.0	2.4	4.4	7.6	7.5	9.8	7.7	7.6
U.S.A. . . . .	.1	.9	.1	.0	.3	.2	.2	.2	.1	.3	0.	.0	0.
Others . . . . .	0.	0.	0.	.1	0.	.1	.0	.4	1.5	.7	2.5	1.4	1.5
Otros artes . . . . .	0.	0.	0.	.4	.7	.2	.5	.6	.8	.3	.2	.2	.2
-Longline . . . . .	38.0	39.2	40.8	27.4	29.2	28.3	27.2	41.4	41.4	51.7	33.4	41.6	46.3
China-Taiwan . . . . .	3.8	3.1	4.0	3.3	3.0	2.6	2.2	2.3	1.7	1.9	1.4	.8	2.2
Cuba . . . . .	2.6	2.4	1.9	1.3	1.8	2.3	2.3	1.4	.7	.5	.4	.4	.2
Japan . . . . .	20.0	20.9	17.4	7.3	9.1	9.3	12.0	20.5	21.0	32.9	15.1	24.3	31.5
Kor Pan. . . . .	8.5	9.2	12.1	8.7	8.8	11.2	7.8	13.5	14.1	13.5	12.1	10.9	10.7
U.S.S.R. . . . .	3.0	3.4	3.7	4.9	4.1	2.1	2.0	2.6	1.7	.6	.4	1.2	.9
Others . . . . .	.1	.2	1.7	1.9	2.4	.8	.9	1.1	2.2	2.3	4.0	4.0	.8
-Uncl. gears . . . . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	.0	.0	.1	.1

\*Nominal catches adjusted by species sampling results.

Table 4. Nominal reported catches (in 1,000 MT) of Atlantic skipjack tuna (as of November 7, 1986)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>TOTAL</b> . . . . .	78.2	117.1	60.5	74.8	109.8	105.9	88.3	108.8	129.1	155.8	138.3	134.6	139.7
<b>Surface — East Atlantic</b> .	75.0	113.3	56.6	70.9	106.5	98.9	81.8	95.9	106.1	120.1	102.0	95.2	84.6
—Purse seine . . . . .	49.8	74.2	35.4	32.6	55.9	56.7	35.6	53.9	64.6	72.4	65.0	64.4	49.2
FISM . . . . .	7.9	22.6	10.5	14.9	28.4	22.5	15.6	22.0	25.3	27.6	27.5	9.8	8.2
Ghana . . . . .	.2	0.	.2	.1	0.	0.	0.	.3	2.7	3.9	2.8	5.1	2.4
Japan . . . . .	1.5	.9	.1	0.	0.	0.	0.	0.	0.	1.4	1.4	1.4	2.4
Portugal . . . . .	0.	0.	0.	0.	0.	.2	.1	.2	.1	.8	.1	.1	0.
Spain . . . . .	17.8	30.6	16.9	15.6	21.5	24.5	17.4	24.2	31.3	34.7	29.1	45.6	34.5
U.S.A. . . . .	21.2	20.0	7.4	1.8	5.9	6.8	2.1	2.6	2.8	.1	0.	0.	0.
Others . . . . .	1.2	.1	.3	.2	.1	2.7	.4	4.6	2.4	3.9	4.1	2.4	1.7
—Baitboat . . . . .	25.0	39.0	16.6	28.6	42.4	41.4	44.7	38.1	39.0	44.6	34.7	29.5	32.9
Angola . . . . .	1.3	3.4	.6	1.5	3.8	3.2	3.6	3.5	2.3	2.2	.3	.0	.1
Cape Verde . . . . .	1.4	1.3	1.2	.8	.7	1.3	1.0	2.1	1.6	1.6	1.2	1.0	2.0
FIS . . . . .	3.2	4.4	1.8	2.1	2.7	3.3	3.3	3.1	2.6	4.4	2.6	3.8	3.3
Ghana . . . . .	.1	.7	1.3	2.1	3.5	2.9	4.0	4.7	4.9	14.3	20.5	17.8	19.1
Japan . . . . .	13.0	18.7	3.7	15.0	16.8	14.6	14.7	12.3	12.9	8.5	4.6	.4	0.
Korea-Panama . . . . .	1.1	3.1	6.3	4.4	7.6	11.1	13.8	8.5	7.7	5.4	3.2	.8	.3
Portugal . . . . .	2.2	1.9	.6	2.1	4.4	4.4	3.0	1.7	2.7	4.8	1.0	3.8	2.4
Spain . . . . .	2.6	5.4	.8	.6	.7	.6	1.3	2.2	4.2	3.4	1.3	1.9	5.7
Others . . . . .	.1	.1	.3	.0	2.2	0.	0.	.0	.1	.0	.0	.0	.0
—Other gears . . . . .	.2	.1	4.6	9.7	8.2	.8	1.5	3.9	2.5	3.1	2.3	1.3	2.5
<b>Surface — West Atlantic</b> .	2.8	3.3	3.4	3.7	3.2	6.5	6.1	12.8	22.8	32.2	31.2	34.7	51.1
—Purse seine . . . . .	.4	.1	.4	.7	.6	3.4	1.5	3.1	4.7	9.7	11.1	17.9	21.8
Brazil . . . . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	.2	.3	.4	0.
Spain . . . . .	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.5
U.S.A. . . . .	0.	0.	.2	.5	.3	1.6	.7	1.0	2.6	.0	.6	.8	1.8
Venezuela . . . . .	0.	0.	0.	0.	0.	0.	0.	1.9	1.9	9.5	10.0	14.1	15.0
Others . . . . .	.4	.1	.2	.2	.3	1.8	.8	.2	.2	0.	.2	2.6	2.5

-Baitboat . . . . .	1.9	2.9	2.8	2.8	2.4	2.8	4.3	9.4	18.0	22.4	20.0	16.7	29.2
Brazil . . . . .	0.	0.	0.	0.	0.	0.	1.8	6.1	13.9	18.2	15.6	13.1	25.1
Cuba. . . . .	1.5	1.8	2.3	2.8	2.4	1.8	2.0	2.3	1.1	1.1	1.7	1.2	1.6
Venezuela . . . . .	0.	.0	.1	0.	0.	0.	0.	0.	3.0	3.1	2.7	2.4	2.5
Others. . . . .	.4	1.1	.4	0.	0.	1.0	.5	1.0	0.	0.	0.	0.	0.
-Other gears . . . . .	.5	.3	.2	.2	.2	.3	.3	.3	.1	.1	.1	.1	1.
Surface — Uncl. region . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LL & TRAWL — All Atl..	.1	.2	.2	.0	.1	.1	.0	.0	.1	.0	.6	.0	.0
Unclassified gears . . . . .	.4	.5	.5	.2	.1	.5	.4	.1	.2	3.5	5.1	4.7	4.0



**Table 5. Nominal reported catches (in 1,000 MT) of Atlantic albacore (as of November 11, 1986)**

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>TOTAL</b> .....	75.9	72.5	59.5	77.1	75.0	72.2	73.2	61.2	59.3	72.3	66.7	56.9	69.9
<b>North Atlantic</b> .....	47.1	52.3	41.4	57.2	52.9	48.4	50.2	38.2	34.1	42.1	51.0	39.4	40.7
–Surface .....	28.9	37.7	28.7	34.3	32.1	34.3	38.0	28.8	24.3	28.9	34.4	19.9	23.6
Baitboat .....	10.2	16.7	19.2	20.4	15.6	11.8	15.9	16.2	13.4	15.9	21.2	8.3	12.5
France .....	1.1	.6	.7	1.1	.6	.4	.2	.4	.4	.2	.2	0.	.1
Spain .....	8.2	14.9	17.6	18.7	14.9	11.3	15.6	15.7	12.6	15.3	19.0	7.4	11.8
Others .....	.9	1.2	.9	.6	.1	.1	.1	.1	.4	.4	2.0	.9	.6
Trolling .....	18.7	21.0	9.5	13.9	16.5	22.5	22.0	12.6	10.8	12.8	12.8	11.0	10.7
France .....	5.8	7.9	5.0	5.7	6.2	8.4	7.8	3.1	2.5	2.7	2.2	2.8	1.8
Spain .....	12.9	13.1	4.5	8.2	10.3	14.1	14.2	9.5	8.3	10.1	10.6	8.2	8.9
Others .....	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Other gears .....	0.	0.	0.	0.	0.	0.	.1	.0	.1	.2	.4	.6	.4
–Longline .....	18.2	14.6	12.7	22.9	20.8	14.1	12.2	9.4	9.8	13.2	16.6	19.5	17.1
China (Taiwan) .....	9.5	9.5	8.1	14.8	13.7	9.3	7.0	7.1	6.6	10.5	14.3	14.9	14.9
Japan .....	1.5	2.1	1.3	1.3	.8	.5	1.2	1.0	1.7	.8	1.2	.6	1.3
Korea-Panama .....	7.2	3.0	3.1	6.6	6.1	3.8	3.4	1.0	1.1	1.8	.8	3.5	.4
Others .....	0.	0.	.2	.2	.2	.5	.6	.3	.4	.1	.3	.5	.5
<b>South Atlantic</b> .....	28.3	19.7	17.6	19.2	21.3	23.1	22.5	22.5	23.7	29.0	14.4	13.1	25.0
–Surface .....	.1	.1	.2	.1	.4	.3	.7	1.9	3.3	3.7	2.5	3.2	4.4
France .....	0.	0.	0.	.1	.1	.1	.2	.4	1.0	1.0	.4	0.	.1
South Africa .....	.1	.1	.2	0.	.1	.1	.4	1.2	1.4	2.4	1.7	2.5	3.9
Others .....	0.	0.	0.	0.	.2	.1	.1	.3	.9	.3	.4	.7	.4

-Longline . . . . .	28.2	19.6	17.4	19.1	20.9	22.8	21.8	20.6	20.4	25.3	11.9	9.9	20.6
China (Taiwan) . . . . .	22.2	16.7	13.4	14.6	16.1	20.5	20.3	18.7	18.2	22.8	9.5	7.9	19.6
Japan . . . . .	.3	.1	.3	.1	.1	.1	.1	.3	.6	.6	.2	.2	.2
Korea-Panama . . . . .	5.6	2.6	3.5	4.1	4.1	1.7	1.0	.9	.8	.8	.6	.3	.5
Others . . . . .	.1	.2	.2	.3	.6	.5	.4	.7	.8	1.1	1.6	1.5	.3
<b>Mediterranean.</b> . . . . .	.5	.5	.5	.6	.6	.6	.5	.5	1.5	1.2	1.2	4.2	4.2
France - PS . . . . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	.1	.3
Italy - LL/GILL/UNCL . . . . .	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.1	3.3
Spain - BB/TROL . . . . .	0.	0.	0.	0.	0.	0.	0.	0.	.9	.5	.5	1.3	.5
Others - SURF/LL . . . . .	.5	.5	.5	.6	.6	.6	.5	.5	.6	.7	.7	.7	.1
<b>Uncl. regions</b> . . . . .	0.	0.	0.	.1	.2	.1	0.	0.	0.	0.	0.	0.	0.
-Surface . . . . .	.0	0.	.0	0.	.0	.1	.0	.0	.0	.0	0.	.0	0.
-Longline . . . . .	0.	0.	0.	.1	.2	.0	0.	0.	0.	0.	0.	0.	0.
<b>Uncl. gears</b> . . . . .	0.	.0	0.	0.	0.	.0	0.	.0	0.	.0	.1	.2	0.



<b>East Atlantic</b> . . . . .	4.5	6.0	9.9	5.2	7.0	5.9	4.8	4.1	3.5	6.6	8.1	7.4	4.9
Small fish. . . . .	2.7	2.2	4.3	1.3	2.3	2.3	1.6	1.7	1.2	1.5	3.0	3.2	2.5
–Baitboat . . . . .	2.2	1.6	1.7	1.0	1.6	2.3	1.4	1.5	1.1	.9	2.7	3.0	2.3
France. . . . .	.5	.5	.7	.3	.6	.7	.3	.3	.2	.2	.4	.6	.4
Spain . . . . .	1.7	1.1	1.0	.7	1.0	1.6	1.1	1.2	.9	.7	2.3	2.4	1.9
–Purse seine. . . . .	.5	.6	2.6	.3	.7	0.	.2	.2	.1	.6	.3	.2	.2
Morocco . . . . .	.5	.6	2.6	.3	.7	.0	.2	.2	.1	.6	.3	.2	.2
–Uncl. gears. . . . .	.0	.0	.0	.0	.0	.0	.0	0.	.0	0.	.0	0.	0.
Large fish. . . . .	1.8	3.8	5.6	3.9	4.7	3.6	3.2	2.4	2.3	5.1	5.1	4.2	2.3
–Purse seine. . . . .	.4	.9	1.0	.5	.8	.2	.1	.3	.2	.1	.0	.2	0.
Norway. . . . .	.4	.9	1.0	.5	.8	.2	.1	.3	.2	.1	.0	.2	0.
–Baitboat . . . . .	.9	.7	1.3	.8	1.3	1.6	.8	.4	.5	+	.4	+	.1
Portugal. . . . .	0.	.2	.3	+	+	.1	+	+	+	+	.1	+	+
Spain . . . . .	.9	.5	1.0	.8	1.3	1.5	.8	.4	.5	+	.3	+	.1
–Trap . . . . .	.5	0.	.4	.5	.5	.5	.6	.7	.9	2.3	.2	2.3	1.6
Morocco . . . . .	.0	.0	0.	0.	.2	0.	0.	.0	.1	.4	.1	0.	0.
Spain . . . . .	.5	.0	.4	.5	.3	.5	.6	.7	.8	1.9	1.9	2.3	1.6
–Longline . . . . .	0.	2.2	2.9	2.1	1.8	.8	.7	1.0	.6	2.7	2.6	1.5	.5
Spain . . . . .	0.	0.	.0	0.	0.	0.	.1	0.	.0	.1	.0	.0	.0
Japan . . . . .	.0	2.2	2.9	2.0	1.6	.6	.6	.9	.5	2.6	2.6	1.5	.4
Others. . . . .	.0	.0	.0	.1	.2	.2	.0	.1	.1	.0	.0	.0	.1
–Other gears . . . . .	.0	0.	0.	0.	.3	.5	1.0	.0	.1	.0	.1	.2	.1
<b>Mediterranean</b> . . . . .	6.0	12.0	11.1	17.3	11.8	8.9	7.3	9.0	9.9	15.1	12.9	17.4	18.5
Small fish. . . . .	3.2	5.1	4.0	10.0	5.6	5.4	3.2	4.1	5.9	8.8	7.3	9.7	11.9
–Purse seine. . . . .	3.1	5.0	3.9	9.9	5.4	5.2	3.1	4.1	5.7	8.6	6.8	7.3	10.2

Table 6. (Cont.)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
France . . . . .	1.4	1.8	1.6	3.8	3.2	1.6	1.5	1.7	2.3	4.8	3.6	3.6	6.0
Italy . . . . .	1.5	2.9	2.1	5.5	1.3	2.6	.8	1.8	3.0	3.3	2.0	2.9	3.1
Morocco . . . . .	0.	.0	.0	.0	.0	0.	.0	0.	.0	0.	0.	0.	0.
Spain . . . . .	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
Yugoslavia . . . . .	.2	.3	.2	.6	.9	1.0	.8	.6	.4	.5	1.2	.8	1.0
-Other gears . . . . .	.1	.1	.1	.1	.2	.2	.1	0.	.2	.2	.5	2.4	1.7
Italy . . . . .	.1	.1	.1	.1	.1	.1	.1	0.	.1	.1	0.	.4	.8
Spain . . . . .	0.	0.	.0	0.	.1	.1	.0	.0	.1	.1	.5	2.0	.9
Large fish. . . . .	2.8	6.9	7.1	7.3	6.2	3.5	4.1	4.9	4.0	6.3	5.6	7.7	6.6
-Purse seine . . . . .	1.2	3.1	4.2	4.1	4.2	2.1	2.9	3.4	1.7	2.2	2.6	2.5	1.5
Italy . . . . .	1.2	3.1	4.2	4.1	4.2	2.1	2.9	3.4	1.7	2.2	2.6	2.5	1.5
-Trap . . . . .	1.0	1.3	1.4	1.6	1.1	1.0	.7	.7	.6	.7	.7	1.3	1.0
Italy . . . . .	.4	.7	.7	.7	.7	.2	.2	.2	.2	.2	.3	.3	.3
Libya . . . . .	.4	.5	.6	.8	.3	.7	.4	.4	.3	.3	.3	.3	.3
Morocco . . . . .	.0	.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Spain . . . . .	.1	.0	.0	.0	.0	.0	0.	0.	.0	.1	.0	.6	.3
Tunisia . . . . .	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
-Longline . . . . .	.5	2.4	1.4	1.3	.6	.2	.2	.2	.3	1.5	.9	1.1	1.1
Spain . . . . .	.3	.2	.1	.3	.1	.1	.1	.1	.2	.5	.2	.1	.1
Japan . . . . .	.2	2.2	1.3	1.0	.5	.1	.1	.1	.1	.1	.7	1.0	.8
Others . . . . .	0.	0.	.0	0.	.0	0.	0.	0.	0.	0.	.0	0.	.2
-Other gears . . . . .	.1	.1	.1	.3	.3	.2	.3	.6	1.4	1.9	1.4	2.8	3.0
Italy . . . . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.0	1.4
Others . . . . .	.1	.1	.1	.3	.3	.2	.3	.6	1.4	1.9	1.4	1.8	1.6

+- Catch less than 50 MT.

Table 7. Numbers and percentages of bluefin tuna less than (LT) and greater than or equal to (GE) 6.4 kg (69 cm) in the west Atlantic (WEST) in 1970-1985 and the east Atlantic and Mediterranean Sea (EAME) in 1970-1984.

Area	Year	Nos. LT 69 cm		Nos. GE 69 cm		Total numbers	
		Numbers	Percent	Numbers	Percent	Numbers	Percent
WEST	1970	68411	20.859	259559	79.141	327970	100.000
WEST	1971	78004	24.801	236518	75.199	314522	100.000
WEST	1972	47374	24.627	144995	75.373	192369	100.000
WEST	1973	5947	4.612	123017	95.388	128964	100.000
WEST	1974	56825	45.669	67604	54.331	124429	100.000
WEST	1975	44282	19.631	181294	80.369	225576	100.000
WEST	1976	5431	4.528	114523	95.472	119954	100.000
WEST	1977	1489	1.668	87769	98.332	89258	100.000
WEST	1978	5385	7.606	65407	92.394	70792	100.000
WEST	1979	2712	3.980	65427	96.020	68139	100.000
WEST	1980	3125	4.569	65265	95.431	68390	100.000
WEST	1981	4788	7.042	63202	92.958	67990	100.000
WEST	1982	3586	22.395	12428	77.605	16014	100.000
WEST	1983	3991	17.807	18420	82.193	22411	100.000
WEST	1984	978	4.174	22452	95.826	23430	100.000
WEST	1985	358	1.175	30125	98.825	30483	100.000
EAME	1970	176941	49.031	183932	50.969	360873	100.000
EAME	1971	201511	49.044	209366	50.956	410877	100.000
EAME	1972	148127	34.141	285740	65.859	433867	100.000
EAME	1973	236692	53.747	203692	46.253	440384	100.000
EAME	1974	321273	49.717	324929	50.283	646202	100.000
EAME	1975	836278	64.840	453479	35.160	1289757	100.000
EAME	1976	186183	23.953	591118	76.047	777301	100.000
EAME	1977	475557	51.501	447839	48.495	923396	100.000
EAME	1978	323552	42.873	431130	57.127	754682	100.000
EAME	1979	127533	35.043	236404	64.957	363937	100.000
EAME	1980	165045	33.232	331593	66.768	496638	100.000
EAME	1981	171172	26.077	485232	73.923	656404	100.000
EAME	1982	461463	37.125	781530	62.875	1242993	100.000
EAME	1983	913264	64.931	493259	35.069	1406523	100.000
EAME	1984	219819	21.663	794923	78.337	1014742	100.000

**Table 8. Estimated weight and percentage of the estimated total weight of the west Atlantic bluefin tuna catch that was less than 120 cm in 1970-1985.**

<i>Year</i>	<i>Est. Wgt. less than 120 cm</i>	<i>Percent of Wgt. less than 120 cm</i>	<i>Total Est Wgt</i>	<i>Total No Fish</i>
1970	3415610	62.564	5459371	327970
1971	3315306	52.358	6332913	314522
1972	1853599	46.390	3995685	192369
1973	1345856	36.695	3667701	128964
1974	842747	15.522	5429307	124429
1975	1851757	35.077	5279100	225576
1976	1596424	26.341	6060578	119954
1977	773551	12.522	6177739	89258
1978	647071	11.355	5698682	70792
1979	526701	9.056	5815862	68139
1980	575723	8.798	6543682	68390
1981	587192	9.537	6157157	67990
1982	98221	6.274	1565470	16014
1983	113454	4.130	2747054	22411
1984	142982	6.018	2376035	23430
1985	234329	8.908	2630681	30483

Table 9. Annual nominal catches (in MT) of blue marlin (as of November 5, 1986)

	<i>Gear</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<i>Total Atlantic</i>		3030	2191	2086	1372	1274	1487	1725	2587	1600	2084	2097
<b>North Atlantic</b>		1924	1243	1171	848	775	936	1082	1474	959	1089	1126
Benin	GILL	0	0	0	0	0	0	5	7	0	8	0
Benin	HS	0	0	0	0	0	0	1	1	0	1	0
China (Taiwan)	LLFB	105	169	64	81	51	160	98	100	106	74	81
Cuba	LL	594	250	220	97	156	162	178	318	273	214	250
Grenada	UNCL	0	0	**	**	**	2	1	16	7	6	9
Japan	LLHB	551	260	118	54	68	193	332	637	192	351	450
Korea	LLFB	304	174	307	185	67	45	70	18	25	137	20
Panama	LLFB	44	47	87	42	6	0	0	0	0	0	0
Portugal	BB	0	0	0	0	0	0	0	1	2	1	0
Portugal	HAND	0	0	0	0	0	0	0	0	0	0	1
Spain	LLHB	0	0	0	0	0	0	0	0	0	3	0
U.S.A.	LL	0	0	0	0	0	0	0	0	0	0	20
U.S.A.	SPOR	241	265	295	295	295	295	295	295	187	187	187*
U.S.A.	HAND	0	0	0	0	0	0	0	0	0	0	++
U.S.A.	RR	0	0	0	0	0	0	0	0	0	0	1
U.S.S.R.	LLMB	3	0	1	1	0	0	0	0	0	0	0
Venezuela	LL	82	78	79	93	132	79	102	81	167	107	107*
<b>South Atlantic</b>		1106	948	915	524	499	551	430	832	496	945	921
Brazil	LLHB	12	22	0	12	12	12	0	1	1	11	9*
Brazil	SURF	0	11	52	2	13	7	20	20	3	1	0
Brazil	SPOR	0	0	0	0	0	0	0	0	0	1	1
Brazil-Japan	LLFB	0	0	136	29	4	8	5	15	15	20	25
Brazil-Korea	LLFB	0	12	35	0	0	0	0	0	0	0	0
China (Taiwan)	LLFB	422	240	107	177	139	129	104	150	39	50	94
Cuba	LL	195	159	100	113	180	187	108	118	123	159	201



Table 9. (Cont.)

	<i>Gear</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Côte d'Ivoire	SURF	0	0	0	0	0	0	0	0	0	**	**
Japan	LLHB	57	4	17	15	66	115	136	495	248	482	550
Korea	LLFB	354	392	356	140	78	92	56	33	67	221	34
Panama	LLFB	51	107	103	32	7	0	0	0	0	0	0
South Africa	LLHB	0	0	0	0	0	1	0	0	0	0	0
U.S.S.R.	LLMB	15	1	9	4	0	0	1	0	0	0	7
<b>Unclassified region</b>		0	0	0	0	0	0	213	281	145	50	50
China (Taiwan)	LLFB	0	0	0	0	0	0	0	0	0	0	0
Cuba	LL	0	0	0	0	0	0	0	0	0	0	0
France	PS	0	0	0	0	0	0	150	180	100	50	50*
Spain	PS	0	0	0	0	0	0	63	101	45	0	0

\*Estimates made by rapporteur based on 1983 catch estimate.

\*\*Likely catch of an unspecified amount.

++Catch less than 0.5 MT.



Table 10. (Cont.)

<i>Country</i>	<i>Gear</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
China (Taiwan)	LLFB	255	377	119	197	155	145	136	220	87	66	134
Cuba	LL	55	38	57	127	205	212	116	45	112	153	149*
Japan	LLHB	14	3	26	14	15	7	25	27	17	24	70
Korea	LLFB	109	220	111	5	24	25	37	60	13	39	1
Panama	LLFB	16	59	31	1	2	0	0	0	0	0	0
Uruguay	LLHB	0	0	0	0	0	0	1	5	0	54	0
U.S.S.R.	LLMB	6	0	3	2	0	0	1	0	0	0	0
Total South Atlantic		488	765	478	511	533	450	352	439	295	396	412

\*Estimates made by rapporteur based on 1983 catch estimate.

++ Catch less than 0.5 MT.

Table 11. Nominal annual catches (in MT) of sailfish/spearfish (as of November 5, 1986)

	<i>Gear</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<i>Total Atlantic</i>		1194	1506	1902	2668	3305	2481	2087	2010	3635	3426	3603
<b>East Atlantic</b>		165	193	816	1729	2351	1517	1052	876	2824	2393	2459
Benin	GILL	0	0	0	0	0	0	34	45	0	50	0
Benin	HS	0	0	0	0	0	0	2	3	0	3	0
Cape Verde	LL	0	0	0	0	0	0	0	3	0	0	0
Cuba	LL	0	0	0	0	0	0	0	158	200	115	112*
Ghana	SURF	0	0	0	0	0	1191	449	16	2161	2067	2067*
Ghana	BBF	22	11	0	0	0	0	0	0	0	0	0
Ghana	GILL	0	0	638	1574	2246	0	0	0	0	0	0
Côte d'Ivoire	SURF	0	0	0	0	0	0	0	0	0	**	**
Korea	BBF	0	14	0	0	0	0	0	0	0	0	0
Senegal	PS	0	0	0	0	0	0	0	32	0	0	0
Senegal	TROL	0	0	0	0	0	0	0	0	0	93	244
Senegal	SURF	75	91	72	71	28	264	442	540	412	20	1
Senegal	SPOR	61	76	93	79	77	62	88	69	49	41	35
Senegal	TRAW	0	0	0	0	0	0	0	0	2	0	0
Spain	LLHB	0	0	0	0	0	0	0	10	0	4	0
U.S.S.R.	LLMB	7	1	13	5	0	0	37	0	0	0	0
<b>West Atlantic</b>		426	529	677	708	661	639	577	773	627	808	799
Brazil	LLHB	88	114	96	98	42	81	46	61	42	86	34
Brazil	SURF	0	62	119	90	84	87	55	53	8	4	0
Brazil	SPOR	0	0	0	0	0	0	0	0	0	37	26
Brazil-Japan	LLFB	0	0	0	41	26	12	++	7	7	1	2
Brazil-Korea	LLFB	0	10	41	0	0	0	0	0	0	0	0
Cuba	LL	0	0	0	0	0	0	0	181	28	169	165*
Dominican Rep.	SURF	0	0	0	0	0	0	0	22	22	22	22*

Table 11. (Cont.)

	<i>Gear</i>	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Grenada	UNCL	0	0	31	56	59	45	47	34	46	56	128
Neth. Antilles	UNCL	28	28	28	51	51	51	51	51	51	51	40
U.S.A.	SPOR	254	261	308	308	308	308	308	308	308	308	308*
Venezuela	LL	56	54	54	64	91	55	70	56	115	74	74*
<b>Unclassified region</b>		603	784	409	231	293	325	458	361	184	225	345
China (Taiwan)	LLFB	66	270	64	52	37	49	86	140	108	51	140
Cuba	LL	262	185	156	120	191	198	213	0	0	0	0
Japan	LLHB	150	137	47	20	39	55	94	173	69	97	100
Korea	LLFB	109	151	111	32	24	23	65	48	7	77	105
Panama	LLFB	16	41	31	7	2	0	0	0	0	0	0

\*Estimates made by rapporteur based on 1983 catch estimate.

\*\*Likely catch of an unspecified amount.

++Catch less than 0.5 MT.

Table 12. Nominal reported catches (in 1,000 MT) of Atlantic swordfish (as of November 6, 1986)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<i>Total</i>	13.2	13.2	13.5	13.0	13.4	18.8	18.9	22.2	18.4	22.7	25.0	31.6	34.0
Atlantic . . . . .	8.7	8.6	9.6	8.7	8.5	13.4	13.8	16.7	12.7	17.4	19.2	20.2	21.1
Brazil . . . . .	.1	.3	.3	.4	.4	.3	.4	1.5	.6	1.0	.8	.5	.4
Canada . . . . .	0.	0.	.0	.0	.1	2.3	3.0	1.9	.6	.6	1.1	.5	.5*
China (Taiwan) . . . . .	1.1	.8	.9	.9	.7	.6	1.3	.6	.5	.6	.4	.3	.7
Cuba . . . . .	.5	1.1	.5	.6	.7	.6	.4	.6	.4	.7	1.2	1.4	1.5
Japan . . . . .	1.0	1.4	1.5	.8	.8	.9	1.0	2.1	2.2	3.7	1.9	3.8	4.7
Korea . . . . .	1.0	.7	.5	1.1	1.2	1.3	.6	.7	.4	.7	.5	.4	.3
Panama . . . . .	.4	.1	.1	.3	.1	.2	.1	0.	0.	0.	0.	0.	0.
Spain . . . . .	3.8	2.9	3.7	2.8	3.3	3.6	2.6	3.8	4.0	4.6	7.1	6.3	7.5
U.S.A. . . . .	.4	1.1	1.7	1.4	.9	3.3	3.9	4.8	3.7	4.4	4.4	4.0	4.0*
Uruguay . . . . .	0.	0.	0.	0.	0.	0.	0.	0.	.1	.7	1.5	2.5	1.0**
U.S.S.R. . . . .	.2	.1	.3	.2	.1	.2	.1	.2	.0	.1	.0	.2	.1
Others . . . . .	.2	.1	.1	.2	.2	.1	.4	.5	.2	.3	.3	.3	.4
Mediterranean . . . . .	4.5	4.6	3.9	4.3	4.9	5.4	5.1	5.5	5.7	5.3	5.8	11.4	12.9
Algeria . . . . .	.1	.2	.5	.4	.4	.3	.5	.7	.8	.9	.9	1.0	1.0
Italy . . . . .	2.8	3.3	3.0	3.3	3.3	4.0	3.5	3.7	3.4	2.6	2.7	8.3	9.6**
Malta . . . . .	.2	.2	.2	.2	.2	.1	.1	.2	.2	.2	.1	.1	.1
Morocco . . . . .	.2	.2	.1	.2	.1	.2	0.	0.	0.	0.	.0	.0	0.
Spain . . . . .	1.1	.7	.1	.1	.7	.7	.8	.8	1.1	.9	1.3	1.2	1.2***
Others . . . . .	.1	.0	.0	.1	.2	.1	.2	.1	.2	.7	.8	.8	1.0

\*Revision from SCRS/86/25.

\*\*Revision from SCRS/86/48.

\*\*\*Revision by swordfish rapporteurs.

Table 13. Atlantic and world southern bluefin catches by gear, area and country (in MT)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<i>Total Atlantic</i>	2664	637	745	3168	4680	6203	2823	2569	1138	514	1639	
<b>By gear</b>												
Longline .....	2662	637	745	3168	4680	6203	2810	2563	1138	514	1639	
Baitboat .....	1	0	0	0	0	0	13	6	0	0	0	0
Sport .....	1	0	0	0	0	0	0	0	0	0	0	0
<b>By country</b>												
China (Taiwan) .....	104	1	53	0	29	11	22	57	3	9	3	
Japan .....	2558	636	692	3168	4651	6192	2788	2506	1135	505	1636	1786*
South Africa .....	2	0	0	0	0	0	13	6	0	0	0	0
<b>World (all oceans)</b>												
Longline .....	33924	24118	33714	29595	22974	27715	33364	28056	20809	24735	23323	20769*
Surface .....	12672	8833	8383	12569	12190	10783	11325	17016	21709	17807	13497	12627*
Total .....	46596	32951	42097	42164	35164	38498	44689	45072	42518	42542	36820	33396*

\*Preliminary.

Source for "World" section: Report of the Fifth Meeting of Australian, Japanese and New Zealand Scientists on Southern Bluefin Tuna (SBT), Shimizu, Japan, June, 1986.

Table 14. Atlantic small tuna catch (1,000 MT) (as of October 15, 1986)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>TOTAL</b>													
Atlantic/Mediterranean . . . . .	66.7	90.7	74.2	68.6	89.5	83.3	83.6	113.1	108.3	125.3	124.0	95.4	43.6
Mediterranean . . . . .	11.1	13.4	10.3	12.7	14.5	15.4	19.8	25.4	33.6	37.0	40.7	20.3	1.5
Atlantic . . . . .	55.6	77.3	63.8	55.9	75.1	67.9	63.8	87.7	74.7	88.3	83.3	75.1	42.2
<b>Atlantic bonito (<i>Sarda sarda</i>)</b>													
Atlantic/Mediterranean . . . . .	12.3	21.4	15.6	16.0	20.7	17.3	20.0	31.5	39.1	44.2	42.6	20.9	5.4
Mediterranean . . . . .	6.3	7.7	6.0	6.5	8.7	9.4	13.5	18.9	29.0	31.2	35.6	14.7	.6
Italy . . . . .	.7	.8	1.0	1.0	1.5	1.4	1.4	1.2	1.1	1.1	1.8	2.8	0.
Spain . . . . .	.3	.3	.3	.4	.6	.7	.7	.5	.7	1.0	1.2	1.0	.6
Turkey . . . . .	3.9	5.3	3.4	3.2	4.5	5.5	9.1	14.9	24.3	26.0	29.5	7.8	0.
Others . . . . .	1.4	1.3	1.4	2.0	2.1	1.8	2.3	2.3	2.9	3.1	3.1	3.1	0.
Atlantic . . . . .	6.1	13.7	9.6	9.5	12.0	7.9	6.5	12.6	10.0	13.0	7.0	6.2	4.8
Argentina . . . . .	1.2	2.3	.2	.3	2.0	1.7	1.3	2.6	.8	1.8	.3	2.1	1.4
U.S.S.R. . . . .	0.	1.4	1.5	1.3	4.2	1.6	2.1	6.4	4.6	6.3	2.4	1.3	2.1
Others . . . . .	4.9	10.0	7.8	7.9	5.8	4.5	3.1	3.5	4.6	4.9	4.3	2.9	1.3
<b>Atlantic little tuna (<i>Euthynnus alletteratus</i>)</b>													
Atlantic/Mediterranean . . . . .	2.4	5.1	4.2	3.9	6.2	16.6	13.1	17.7	13.4	12.8	23.0	16.2	3.3
Mediterranean . . . . .	.8	.9	1.0	1.5	1.5	1.5	1.3	1.0	.2	1.0	.1	.2	0.
Atlantic . . . . .	1.5	4.2	3.1	2.4	4.7	15.1	11.8	16.7	13.2	11.9	22.8	15.9	3.3
Angola . . . . .	1.0	1.3	.4	0.	1.3	.8	.6	1.3	1.2	1.7	1.6	1.6	1.4
Ghana . . . . .	0.	.1	.1	.1	.1	6.0	5.5	4.1	3.3	2.1	5.0	6.0	.3
Senegal . . . . .	0.	.4	1.1	.7	1.5	1.4	1.7	2.7	2.3	3.4	5.9	5.2	0.
U.S.S.R. . . . .	0.	0.	0.	.5	.7	6.1	2.2	6.3	3.6	1.1	6.5	.6	1.0
Others . . . . .	.5	2.4	1.5	1.1	1.1	.7	1.7	2.2	2.9	3.5	3.8	2.5	.6



Table 14. (Cont.)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>Frigate tuna (<i>Auxis thazard</i>) *</b>													
Atlantic/Mediterranean . . . . .	10.2	13.9	10.4	10.6	20.3	8.1	12.8	14.7	9.4	18.7	15.6	17.5	8.8
Mediterranean . . . . .	3.5	4.3	2.5	4.1	3.7	3.9	4.7	3.5	2.9	3.3	3.7	4.0	.8
Italy . . . . .	1.2	1.3	.9	.9	1.1	1.2	1.3	1.4	1.2	1.3	1.5	1.6	0.
Spain . . . . .	1.7	2.3	1.4	1.6	1.2	1.7	1.8	2.1	1.7	1.9	2.1	2.3	.8
Others . . . . .	.6	.7	.2	1.6	1.4	1.0	1.6	0.	0.	0.	.1	.1	0.
Atlantic . . . . .	6.6	9.6	7.9	6.5	16.6	4.2	8.1	11.2	6.5	15.5	11.9	13.6	8.0
Ghana . . . . .	1.6	6.3	6.0	4.3	13.9	1.0	4.3	7.6	2.0	6.1	5.6	4.5	0.
U.S.S.R. . . . .	0.	0.	0.	.2	.2	.8	.5	.7	.4	5.6	1.7	5.9	6.1
Venezuela . . . . .	.7	.9	1.0	1.3	.9	.6	1.8	1.2	.9	.5	1.2	1.5	0.
Others . . . . .	4.4	2.4	.9	.7	1.5	1.8	1.5	1.7	3.1	3.3	3.5	1.6	1.9
<b>Spotted Spanish mackerel (<i>Scomberomorus maculatus</i>) **</b>													
Atlantic . . . . .	20.0	21.0	18.1	14.6	15.4	15.0	14.6	18.1	15.0	16.4	14.2	13.1	4.7
Brazil . . . . .	4.4	6.3	2.7	.3	1.0	1.5	1.2	1.4	1.5	1.1	1.2	1.8	1.5
Mexico . . . . .	6.7	5.3	4.8	3.4	4.4	5.1	5.8	5.9	5.9	7.8	5.9	5.8	0.
U.S.A. . . . .	4.4	5.0	5.3	6.4	5.5	3.3	2.9	5.4	2.7	3.7	2.8	1.9	2.8
Venezuela . . . . .	2.5	2.5	2.4	2.0	2.2	2.0	2.5	2.8	2.4	1.7	2.1	1.9	0.
Others . . . . .	2.0	2.0	3.0	2.5	2.4	3.1	2.2	2.6	2.5	2.1	2.2	1.9	.4
<b>King mackerel (<i>Scomberomorus cavalla</i>)</b>													
Atlantic . . . . .	9.7	13.6	9.0	8.3	8.7	6.8	7.4	7.4	8.5	10.7	8.5	6.4	3.2
Mexico . . . . .	2.2	1.5	1.4	1.5	1.3	1.5	2.2	1.9	2.7	4.4	2.9	2.2	0.
U.S.A. . . . .	2.7	4.7	3.1	4.1	3.8	2.5	2.2	3.2	3.4	3.7	3.0	2.4	2.4
Venezuela . . . . .	1.5	2.2	2.4	1.7	1.6	1.3	2.0	1.4	1.6	1.9	1.9	.9	0.
Others . . . . .	3.3	5.2	2.2	1.0	1.9	1.4	.9	.9	.9	.7	.7	.9	.8
<b>West African Spanish mackerel (<i>Scomberomorus tritor</i>)</b>													
Atlantic/Mediterranean . . . . .	1.6	4.7	1.1	1.9	2.6	6.7	4.2	4.9	2.6	5.0	5.2	4.3	.2
Mediterranean . . . . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic . . . . .	1.6	4.7	1.1	1.9	2.6	6.7	4.2	4.9	2.6	5.0	5.2	4.3	.2

Blackfin tuna ( <i>Thunnus atlanticus</i> )													
Atlantic .....	.9	1.1	.8	1.0	1.2	1.3	1.2	1.1	1.9	1.9	1.7	1.9	.8
Wahoo ( <i>Acantocybium solandri</i> )													
Atlantic/Mediterranean .....	.2	.3	.2	.3	.3	.5	.6	.5	2.8	2.1	2.2	2.0	.5
Mediterranean .....	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic .....	.2	.3	.2	.3	.3	.5	.6	.5	2.8	2.1	2.2	2.0	.5
Cero ( <i>Scomberomorus regalis</i> )													
Atlantic .....	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	0.
Scomberomorus unclassified ( <i>Scomberomorus</i> spp.)													
Atlantic/Mediterranean .....	1.2	1.0	1.3	1.0	1.0	1.0	.9	.8	1.0	1.1	1.0	1.5	.6
Mediterranean .....	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic .....	1.2	1.0	1.3	1.0	1.0	1.0	.9	.8	1.0	1.1	1.0	1.5	.6
Others***													
Atlantic/Mediterranean .....	8.1	8.4	13.3	11.0	13.0	9.9	8.9	16.2	14.4	12.3	10.0	11.5	16.1
Mediterranean .....	.5	.4	.8	.5	.6	.6	.3	2.0	1.5	1.6	1.3	1.4	0.
Atlantic .....	7.6	8.0	12.5	10.5	12.4	9.3	8.6	14.3	12.9	10.7	8.7	10.1	16.1
Spain .....	0.	0.	1.3	0.	0.	.6	.8	5.8	4.7	2.5	2.5	5.5	5.5
Others .....	7.6	8.0	11.1	10.5	12.4	8.7	7.8	8.5	8.2	8.2	6.2	4.6	10.6

\*Includes bullet tuna (*A. rochei*).

\*\*Includes Serra Spanish mackerel (*S. brasiliensis*).

\*\*\*Includes plain bonito (*O. unicolor*).

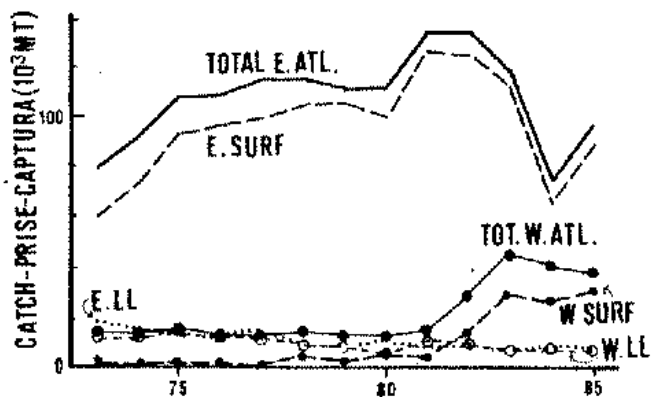


Fig. 1 Yellowfin catches, 1973-85, by surface and longline fisheries for east and west Atlantic.

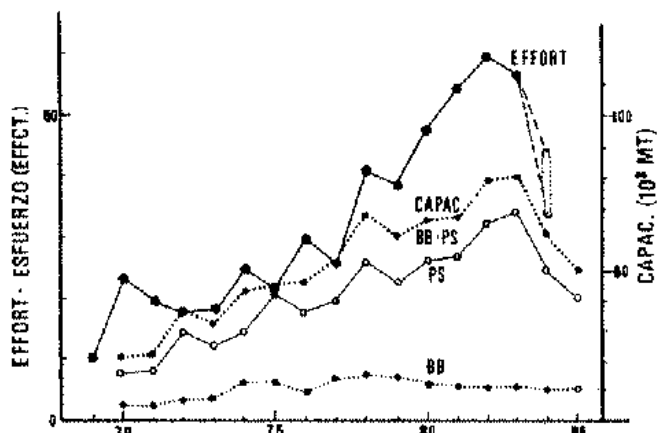


Fig. 2 Comparison of carrying capacity (in 1,000 MT) of surface fisheries and effective fishing effort (1,000 days at sea) for east Atlantic yellowfin.

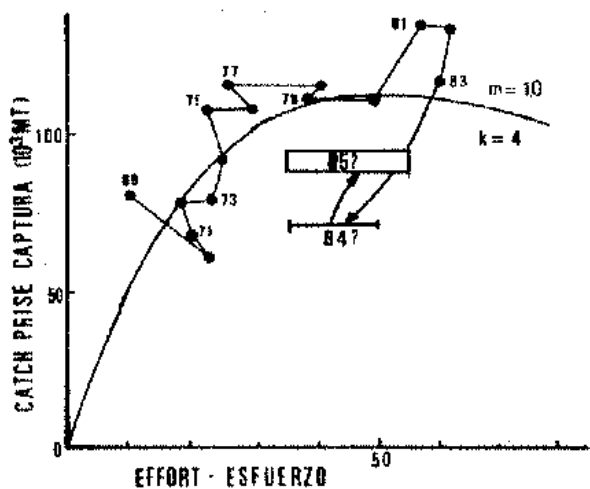


Fig. 3 Production model: the relationship between yellowfin catch and effective fishing effort observed, 1969-1985.

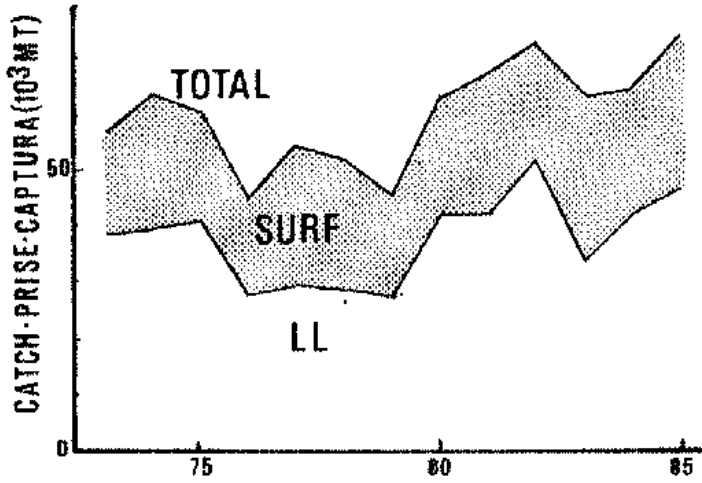


Fig. 4 Catch trends of Atlantic bigeye tuna by surface and longline fisheries, 1973-85.

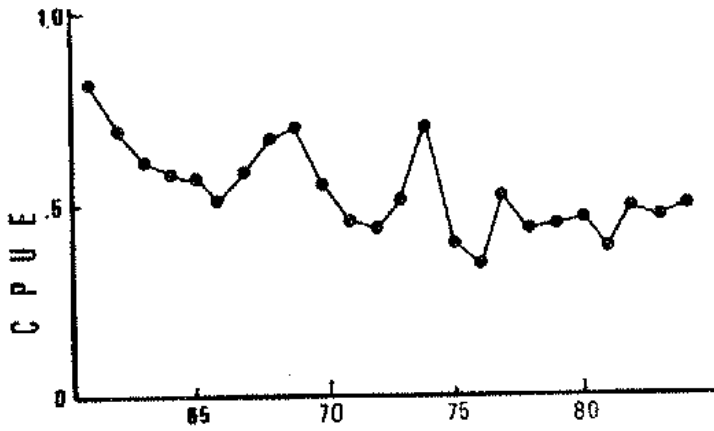


Fig. 5 Trend of annual bigeye CPUE of Japanese longline fishery in the whole Atlantic, 1961-84.

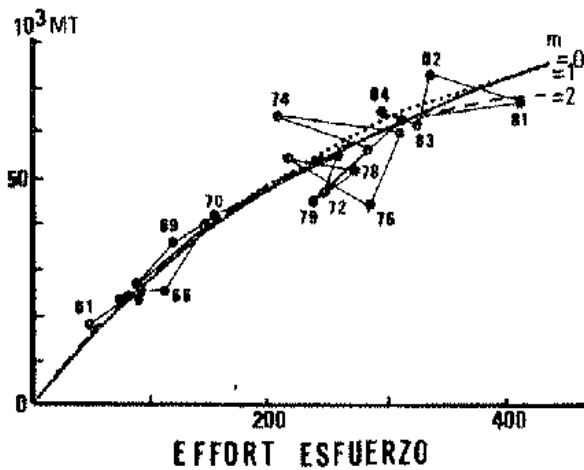


Fig. 6 Yield curves of the production model for bigeye tuna in the whole Atlantic, 1961-84.

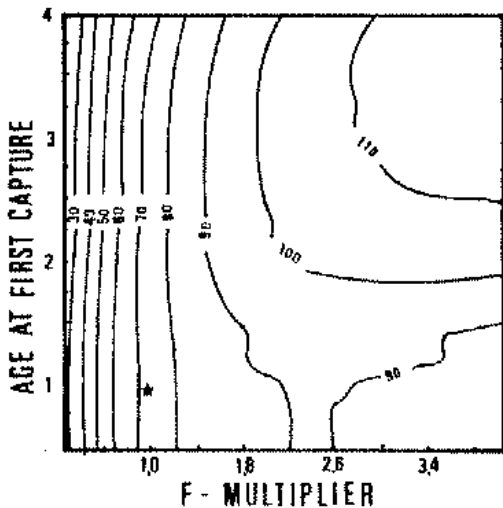


Fig. 7 Isopleths of yield/recruit analysis on Atlantic bigeye tuna in 1984. (\* = present position, Y-axis is age at first capture and X-axis is the F multiplier).

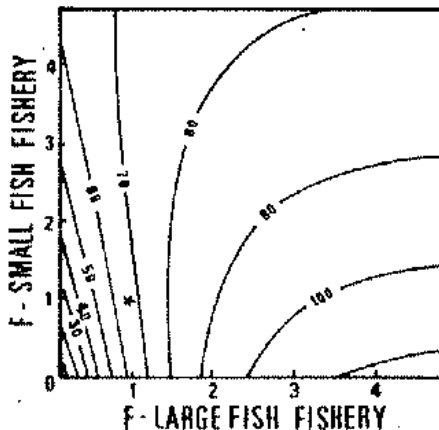


Fig. 8 Isopleths of multi-gear yield per recruit analysis on bigeye tuna in 1984. (\* = present position, Y-axis is F multiplier for small-fish fishery and X-axis is that for large-fish fishery).

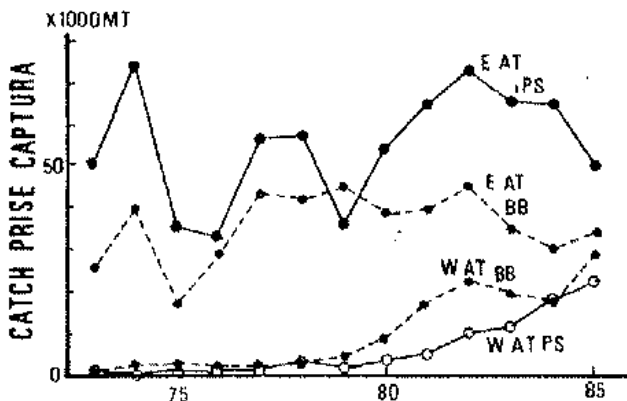


Fig. 9 Skipjack catches by baitboats and purse seiners, 1973-85, in the east and west Atlantic.

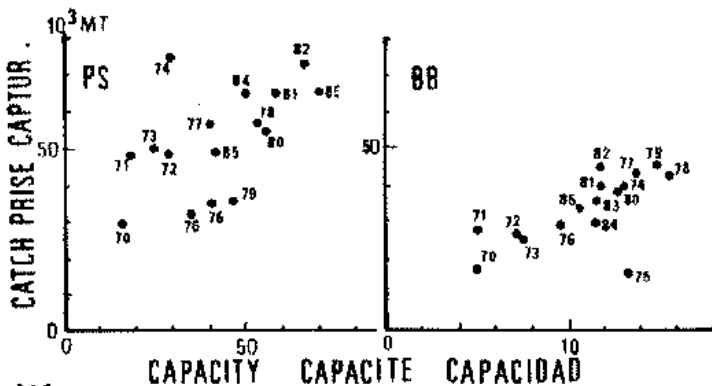


Fig. 10 Relationship between the catch of skipjack and the carrying capacity of the baitboat and purse seine fleets, in the east Atlantic.

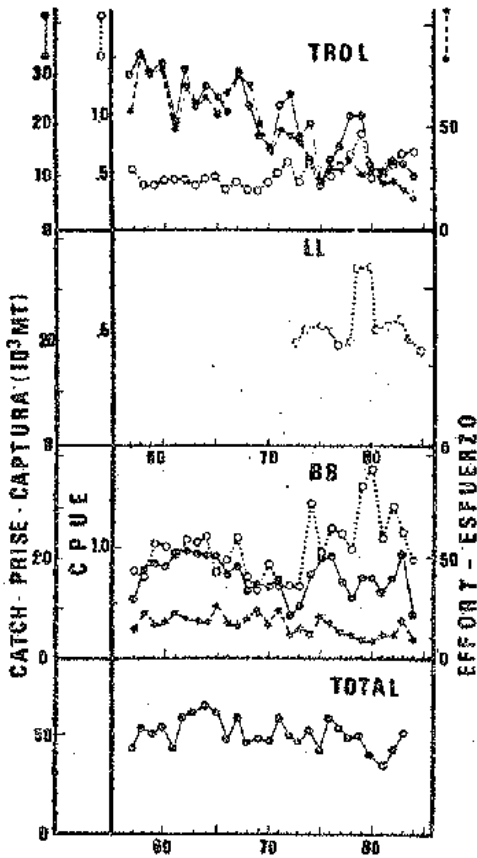


Fig. 11 Catch (in 1,000 MT), effort (in fishing days or  $10^7$  hooks), and CPUE of north Atlantic albacore fisheries, by gear.

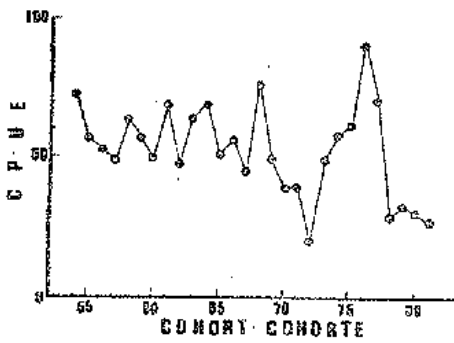


Fig. 12 CPUE (No. of fish per nominal fishing day) of age 3 albacore in the northeast Atlantic fisheries (BB and TROL). The 1980 cohort is based only on the Spanish surface fishery.

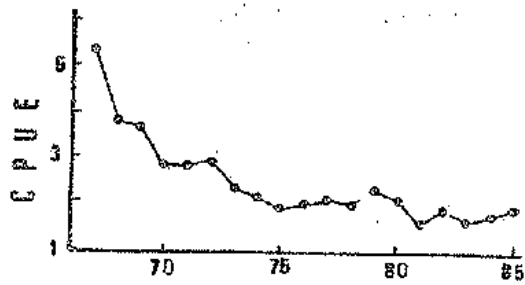


Fig. 13 CPUE of south Atlantic albacore fisheries.

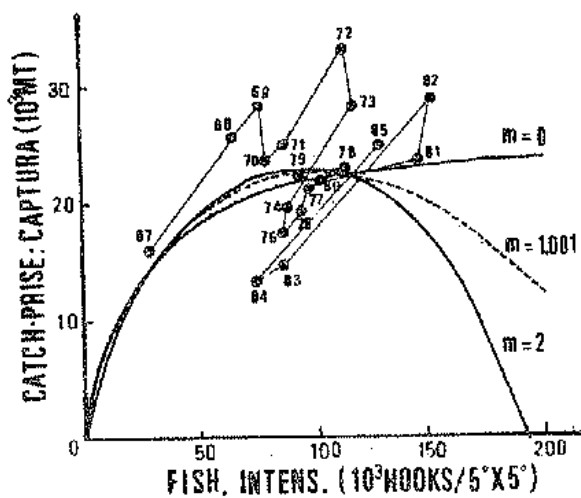


Fig. 14 Yield curves and observed data for south Atlantic albacore fishery, assuming three significant year-classes in the catch, 1967-85.

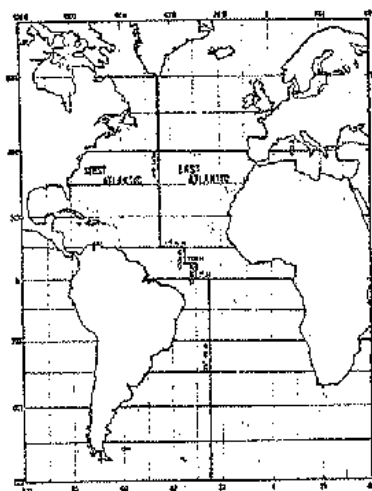
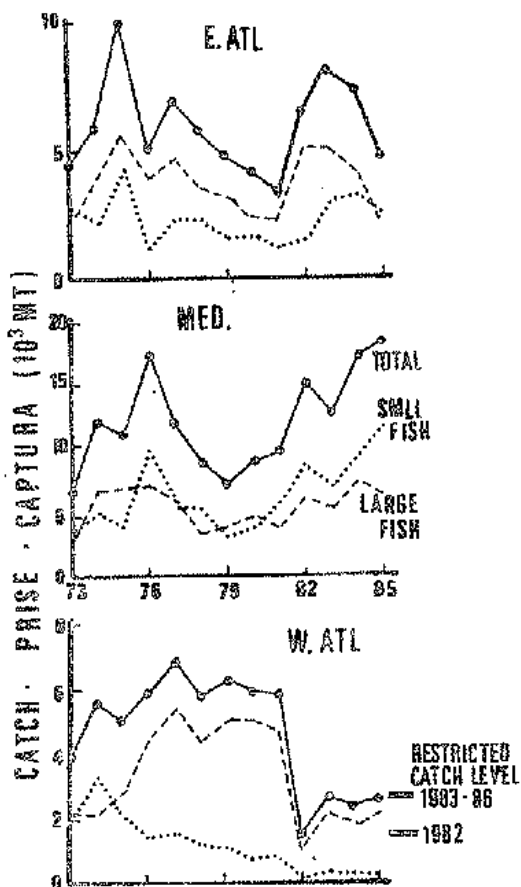


Fig. 15 Map of the Atlantic Ocean showing the line used to divide east and west bluefin tuna stocks.

Fig. 16 Bluefin tuna catch by small and large fish and oceanic area, 1973-85.

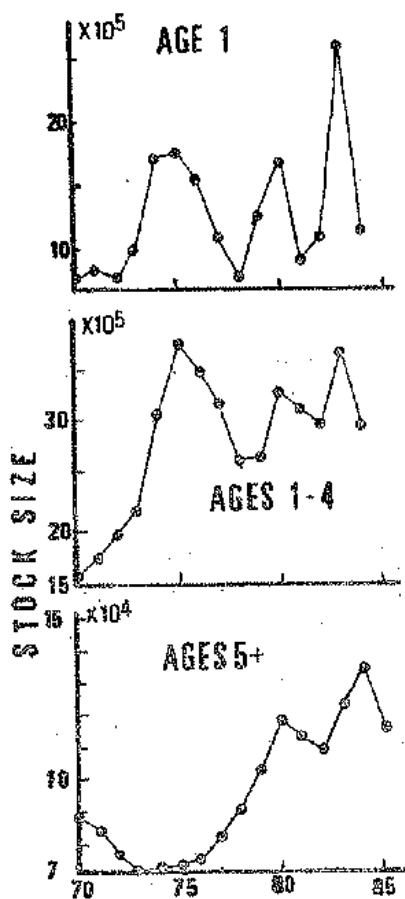


Fig. 17 Estimated stock sizes in the east Atlantic of bluefin tuna aged 1, 1-4, and 5-plus, from VPA using the partial recruitment pattern II used by the 1985 Bluefin Working Group.

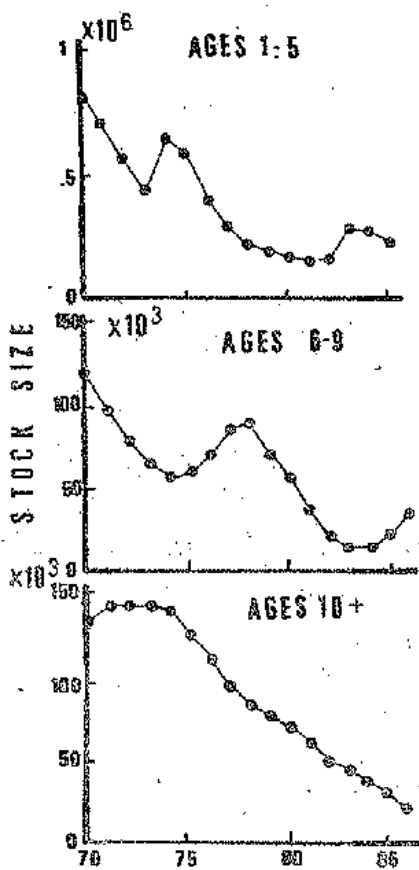


Fig. 18 Estimated stock sizes in the west Atlantic of bluefin tuna aged 1-4, 6-9, and 10-plus from VPA analyses.



### SCRS Agenda

1. Opening of the meeting
2. Adoption of Agenda and arrangements for the meeting
3. Introduction of delegations
4. Admission of observers
5. Admission of scientific papers
6. Review of national fisheries and research programs
7. Report of the "Bigeye Day"
8. Review of conditions of stocks, with brief presentation of major papers on these subjects:

Tropical tunas: YFT-Yellowfin, BET-Bigeye, SKJ-Skipjack  
ALB-Albacore  
BFT-Bluefin  
BILL-Billfishes  
SWO-Swordfish  
SBF-Southern Bluefin  
SMT-Small Tunas  
MLT-Multi-species: Tropical and Temperate

9. Review of the progress made by the Yellowfin Year Program
10. Report of the Sub-Committee on Statistics and review of Atlantic tuna statistics and data management system:
  - a) National statistics and Secretariat reporting
  - b) Unconventional fleet statistics
  - c) Biostatistical studies
  - d) Coordinating Working Party for Tuna Statistics
  - e) Report of the newly acquired computer and review of Secretariat computer usage
  - f) Exchange of computer programs
  - g) ICCAT/FAO data comparison
  - h) Others
11. Proposed workshop on the methodology of studying tunas with a long life span
12. Review of editorial and publication policy

13. Review of SCRS research programs and consideration of working procedures
14. Cooperation with other organizations
15. Recommendations
16. Other matters
17. Election of Chairman
18. Adoption of Report
19. Adjournment

**List of SCRS Documents**

- SCRS/86/ 1 1986 Tentative SCRS Agenda
- SCRS/86/ 2 1986 SCRS Annotated Tentative Agenda
- SCRS/86/ 3 1986 Tentative SCRS Schedule
- SCRS/86/ 4 1986 Tentative Agenda of the Sub-Committee on Statistics
- SCRS/86/ 5 Organization of the 1986 SCRS Meeting
- SCRS/86/ 6 1986 Document Policy
- SCRS/86/ 7 Tentative Agenda (and Working Plan) for Bigeye Day Session
- SCRS/86/ 8 Report of the Ad Hoc Consultation on Global Tuna Statistics
- SCRS/86/ 9 Number not used
- SCRS/86/10 Updating of Bluefin Tuna Catch-by-size Data Base - P. M. Miyake
- SCRS/86/11 Bigeye Data Catalog
- SCRS/86/12 Secretariat Report on Research and Statistics
- SCRS/86/13 Operational Plan for the Yellowfin Year Program
- SCRS/86/14 ICCAT Publications
- SCRS/86/15 Data Record Format
- SCRS/86/16 Secretariat Coordination of Yellowfin Year Program
- SCRS/86/17 Historical review of Atlantic tuna catches and some thoughts on tuna management - P. M. Miyake

- SCRS/86/18 Draft Instructions for Authors of SCRS Papers
- SCRS/86/19 The current status of the ICCAT Task I and Task II data banks, with notes on missing and delayed data - J. P. Wise, P. Kebe and D. DaRodda
- SCRS/86/20 A proposed quality control system for ICCAT Task I, Task II catch/effort, and Task II size data - J. P. Wise and P. Kebe
- SCRS/86/21 Special ICCAT project to assist Venezuela in developing biological sampling system for commercial tuna fishery - P. M. Miyake, E. P. Holzapfel
- SCRS/86/22 The baitboat fishery for skipjack tuna in the Gulf of Guinea. Review and update, with comments on catch and effort data - J. P. Wise
- SCRS/86/23 A first draft of a bibliography of papers on biology and fisheries of Atlantic tunas not published by ICCAT - J. P. Wise
- SCRS/86/24 Patterns in the longline fishery data and bigeye tuna catches - G. T. Sakagawa, A. L. Coan, N. W. Bartoo
- SCRS/86/25 Report of the Swordfish Assessment Workshop - Southeast Fisheries Center, Miami
- SCRS/86/26 La pêche des thonidés en Tunisie de 1979 à 1985 - H. Farrugio
- SCRS/86/27 Pesca de atunes (Thunnus thynnus (L.)) en el Golfo de Vizcaya - J. L. Cort, V. Ortiz de Zarate
- SCRS/86/28 Etat d'avancement des marquages de l'Année albacore - F. X. Bard, M. Mensah, P. Vendeville
- SCRS/86/29 The bluefin tuna (Thunnus thynnus L.) fishery in Norwegian coastal waters in 1985 - S. Myklevoll
- SCRS/86/30 Catches of bluefin tuna (Thunnus thynnus L.) in Norwegian coastal waters in 1984 - S. Myklevoll
- SCRS/86/31 The tunas of the Benguela region off southern Africa - A synthesis - L. V. Shannon
- SCRS/86/32 Régime et comportement alimentaires de l'albacore, du listao et du patudo dans l'Atlantique tropical oriental (Revue bibliographique) - J. M. Stretta

- SCRS/86/33 Datos sobre la alimentación del atún blanco (Thunnus alalunga, B.) juvenil capturado en el Golfo de Vizcaya - V. Ortiz de Zárate
- SCRS/86/34 Sobre el ciclo alimentario en los estudios de contenido estomacal de atunes y afines - L. A. Zavala-Camin
- SCRS/86/35 Japanese tuna fishery and research in the Atlantic, 1985-86 - S. Kume
- SCRS/86/36 A note on the movement of bigeye tuna based on tagging experiment - N. Miyabe
- SCRS/86/37 An updated stock assessment on Atlantic bigeye tuna by CPUE and production model - S. Kume, N. Miyabe
- SCRS/86/38 A study of interaction on yellowfin tuna between long-line and purse seine fisheries in the eastern Atlantic Ocean - Z. Suzuki
- SCRS/86/39 Migration transatlantique d'albacore (Thunnus albacares) - F. X. Bard, J. B. Amon Kothias, E. Holzapfel
- SCRS/86/40 A proposal to management of bluefin tuna stock in the western Atlantic based on information obtained by September, 1986 - T. Nagai, S. Hayasi, T. Yonemori
- SCRS/86/41 Comments on Parrack's VPA tuning program - T. Nagai, N. Miyabe
- SCRS/86/42 Projection of the western Atlantic bluefin tuna stock - T. Nagai
- SCRS/86/43 Trend in hook rate of Atlantic swordfish - T. Koido, Y. Yonemori
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- SCRS/86/47 Mercado de atunes en el Mar Cantábrico (norte de España) - J. L. Cort

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- SCRS/86/56 Campaña de marcado "8607" en aguas de Canarias - A. Delgado de Molina, J. C. Santana
- SCRS/86/57 Pesquería de túnidos en las Islas Canarias - J. C. Santana, A. Delgado de Molina, J. Ariz
- SCRS/86/58 Composition spécifique des captures des thons de petite taille (albacore, listao, et patudo) par les senneurs et les canneurs dans le secteur du Cap des Trois Pointes - A. Fonteneau
- SCRS/86/59 Les pêcheries thonières de l'Atlantique tropical est - A. Fonteneau, T. Diouf
- SCRS/86/60 Etat du stock d'albacore de l'Atlantique est au 30 octobre 1986 - A. Fonteneau, T. Diouf
- SCRS/86/61 L'exploitation du patudo (Thunnus obesus) dans l'Atlantique tropical nord-est de 1969 à 1985 et relation pêche-température de surface - P. Cayré, T. Diouf

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- SCRS/86/67 National Tuna Report of Ghana: 1985 - M. A. Mensah
- SCRS/86/68 Estimating partial recruitment from catch at age data - R. J. Conser
- SCRS/86/69 Document withdrawn
- SCRS/86/70 Estimating age and growth rate of Atlantic blue marlin (*Makaira nigricans*): Progress and future work plan - E. Prince, D. Lee, R. Conser
- SCRS/86/71 National Report of Republic of Korea - Fisheries Research & Development Agency
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- SCRS/86/75 L'essentiel de ce qu'il faut savoir sur le patudo de l'Atlantique: Biologie et exploitation - P. Cayré, A. Fonteneau, F. X. Bard
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- SCRS/86/77 Pêche thonière et anomalies climatiques de l'environnement dans l'Atlantique tropical centre est en 1984 - A. Fonteneau, C. Roy

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- SCRS/86/81 The vertical distribution of tunas and billfishes, and  
fishing efficiency between Korean regular and deep  
longlines in the Atlantic Ocean - W. S. Yang, Y. Gong
- SCRS/86/82 Stock assessment of south Atlantic albacore by produc-  
tion model analysis, 1967-1985 - H. C. Liu
- SCRS/86/83 Quelques renseignements sur l'albacore au Cap Vert - M.  
Helena Santa Rita Vieira
- SCRS/86/84 La pesca de túnidos en Cabo Verde - M. Dupret de Melo  
Tavares
- SCRS/86/85 National Report of Spain - A. González-Garcés
- SCRS/86/86 National Report of U.S.A. - SEFC, SWFC
- SCRS/86/87 National Report of Canada - D. Clay
- SCRS/86/88 Report on catch statistics and studies of Atlantic  
tunas carried out by the USSR in 1985 and 1986 - Y.  
Vialov, V. Ovchinnikov
- SCRS/86/89 Informe Nacional de las Pesquerías Cubanas de Túnidos y  
Especies Afines, así Como de las Investigaciones Realiz-  
adas Durante 1985 - Lic. B. García Moreno
- SCRS/86/90 Rapport National de la Côte d'Ivoire - J. B. Amon  
Kothias et F. K. Bard
- SCRS/86/91 Exposición de Guinea Ecuatorial - B. Ayíngono



### **Report of the Group on Acceptance of SCRS Documents**

The group met under the chairmanship of Dr. A. Fonteneau and examined the case of four documents (SCRS/86/44, 59, 75, and 82) which were submitted before the deadline but in insufficient quantity, i.e., with less than 80 copies. A limited number of these documents could be reproduced by the Secretariat and were given to interested scientists and to the rapporteur groups. Document SCRS/86/8 arrived after the deadline but in sufficient quantity. This document was referred to the Sub-Committee on Statistics, for which it did arrive on time. These five documents were, therefore, accepted as an exception to the rule which states that 80 copies must be provided except in the case of force majeure.

## **Report of the Bigeye Day Session**

### **1. Opening of the meeting**

The SCRS met on November 5, 1986, at the Hotel Princess Plaza, Madrid, for the Bigeye Day Session. The SCRS Chairman, Mr. J. S. Beckett opened the session and introduced the Convener of the meeting, Mr. S. Kume.

### **2. Adoption of agenda**

The tentative agenda circulated prior to the meeting was adopted (SCRS/86/7). Mr. J. Pereira was nominated as rapporteur.

### **3. Description of fishery**

Major bigeye fishing countries briefly commented on their fisheries and their present situation. The Japanese longline fishery, whose fishing grounds cover almost all the Atlantic Ocean, takes the major part of the Atlantic bigeye catch. Since 1980, the catch was increased by using deep longline. The fleet fishes all year in tropical waters; in temperate waters the peak season is in winter.

For the Korean longline fishery, bigeye catches increased in recent years. With the introduction of deep longline after 1980, bigeye became the target species.

Along the northeast coast of the U.S.A., a coastal longline fishery is now targeting bigeye tuna, rather than swordfish during the months when bigeye is abundant.

The Senegalese baitboats seasonally target bigeye off Dakar. The fleet concentrates in the vicinity of a thermal front at 20°N, off Mauritania. In spite of a decrease in effort, an increase in catches was observed recently after 1976, because of a change in the fishing pattern (zones, fishing season).

A general description of the tuna fisheries, surface and longline in the eastern tropical Atlantic (SCRS/86/59) was presented by Dr. P. Cayré. Summary fishing maps (BB, PS, LL) and bigeye tuna size distributions were presented for each gear fishing in the area (Figures 1 and 2).

The Azores bigeye baitboat fishery was described by Mr. Pereira (SCRS/86/65). The evolution of the catches and of the fleet was analyzed. Information was given on the fishing areas and on the size of the bigeye caught.

#### 4. Review of fisheries data

An updated catalog of bigeye data available at the ICCAT Secretariat (SCRS/86/11) was presented by Dr. P. Miyake. He also referred to SCRS/86/17, which gives historical catches in the Atlantic, by species and by gear.

A question was raised on the status of the data base tagging file. The Assistant Executive Secretary informed the group that the total file was very incomplete.

Dr. G. Sakagawa reviewed the major longline statistics, as analyzed through economic aspects reflected in the fishery. The market evolution may have affected the catches of each longline fleet (SCRS/86/24).

The comparison of fishing efficiency between the deep longline and the regular longline gear, used by the Korean fleet since 1980, was presented by Dr. Y. Gong (SCRS/86/81).

#### 5. Review of bigeye fisheries and studies in other oceans

No document was presented on this agenda item. Nevertheless, Mr. Kume made a brief presentation on the Pacific bigeye tuna fishery. Since the early 1950's, and the inception of the Japanese longline fishery, the fishing grounds expanded very rapidly along the equatorial area reaching the area off the American continent in 1960 and covering the entire temperate and tropical Pacific by 1970. As the fishing grounds extended eastward, better bigeye fishing grounds were encountered. In recent years the Pacific bigeye catch increased to be 130,000-140,000 MT, more than 70 percent of which was taken by the Japanese longline fishery. The increase was partly due to employment of deep longline which improved gear efficiency for bigeye. The area where the thermocline is at a depth of 100 - 150 m, equivalent to the depth of the regular longline hooks, coincides well with the high density area of bigeye tuna. It was assumed that bigeye tuna are distributed vertically in and under the thermocline. This hypothesis stimulated the

introduction of the deep longline operation, which started in the western equatorial Pacific around the mid-1970's. Since then, the longline fleet in the equatorial Pacific switched exclusively to a deep longline operation when it targets bigeye tuna.

In the Pacific Ocean, the geographical distribution of bigeye tuna by age suggested convergence into the eastern equatorial area as the age increases. An analysis on long term trend in relative abundance by age from 1960 to 1980 was given, and it revealed that (1) relative abundance of large-sized fish (age 6+) declined sharply in the early stage of the fishery (1960-65) and now the level of relative abundance dropped to 1/6 the initial exploitation, (2) relative abundance of medium-sized fish (ages 4 and 5) has fallen gradually to 1/3 and the level for small-sized fish (ages 2 and 3) remained stable, suggesting rather constant recruitment over the period. The steep decline of the CPUE of bigeye tuna in the early 1960's was due to the removal of accumulated large-sized fish in the virgin stock. There was discussion on the relationship between the reproduction of bigeye tuna and abnormal oceanographic conditions such as El Niño observed in the eastern Pacific in 1982-83. In the Atlantic, water surface temperature did not indicate such a large anomaly in corresponding years, but the longline fishery in the eastern equatorial Pacific is now reported to be experiencing a very good catch of small-sized fish which might have recruited during El Niño.

#### 6. Biological and ecological information

Three documents, SCRS/86/31, SCRS/86/32 and SCRS/86/34, deal with the feeding behavior of bigeye tuna. Many uncertainties remain on this subject and more research appears to be necessary.

A comparison between the results of previous growth studies conducted by different methods was presented by Dr. Cayré. He also discussed the limitations of each method and concluded that the growth curve deduced from tagging results appears to be the most adequate. Some uncertainties still exist on the growth of very young and large bigeye (SCRS/86/75).

The available information on bigeye reproduction was also reviewed by Dr. Cayré. There is a general lack of information, on such aspects as size at first maturity, fecundity, spawning areas and seasons (Figure 3). More studies are necessary on this subject. The global sex ratio shows a dominance of males, especially for the large bigeye caught by longline (SCRS/86/75).

The sex ratio of surface-caught bigeye in the Azores was described in document SCRS/86/64. Mr. Pereira confirmed previous studies, showing that females are predominant in that fishery except for larger sizes. He also noted that all bigeye are immature in the Azores area.

Regarding tagging and migration, three documents were submitted, SCRS/86/36, SCRS/86/63, and SCRS/86/75. Dr. F. X. Bard explained the distribution and the migrations of bigeye tuna according to three size classes, juveniles, pre-adults and adults, based on fisheries and tagging data. He referred to migrations of small bigeye from the Gulf of Guinea to the north, south and west Atlantic.

The possibility of interchange between the Atlantic and Indian Ocean bigeye is also suggested in document SCRS/86/31.

Under this agenda item, reaction to environmental conditions, the relationships between oceanographic conditions and seasonal change in bigeye fishing grounds in the eastern tropical Atlantic were described (SCRS/86/61). The distribution of adult bigeye in relation to temperature and oxygen was analyzed in document SCRS/86/63.

In addition, schooling behavior in Azorean waters was presented (SCRS/86/65).

#### 7. Stock structure

This agenda item was covered by documents SCRS/86/63 and 75. The main conclusions were based on: tagging results; the differences in distribution by size and areas, especially the occurrence of juvenile bigeye limited to the Gulf of Guinea; the emigration of young bigeye from this nursery to the north and south (Figure 4); the distribution of larvae, and information about spawning areas and seasons.

Considering these findings, the present information supports more fully than before the hypothesis of a single stock of bigeye tuna in the whole Atlantic. A schematic migration model for the Atlantic bigeye tuna, under the one-stock hypothesis was presented (Figure 5).

#### 8. Stock evaluation

Three documents, SCRS/86/37, SCRS/86/62, and SCRS/86/75, dealing with stock evaluation were presented.

Dr. Fonteneau discussed whether or not the longline CPUE reflects the abundance of the stock, and also if the CPUE trend agrees with that of the adult biomass. He also discussed the estimation of MSY which shows an increasing trend, following the development of the fishery.

It has been pointed out that the catch of small bigeye by tropical surface fleets increased with effort, but the catch of large bigeye by those fleets is stable in spite of increasing effort. On the other hand, the catch of large bigeye by the long-line fleets has increased simultaneously with the increased effort.

He also discussed the difference in yield per recruit among the different fisheries exploiting bigeye tuna.

The bigeye species section of the SCRS Report goes into more detail on the conclusions of the Committee on the present status of the bigeye stock.

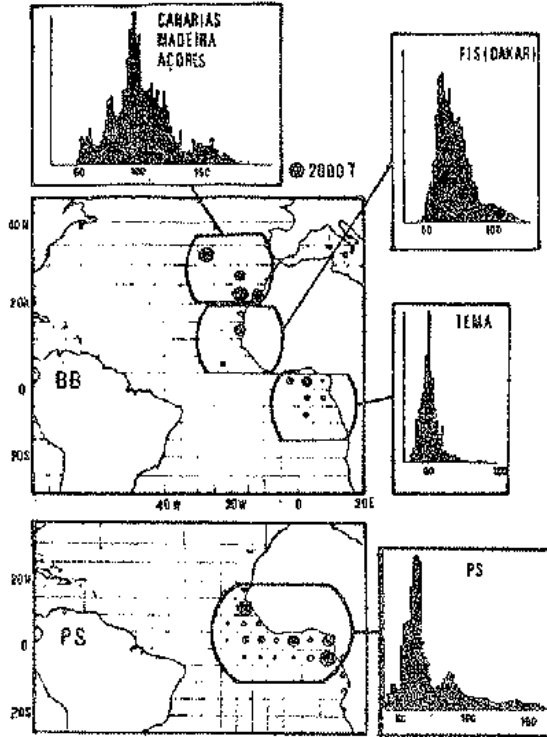
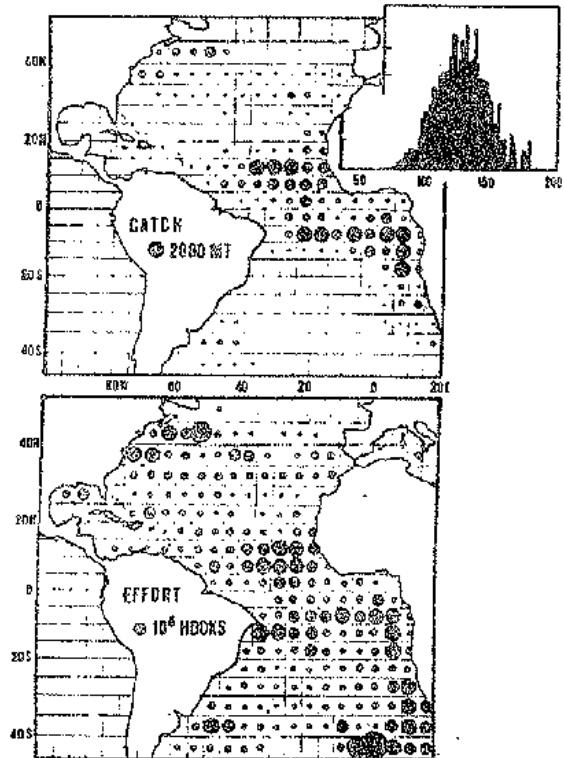


Fig. 1 Average (1978-82) catch, effort, and size frequencies of bigeye for baitboat and purse seine fisheries. (Source: SCRS/86/75)

Fig. 2 Average (1978-82) catch, effort and size frequencies of bigeye for longline fishery. (Source: SCRS/86/75).



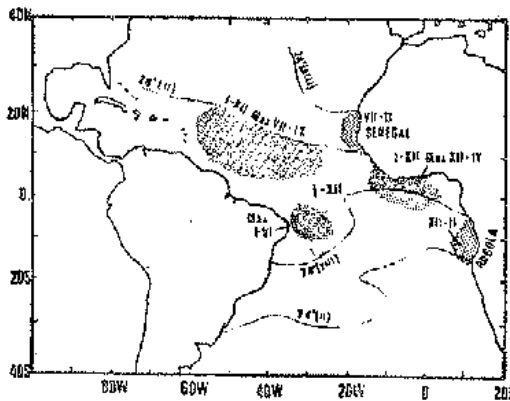


Fig. 3 Schematic time-area division of bigeye reproduction in the Atlantic, from observations made on larvae and gonad maturity. The density of points indicates the relative intensity of presumed spawning. Note that spawning is more or less permanent in a wide equatorial area and that the main reproduction strata is off the northeast coasts of Brazil and Venezuela in the third quarter. (Source: SCRS/86/75).

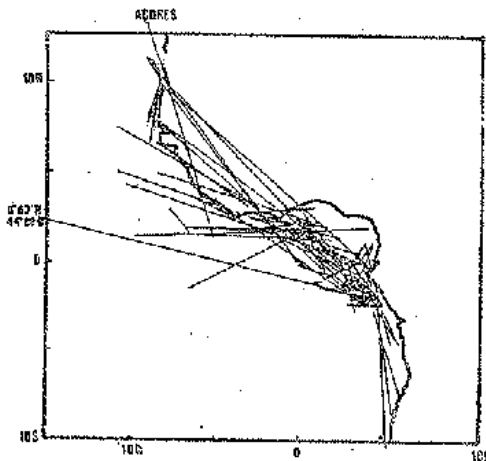


Fig. 4 Approximate migratory routes of bigeye tagged in the tropical Atlantic from 1972-84. The movements taken into account are more than 30 miles in a straight line; time at sea, more than 30 days. (Source: SCRS/86/73).

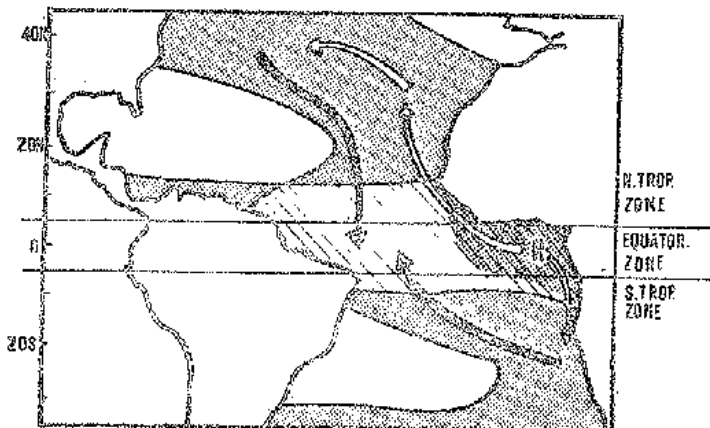


Fig. 5 Bigeye migration model in the Atlantic. Black arrow indicates spawning migration and white arrow feeding migration. Spawning areas is hatched, nursery ground is heavily shaded and adult and young distributed in lightly shaded area. (Source: SCRS/86/75).



### **Working Group on Juvenile Multi-Species Statistics**

The objective of this group is only to examine the statistics of the juvenile multi-species tuna fisheries composition over as many years as possible.

#### Terms of reference

1. To compare the species composition of young juvenile tunas landed by the Japanese, Ghanaian, FIS and Spanish purse seine fleets that fish in the same area with those of the Tema-based baitboats for the years 1985 and 1986.
2. To re-examine and compare the species composition of juvenile tuna exported by the Tema-based baitboats and purse seiners to Puerto Rico, with the published figures for the French purse seiners and any data available (such as the Skipjack Year Program data) with those of the Tema-based boats from 1976 to 1983.
3. To investigate any deviations among the above and thereby identify the discrepancies therein.
4. Therefore, to establish a firm statistical basis (BB and PS) for correcting any previous years' estimates based on the observations made on the landings of Tema-based boats of late 1984, 1985 and 1986, and on purse seiners, 1980 through 1986, and to act accordingly.

### Program of Enhanced Research for Billfish

A meeting of a planning group for developing the Program of Enhanced Research for Billfish convened on November 10, 1986, during the 1986 SCRS Meeting. The Group was chaired by Dr. B. Brown (U.S.A.). In attendance were scientists from Ghana, Japan, Cuba, Korea, U.S.A., Senegal, Canada, and Mexico. Also in attendance were the ICCAT Assistant Executive Secretary (Dr. P. Miyake) and the SCRS Chairman (Mr. J. S. Beckett). Dr. E. Prince acted as rapporteur. Objectives of the meeting were to prepare a comprehensive program for billfish assessment, and including the costs of essential research activities as requested by ICCAT (1985 Commission Meeting Report).

The planning group reviewed the 1986 SCRS Report for its statistics and research recommendations for billfishes and swordfish. After a brief discussion of swordfish research needs, the group felt that further comments concerning this species should be delayed pending approval of the 1987 workshop recommended by the SCRS swordfish species group. The group felt that specific research recommendations on swordfish would be best addressed by this workshop. However, the planning group noted that there were common research needs shared for billfish and swordfish. These include the need for: (1) more complete detailed catch and effort statistics, (2) expanded tagging program; and (3) studies on age and growth.

#### Area/Species Considerations

The planning group identified two fishing areas as being the most potentially important for intensive scientific study. These were off the west coast of Africa where sailfish are the principal billfish taken (Senegal, Ghana and Côte d'Ivoire) and in the Caribbean Sea where blue marlin are known to be abundant. In addition, the Caribbean also holds large localized concentrations of white marlin and swordfish. The Group recognized the occurrence of billfishes throughout the Atlantic but placed a lower priority for conducting research in high-seas fisheries because of cost and logistical problems.

### Catch and Effort Statistics, and Biological Samples

The planning group discussed three basic approaches to obtaining catch, effort, and biological statistics: (1) shore-based technicians at unloading areas; (2) observers on board vessels; and (3) logbooks. It was felt that on-board observers would provide the most complete, detailed, and reliable information. This information would include catch and effort statistics, species composition, sampling hard parts for ageing, sex-specific size frequencies, whole/dressed weight conversions, specific capture locations, and information on the survival of longline-hooked billfish. Shore-based technicians would be able to provide data on species composition of the billfish catch, dressed weight and/or length of unsexed landings, and general data on effort and general location of catch. Logbooks provide catch and effort information, as well as various environmental data.

### Tagging Program

The planning group suggested that a billfish tagging program would require ICCAT sponsorship and coordination. Recommended adjustments in the present ICCAT tagging program include: (1) provide specialized tagging equipment tailored to target billfish (the plastic anchors of tuna tags now used by ICCAT were considered inappropriate for billfish); (2) adjust the reward system to include a lottery for release, as well as recapture of billfish; (3) provide all necessary tagging program publicity; (4) institute monetary compensation for the market value of billfish tagged and released during longline operations; (5) charter commercial longline vessels for tagging cruises; and (6) place observers aboard longline vessels to tag billfish.

### Age and Growth Studies

Information on age and growth will result from acquisition of hard parts, tag-recaptured billfish, or both. These sources of data have already been discussed in the above sections.

### Recommendations

1. An SCRS Billfish Coordinator be identified to oversee research activities.
2. An ICCAT billfish tagging program be initiated to include special tags, tagging equipment, reward (lottery) system, and data archival and retrieval.

3. An ICCAT, at-sea observer program on longline vessels be carried out to obtain biological information (size frequency and age frequency measurements, hard parts for ageing studies, sex information, whole/dressed weight conversions, etc.) as well as to tag billfish.
4. Shore-based sampling be done by ICCAT to obtain biological information as well as logbooks from vessels landing in West African and Caribbean Sea ports. This activity is to include data computerization.

The at-sea observer and shore-based sampling programs should be initiated on a limited basis to allow evaluation of the quality of the data collected and feasibility of applying these programs more extensively. In addition, the feasibility of various aspects of the tagging program, particularly tagging by commercial longliners, and the usefulness of available logbook data should be evaluated. The planning group recognized that this program should be a long-term endeavor, but that expansion of individual elements (listed above) would be implemented slowly depending on results of pilot studies. The current budget proposed refers to the first year. Upon approval by the Commission, a target date for initiation of the program could be January 1, 1987.

Budget for the Program of Enhanced Research for Billfish

Activities	US \$
(1) Tagging supplies/rewards .....	\$6,000
(2) Shore-based sampling .....	3,000
(3) Observer costs (5 x 30 days)...	25,000
(4) Data processing .....	1,000
(5) Purchase of fish for tagging...	<u>20,000</u>
TOTAL	\$55,000

### **Swordfish Workshop – Terms of Reference**

The objective of the Workshop will be to assess the status of the swordfish in the Atlantic in late summer or autumn of 1987 at the ICCAT headquarters in Madrid. The Workshop will first review the availability of catch data, size frequency samples, age and growth data, catch-effort information, and all other data of a biological nature germane to the assessment of the resource. Major topics that will be initially addressed by the Workshop will include stock structure, methods to establish the age structure of catches based on size frequencies and growth information, procedures to estimate catch at size from the available data, consideration of reasonable mortality rates for swordfish, the development of stock abundance indices, and procedures to develop estimates of stock sizes and mortality rates. The results of these activities will be an estimation of the exploitation history of the resource including stock sizes, mortality rates, stock production, and yield-per-recruit aspects. Since extensive swordfish fisheries exist in the Atlantic in both north and south hemispheres and in both the east and west Atlantic, an interest and attendance by scientists from all countries catching swordfish is critical for workshop success.

## Report of the Sub-Committee on Statistics

### 1. Opening of the meeting

The meeting of the Sub-Committee on Statistics was held in Madrid, Spain, at the Hotel Princesa Plaza, on November 8, 1986. Since Dr. N. Bartoo (U.S.A.) had resigned as Convener, the SCRS Chairman nominated Dr. R. Conser (U.S.A.) as Convener of the Sub-Committee and he chaired the entire session.

### 2. Adoption of Agenda and arrangements for the meeting

The Tentative Agenda was adopted and is attached as Addendum I to this Report. Dr. P. M. Miyake (Secretariat) served as rapporteur.

### 3. Report of the progress made by national offices

The Secretariat Report on Statistics and Coordination of Research (COM-SCRS/86/12) was reviewed as to the progress made by the national offices in the collection of data. It was pointed out that the submission of data by member countries was extremely slow this year. Even Task I data were not collected on time, and as a result the "Statistical Bulletin-Provisional" included very incomplete 1985 data. Table 1 shows the availability of 1985 data at the time of this meeting.

In particular, 1985 catch and effort data were lacking for some of the major fisheries. Without these data, the scientific research was delayed and the SCRS work was more difficult during the session.

The Convener stressed the importance of having the data available on time for the current stock assessments each year and the national scientist as well as the Secretariat were urged to meet the data submission deadlines.

#### 4. Examination of tuna statistics

- 4.1 National data collection systems,
- 4.2 Data processing by national offices, and
- 4.3 Reporting to ICCAT

Agenda items 4.1, 4.2, and 4.3 were discussed together.

The Sub-Committee reviewed improvements in the national data collection systems. It was reported that the Yellowfin Year Program has improved the sampling systems in some countries (e.g., Cape Verde, Venezuela, etc.), although this is to be confirmed pending the receipt of the actual data at the Secretariat.

Venezuelan catch and effort data were questioned. The Secretariat has received copies of the logbooks for 1982-1984. They were verified and processed by the Secretariat. However, the data for 1985 have not yet been received, although the logbook data were actually collected. The Secretariat was informed that extreme caution should be exercised in processing these data as they contain some qualitative problems (e.g., fishing days without catches are not recorded, etc.).

The Sub-Committee was informed that Venezuela improved its logbook system in 1985 following the suggestions made by the Secretariat, particularly the longline log forms. The Sub-Committee found the Spanish logbook format very useful and suggested that the Venezuelan Government adopt a similar format for its surface fleet.

The Sub-Committee recognized that public relations at the administrative level with various countries, in particular Venezuela which is a new Commission member, would assist statistical work. The Sub-Committee noted that Mr. D. Gaertner's (France) being stationed in Venezuela's biggest landing port, Cumaná, has contributed to the improvement of statistics in that country and it is hoped this French collaboration will continue in the future.

The Sub-Committee was pleased to note that the European Economic Community (EEC) is planning to dispatch a sampling program in the Mediterranean area for bluefin tuna, involving Italy and Greece.

The 1985 catch and effort data for the Spanish tropical purse seine fishery have been collected and coded but had not yet been processed as of the time of this meeting. The Sub-Committee was informed that corrective measures are being taken by Spanish scientists and that the 1985 data will become available shortly in processed form.

The Ghanaian data collected at Abidjan were entered into a computer data file and processed by the CRO-Abidjan, through a

contract with the Secretariat. The Secretariat received size data for mid-1984 through mid-1986 during this SCRS session and the catch and effort data will be submitted by the end of 1986. The logbook developed and printed by the Secretariat was very well accepted. The Secretariat was asked to forward periodically all copies received directly at the Headquarters to the CRO as has been done in the past. The Sub-Committee commended the effort made by the CRO and expressed the hope that the Secretariat would renew its contract with the CRO for a reasonable period.

Document SCRS/86/19 reviewed the various data series available in the ICCAT data base and listed missing Task II catch and effort and biological data with respect to the Task I catch. The information is taken from the ICCAT data catalog and has been reorganized into tables showing the availability of the data. The Sub-Committee recommended that all the national scientists review the table with care and clarify the situation with regards to missing data. The Sub-Committee recommended that all concrete data, including those presented to the working groups, be indexed, entered and made available to all the scientists. It was also recommended that the national scientists assure the submission of basic data on which a working data file had been prepared.

The Secretariat reported that Mr. H. Farrugio (France) was sent this year to Tunisia, on loan from France, to collect various data existing in Tunisia (SCRS/86/26). His mission was a success since he is very familiar with the area and the fishery. The Sub-Committee recommended that such a flexible attitude be continued by the Secretariat in its statistical and biostatistical missions.

#### 4.4 Improvements to be made

Results of the various recommendations made during the 1985 SCRS Meeting concerning the improvement of statistics were reviewed by species. A general appraisal of these results appears in Item 8 of the 1986 SCRS Report; if further action is to be taken, it is recommended there.

Major problems still exist concerning small tunas and billfishes in the entire Atlantic Ocean, and bluefin and swordfish for several Mediterranean countries.

The Committee reiterated the recommendations proposed in Item 8 of the SCRS Report.

### 5. Examination of progress made by the Secretariat

#### 5.1 Data processing done in 1986

The Secretariat experienced lengthy delays in the delivery and setting up the new computer system. After the system had been set



up, the Secretariat concentrated its resources on transferring the data base from the INFONET system to the newly-acquired, in-house computer.

The Secretariat plans on setting up a new data base configuration in the new computer system and "house cleaning" of the files is the next priority item for the staff. The Sub-Committee understood the reason for the delays but at the same time expressed its concern about the accumulating data requests and general data processing work load. Because the delay in meeting scientists' requests for copies of data files hinders the research work, the Sub-Committee recommended that priority be given to meeting the scientists' demands for copies of data files, after the transition of data from the old system to the new is completed.

On the other hand, it was noted that with the new computer, work will proceed much faster once the transfer is complete and the Secretariat staff is more familiar with the new system, delays in complying with data requests will be minimal.

### 5.2 ICCAT/FAO data comparison

As recommended by the Sub-Committee in 1985, the Secretariat took the initiative to reduce the number of discrepancies in tuna data between various regional agencies and FAO. Most of the discrepancies found earlier between the FAO and ICCAT data series have been eliminated through efforts by both agencies, particularly due to the fact that FAO now has a more flexible attitude regarding national statistics. The representative from FAO expressed appreciation for the cooperation received from the ICCAT staff in this aspect. The Sub-Committee noted that there are still some unsolved discrepancies due to the FAO policy that excludes recreational fishery catches and due to the different ocean boundaries adopted by the two agencies.

### 5.3 Unconventional fleet statistics

The Sub-Committee noted that most of the catches by fleets flying flags of convenience or joint-ventures are well monitored by efforts of national scientists in the field or through the Secretariat port sampling programs. However, as tuna fishing fleets are quite mobile in terms of location and nationality, constant and continued monitoring of all the fleets was suggested.

The Sub-Committee noted that the Norwegian purse seine fleet has been fishing tuna in the Atlantic since mid-1985 and that log-books have been collected by Côte d'Ivoire scientists in Abidjan. These data should be investigated through the Norwegian government with the collaboration of these scientists, and they should be

collected and reported to the Secretariat. There could be some problem with the standardization of effort since a part of the new fleet uses the Norwegian type purse-seine but not the California model.

#### 5.4 Port sampling program

The Sub-Committee noted that the Secretariat port sampling from longliners which transship catches at Atlantic ports is continuing, with more emphasis on size sampling. It was reported that sampling from Cuban boats at Las Palmas has commenced successfully in 1986 for the first time through the cooperation of the Cuban government. National Taiwan University scientists wish to check their biological data against the ICCAT port sampling data. Such data comparison was highly encouraged by the Sub-Committee.

Above all, the Sub-Committee stressed the importance of the port sampling program and recommended that it be continued. The Sub-Committee recommended that the Secretariat study the feasibility of commencing bluefin tuna sampling at the Paris Fish Market where varieties of tunas imported from various Mediterranean countries are sold. The origin of these fish seems to be easily identifiable. If this proves feasible, the Secretariat was authorized to start such sampling.

#### 5.5 Secretariat data management policy

The Sub-Committee noted that the data management policy had already been discussed under Agenda Item 5.1.

#### 5.6 Data dissemination and publication

At the 1985 meeting, the SCRS requested the Secretariat to present to the SCRS for its consideration and study a new summarized format of the data to be published in the "Data Record". Document SCRS/86/15, prepared by the Secretariat, was reviewed.

The general opinion was that in addition to the data catalog, a summation of the data (as proposed by the Secretariat) would be helpful for scientists to understand general trends and to check data received in magnetic tapes. Therefore, future Data Records should be published along the lines proposed in document SCRS/86/15.

The Sub-Committee emphasized that the new format does not imply any change in the present policy of submission of data to the Secretariat; only the format of publication of detailed data is discussed. Scientists can continue to request and receive from the Secretariat the available detailed data on magnetic tape or hard copy.

### 5.7 Biostatistical assignments

Document SCRS/86/20 presented the first layout for the data verification program for the ICCAT data entries. As already discussed under the previous Agenda Item, the Sub-Committee considered data verification to be one of the top priorities in data management and the plan described in this document should be tested as soon as possible.

The consequences of data verification were discussed. For the time being, codes should be added to the records in the files in order to distinguish between those records which have been confirmed and those for which there are reservations. Some feedback of the results of verification to the reporting countries will also be useful.

Other biostatistical assignments are referenced elsewhere in this report.

### 5.8 Other matters

The list of official statistical and tagging correspondents was circulated for revision by each country and organization present.

## 6. Review of the Work Done by the Secretariat on the Newly Acquired Computer System and Future Programming

The Sub-Committee was informed that the Secretariat, following the suggestion made by the 1985 SCRS, tested three (out of the six proposed) models of mini-computers chosen by the SCRS, and the Digital "Micro-Vax II" model was selected. The purchase order was placed in December, 1985. Delivery to the Secretariat was not until mid-June, 1986. The computer became operative at the end of August, 1986.

Mr. M. Parrack (U.S.A.) assisted the Secretariat by providing various analytical programs and installing them in the new system. Mr. N. Miyabe (Japan) also helped with the technical aspects in the installation of programs to the new system.

The new in-house computer seems adequate for routine data processing and data management as well as for analytical purposes during the scientific sessions. The Sub-Committee expressed satisfaction with this information and suggested that, with the assistance of various laboratories, the Secretariat add more analytical programs which are essential for ICCAT work.

## 7. Future Plans to Improve Statistics, and Recommendations to the SCRS

### 7.1 Exchange of computer programs

The Sub-Committee was informed that the experience of those scientists who worked with the ICCAT computer this year proved that the computer is sufficiently powerful, although programs written to operate on other larger computers have to be adjusted to fit ICCAT's 32-bit processor machine. Since such procedures take time, it is recommended that scientists who wish to install programs at the ICCAT Headquarters to be used during the SCRS meeting send such programs sufficiently in advance of the time of the meeting.

In order to facilitate the use of the ICCAT computer by the scientists, the Sub-Committee recommended that the Secretariat prepare a user's manual.

It was proposed that the APL computer language also be installed in the new machine since it is a very powerful language and will increase the range of programs to be used. The Canadian package of stock assessment programs, which is familiar to many ICCAT scientists, is written in APL. The Sub-Committee recommended that the Secretariat purchase the APL software to better equip the Micro-Vax for analytical studies and that the Canadian package can also be installed. Sub-routine packages, e.g., Stat-pack and math packages, should also be installed. These are essential for the majority of the analytical programs.

The issue of the Secretariat's priorities was raised. The Sub-Committee recommended that first priority be given to data management (transfer of the data base and programs from the INFONET system to the new system, house cleaning of the data base, installation of verification programs and catching up in the delay of responding to data requests by scientists) as already indicated in Item 5.1. Nevertheless, the new computer was also purchased to facilitate the scientists during the scientific meetings and if some time and resources can be spent towards improving the analytical power of the Secretariat without affecting the first priority, then it is well worth doing so at this time; otherwise it will have to wait until all delays are caught up.

### 7.2 Coordinating Working Party (CWP) for Tuna Statistics

At the 1985 meeting, the Sub-Committee decided that ICCAT would take a leading role in inter-agency collaboration on tuna statistics on a global basis. It was reported that the first Inter-Agency meeting was held in Colombo, in December, 1985, and representatives from all the regional agencies concerned with tuna statistics, namely IATTC, SPC, FFA, IPTP, FAO (also representing IOFC, IPFC and

CWP), ICCAT and several country representatives from coastal and industrialized nations, attended the meeting. The report of the group is presented in document SCRS/86/8.

The Sub-Committee came to the conclusion that a mechanism, similar to that of the CWP-Atlantic, is needed to enable all the regional tuna agencies to collaborate in improving tuna statistics. One of the first objectives is to obtain better, total world tuna catch estimates by species and by country.

The Sub-Committee noted the development as satisfactory and recommended that ICCAT actively participate in such collaboration on a long term basis.

### 7.3 Others

The Assistant Executive Secretary reported that, at the invitation of Indo-Pacific Tuna Program, he assisted in developing a Field Manual for collecting statistics from Indian Ocean fisheries. Although the Atlantic manual was used as the base, many new chapters and concepts were introduced (e.g., sampling from the artisanal fishery). The Secretariat proposed that the Atlantic manual be revised to include the new chapters developed for the Indian Ocean. The revised draft has been available for consultation during the SCRS meeting. The Sub-Committee recommended that the Atlantic draft should include all new information (e.g., LDI-FL conversion, L-W formulas, species composition sampling strategy, Spanish surface log books) and the revised draft should be sent to the national scientists and the final version should be made after the Secretariat has received some input from them.

### 8. Other Matters

No other matters were discussed.

### 9. Adoption of Report

The report was adopted.

### 10. Adjournment

The meeting was adjourned.

Table 1. Progress made in the collection of 1985 statistics (as of October 22, 1986)

Species, Gear and Country	TASK I			TASK II CATCH & EFFORT BIOLOGICAL (SIZE)				Remarks
	Date Rec'd		No. of boats	Date Rec'd		Date Rec'd		
	1985	1986		1985	1986	1985	1986	
YFT, BET, SKJ - Surface Fleet								
<i>BB</i>								
Angola	Apr 19	May 6	X	Jul 16	Aug 19	Aug 12	Aug 19	Preliminary data for 1985.
Brazil	Aug 30	May 9	X	Aug 30	Jul 22	Aug 30	Jul 22	Preliminary data for 1985.
Brazil-based (leased):								
Japan	Aug 30	May 9	X	Aug 30	Jul 22	Aug 30	Jul 22	Preliminary data for 1985.
Cape Verde	Nov 9	Sep 12	X		Sep 12	Aug 26	Mar 7	Size data for 1984.
Cuba	Jun 26	May 14	X	Oct 7		Apr 18		SKJ (& BLF).
FIS	Oct 14	May 19		Jul 31	May 19		May 19	
Ghana	Sep	Jul 30	X	Sep				
Japan	Sep 26			Feb 7				
Korea	Aug 28	Aug 25	X	Jul 30	Aug 25	Jul 31	Aug 25	
Panama								
Portugal								
(Madeira)	May 22		X	May 22		Mar 24	Jun 20	Data for Jan-Mar, 1985.
	Aug 28		X	Aug 28				Data for Apr-Jun, 1985.
	Nov 14		X	Nov 14				Data for Jul-Sep, 1985.
		Feb 12	X		Feb 12		Aug 14	Data for Oct-Dec, 1985.
(Azores)	Oct 9	Jun 20	X		Jun 20	Nov 6	Jun 20	Data for 1985 and revised 1984.
South Africa	Aug 23	Sep 26	X	Aug 23	Sep 26			
Spain								
(Canary Islands)	Aug 12	Oct 20	X		Apr 14		Apr 14	
(Peninsula)	Aug 12	Oct 20	X					

Table 1. (Cont.d)

<i>Species, Gear and Country</i>	<i>TASK I</i>			<i>TASK II CATCH &amp; EFFORT BIOLOGICAL (SIZE)</i>				<i>Remarks</i>
	<i>Date Rec'd</i>		<i>No. of boats</i>	<i>Date Rec'd</i>		<i>Date Rec'd</i>		
	<i>1985</i>	<i>1986</i>		<i>1985</i>	<i>1986</i>	<i>1985</i>	<i>1986</i>	
Venezuela	Apr			Apr			Feb 18	Size data for Aug-Oct, 1985.
VEN-FOR	Apr			Apr				
PS								
Brazil-based (leased):								
Spain	Aug 30			Aug 30		Aug 30		Fleet ceased operations in 1984.
Cuba	Jun 26	May 14	X					
FIS	Oct 14	May 19		Jul 31	May 19		May 19	
Ghana	Sep	Jul 30		Sep				
Japan	Sep 26	Mar 19		Feb 6	Mar 19			
Morocco	May	Sep 25						
Portugal								
(Peninsula)	Aug 2							
(Azores)	Oct 9	Jun 20	X		Jun 20	Nov 6	Jun 20	Final 1985 data and revised 1984.
South Africa	Aug 23	Sep 26	X	Aug 23	Sep 26			
Spain	Aug 1	Oct 20		Aug 1	Oct 7	Aug 1	Oct 7	Copy of logbooks only. No summary received.
U.S.A.	Jul 18	Aug 19		Jul 18	Aug 18	Jul 18	Aug 18	
U.S.S.R.	May 22	Aug 18		Aug 5	Sep 16	Sep 11	Sep 16	
Venezuela	Apr			Apr			Feb 18	Size data for Aug-Dec, 1985.
VEN-FOR	Apr			Apr				
NEI	Feb 14							

*UNCL & Others*

Angola	Mar 20	May 6					
Argentina		Mar 12					
Benin	Mar 18			Mar 18			
Brazil	Aug 30	May 9	X				
Cape Verde	Nov 9						
Ghana							
Morocco	May	Sep 25					
Portugal	Aug 2						
St. Helena	Nov 5						
S. Tomé & Príncipe	Nov						
South Africa	Aug 23	Sep 26	X	Aug 23			
Spain							
(Peninsula)	Aug 12	Oct 20	X				
U.S.A.	Jul 18	Aug 19		Apr 9	Aug 18	Apr 9	Aug 18
U.S.S.R.	May 22	Aug 18		Aug 5	Sep 16	Sep 11	
Venezuela	Apr			Apr			
VEN-FOR	Apr			Apr			

*Albacore — Surface Fleet*

*BB*

Brazil	Aug 30	May 9	X	Aug 30	Jul 22		
Brazil-based (leased):							
Japan	Aug 30			Aug 30	Jul 22	Jul 22	
Cape Verde							
France	Oct 11	Jun 5					
Portugal							
(Azores)	Oct 9	Jun 20	X		Jun 20	Nov 6	Jun 20
						Mar 24	Aug 14
(Madeira)	May 22		X	May 22			
	Aug 28		X	Aug 28			
	Nov 14		X	Nov 14			
		Feb 12	X		Feb 12		

Preliminary data for 1985.

Preliminary data for 1985.

Preliminary data for 1985.

Final 1985 data and revised 1984.

Data for Jan-Mar, 1985.

Data for Apr-Jun, 1985.

Data for Jul-Sep, 1985.

Data for Oct-Dec, 1985.



Table 1. (Cont.d)

<i>Species, Gear and Country</i>	<i>TASK I</i>			<i>TASK II CATCH &amp; EFFORT BIOLOGICAL (SIZE)</i>				<i>Remarks</i>
	<i>Date Rec'd</i>		<i>No. of boats</i>	<i>Date Rec'd</i>		<i>Date Rec'd</i>		
	<i>1985</i>	<i>1986</i>		<i>1985</i>	<i>1986</i>	<i>1985</i>	<i>1986</i>	
South Africa	Aug 23	Sep 26		Aug 23	Sep 26			
Spain								
(Canary Islands)	Aug 1	Oct 20	X		Apr 14		Apr 14	
(Bay of Biscay)	Aug 12	Oct 20	X	Aug 12		Aug 12		
(Mediterranean)	Aug 1	Oct 20	X		Oct 20	Aug 19	Oct 20	
Venezuela	Apr			Apr				
VEN-FOR	Apr			Apr				
<i>PS</i>								
FIS	May 6	May 19			May 19		May 19	
France	Oct 11	Jun 5						Preliminary data for 1985.
South Africa	Aug 23	Sep 26	X	Aug 23	Sep 26			
Spain	Aug 12	Oct 20						
<i>TROL</i>								
France	Oct 11	Jun 5						Preliminary data for 1985.
Spain								
(Bay of Biscay)	Aug 12	Oct 20	X	Aug 12	Oct 20	Aug 12	Oct 20	
U.S.A.								
<i>UNCL &amp; Others</i>								
Brazil	Aug 30							
Italy								
Portugal								
(Azores)								
St. Helena	Nov 5							
South Africa	Aug 23	Sep 26	X	Aug 23	Sep 26			

Spain	Aug 12								
U.S.A.	Jul 18	Jun 5		Apr 9	Aug 18	Apr 9	Aug 18		Preliminary data for 1985.
Venezuela	Apr			Apr					
VEN-FOR	Apr			Apr					
<b>Bluefin - Surface Fleet</b>									
<i>BB</i>									
Cape Verde	Aug 2								
France		Jun 5	X						
(Bay of Biscay	Sep 10								Preliminary data for 1985.
Portugal									
(Azores)	Oct 9	Jun 20	X		Jun 20		Jun 20		
(Madeira)					Feb 12	Mar 24	Jun 20		Nil BB catch in 1985. See UNCL.
Spain									
(Canary Islands)	Aug 12	Oct 20	X		Apr 14		Apr 14		
(Bay of Biscay)	Aug 12	Oct 20					Feb 4		Size data for 1984.
							Apr 14		
(Mediterranean)	Aug 12	Oct 20	X			Aug 19			
<i>PS</i>									
France									
(Mediterranean)	Sep 10	Jun 5	X			Sep 18	Sep 30		Preliminary data for 1985.
Italy	May			May		May			
Morocco	May	Sep 25							
Norway	Feb 12	Feb 28		Feb 25		Feb 25			Preliminary data (0 catch).
Portugal									
(Peninsula)	Aug 2								
(Azores)	Oct 9	Jan 16	X			Nov 6			
Spain	Aug 12	Oct 20							
U.S.A.	Jul 18	Aug 19	X		Aug 18	Jul 18	Sep 29		
Yugoslavia		Mar 4							Preliminary data for 1985.

Table 1. (Cont.d)

Species, Gear and Country	TASK I			TASK II CATCH & EFFORT BIOLOGICAL (SIZE)				Remarks
	Date Rec'd		No. of boats	Date Rec'd		Date Rec'd		
	1985	1986		1985	1986	1985	1986	
<i>TRAP</i>								
Canada	Aug 14	May 23	X				Sep 29	Preliminary data for 1985
Italy	May							
Morocco	May	Sep 25						
Spain	Aug 12	Oct 20				Aug 19		
<i>UNCL &amp; Others</i>								
Canada	Aug 14	May 23	X			Aug 12	Sep 29	Preliminary data for 1985.
France (Mediterranean)	Sep 10	Jun 5	X					Preliminary data for 1985.
Italy								
Portugal (Azores) (Madeira)	Nov 14	Feb 12	X X	Nov 14		May 24	Jun 20	HAND only. Data for Jul-Sep, 1985. Data for Oct-Dec, 1985.
(Peninsula)	Aug 2							
Spain	Aug 12	Oct 20	X			Aug 19		
U.S.A.	Jul 18	Aug 19		Jul 18	Aug 18	Jul 18	Sep 29	
<b>Billfishes (including SWO) — Surface Fleet</b>								
Argentina		Mar 12						Preliminary data for 1985.
Benin	Mar 18							
Brazil	Aug 30	May 9	X		Jul 22		Jul 22	Preliminary data for 1985.
Canada	Jul 30							
FIS								
Ghana		Jan 30	X					1984 data.

Italy  
Morocco  
Portugal  
(Madeira)

Oct 31  
May 30      Sep 25

May 22      X  
Aug 28      X  
Nov 14      X  
Feb 12      X

May 22  
Aug 28  
Nov 14

May 24

Reported by FAO.

(Azores)  
Senegal  
South Africa  
Spain  
U.S.A.  
U.S.S.R.

Oct 9      Jun 20  
Nov 5  
Aug 23      Sep 26      X  
Aug 1      Oct 20      X  
Jul 18      Aug 19  
Jul 26      Aug 18      X

Apr 18  
Nov 5  
Aug 23      Sep 26  
Apr 14  
Apr 18  
Aug 5      Sep 16

Feb 12  
Jun 20

Aug 14  
Jun 20

Apr 9

Apr 18

Small Tunas -- Surface Fleet

Angola  
Argentina  
Benin  
Brazil  
Cape Verde  
Cuba  
FIS  
Ghana  
Italy  
Morocco  
Portugal  
(Peninsula)  
(Azores)  
(Madeira)

Apr 19      May 6      X  
Mar 12  
Mar 18  
Aug 30      May 9      X  
Nov 9      Sep 12      X  
Jul 26      May 14      X  
Sep      Jul 30      X  
Oct 31  
May      Sep 25  
Aug 2  
Oct 9      Jan 16      X  
May 22      X  
Aug 28      X  
Nov 14      X  
Feb 12      X

Jul 16  
Mar 18  
Aug 30      Jul 22  
Sep 12

Aug 19  
Aug 12  
Aug 30

Aug 19

Preliminary data for 1985.  
Preliminary data for 1985.  
Preliminary data for 1985.

Reported by FAO.

Feb 12

Aug 14

Data for Jan-Mar, 1985.  
Data for Apr-Jun, 1985.  
Data for Jul-Sep, 1985.  
Data for Oct-Dec, 1985.

Table 1. (Cont.d)

Species, Gear and Country	TASK I			TASK II CATCH & EFFORT BIOLOGICAL SIZE				Remarks
	Date Rec'd		No. of boats	Date Rec'd		Date Rec'd		
	1985	1986		1985	1986	1985	1986	
St. Helena	Nov 5							
Sao Tomé & Príncipe	Nov							
Senegal	Aug 9			Aug 9				
Spain	Aug 12	Oct 20			Apr 14	Aug 19		
U.S.A.	Jul 18	Aug 19		Jul 18	Aug 18		Aug 18	
U.S.S.R.	May 22	Aug 18	X	Aug 5	Sep 16	Sep 11	Sep 16	
Yugoslavia		Mar 4						Preliminary data for 1985
<b>All Species -- Longline Fleet</b>								
Brazil	Aug 30	May 9	X	Aug 30	Jul 22	Aug 30	Jul 22	Preliminary data for Jan-Jun, 1985
Brazil-based (leased):								
Japan	Aug 30	May 9	X	Aug 30	Jul 22	Aug 30	Jul 22	
Canada	Jul 30							
China (Taiwan)	Sep 18	Oct 22	X	Nov 7	Oct 22	Nov 7		
Cuba	Jun 26	May 14	X	Oct 7	May 14	Jun 26	Jun 18	
Japan	Dec 30	Oct 20		Jun 30	Feb 20	Sep		Task I, preliminary 1985 C/E for 1984.
							Aug 19	Size for 1984; excl. BFT.
							Aug 27	Size for 1984-85, BFT only
JP-CA-OB*						Aug 12		
Korea	Aug 28	Aug 25	X	Jul 31	Aug 25	Jul 31	Aug 25	
Korea-Panama				Sep		Sep		Port sampling.
Morocco	May							
Panama	(Secretariat)			See Korea-Panama		See Korea-Panama		Task I per port sampling CE.

\*Canadian observer data taken on Japanese longliners.

South Africa	Aug 23	Sep 26	X	Aug 23				
Spain	Aug 12	Oct 20		Aug 12		Aug 12		
Uruguay					Jan		Jan	C/E 1981-84. Size 1983-85.
U.S.A.	Jul 18	Aug 19	X		Aug 18		Aug 18	SWO size only.
U.S.S.R.	May 22	Aug 18		Aug 5		Sep 11	Sep 29	BFT size only.
Venezuela	Apr			Apr			Sep 16	
VEN-FOR	Apr			Apr				
Various								
Puerto Rico transshipments (Reported by FAO)	Jul-Oct Nov					Jul 18		Reported by U.S.A.
Netherlands Antilles (Reported by ORSTOM)		Feb 6 Jan 30 Jul 2						1981-1984 data. 1972-1984 data.
Martinique		Feb 19						Same catch as 1984.

# CHAPTER III

## National Reports

### NATIONAL REPORT OF BRAZIL

by

Ministry of Agriculture, SUDEPE

#### 1. Status of the fisheries

##### 1.1 Development of the fleet

Brazil began tuna fishing in 1956 by chartering Japanese longliners. This fishery was made up of just one vessel but later, in 1959, there were 13 Japanese boats operating in Brazilian waters. These activities were discontinued in 1962, although during that period the chartered fleet caught a total of 56,000 MT of tunas of various species. These results indicated that abundant schools of tunas passed through Brazilian waters throughout the year. The industrialized tuna fishery was resumed in 1975 with the chartering of six Korean longliners but these boats returned to their country two years later. The situation of the fleet in 1984 is given in Table 1 of the 1985 National Report of Brazil (Report for Biennial Period 1984-85, Part II, p. 234). In 1985 the tuna fishing fleet was comprised of 71 boats, of which 11 are of Japanese flag, (7 longliners and 4 baitboats) and 60 of Brazilian flag (12 longliners and 48 baitboats). (See Table 1 of this Report).

##### 1.2 Fishing areas

The fishing area is almost the same as in previous years. Two Brazilian longliners are in operation, one of which is new and is operating from 0°S to 14°S, and the other is fishing from 20° to 34°44'S.

##### 1.3 Catch trends

Due to the need for improving the protein supply to the Brazilian nation and for increasing the income of foreign currency, Brazil is keenly interested in developing its tuna fisheries.

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Original report in English.

During 1985, the total production reached 30,181 MT, as shown in Table 2. This is an increase of 32.66 percent over the previous year. This total is comprised of 1,698 MT by longliners, 27,908 MT by baitboats, 547.2 MT by small-scale fisheries and 27.8 MT by recreational fisheries. The species composition of the catch is given in Table 3. The data for 1986 are not yet available but the SCRS will be informed as soon as they become available.

## 2. Research

Brazil continues measuring the size of fish and collecting other data. The results of this work will be transmitted to the SCRS in due time.

Brazil is just finishing the construction of two new research boats; one of which is equipped for tuna research. They will enter into operation in early February, 1987. Brazil is counting on the cooperation of FAO in this respect.

## 3. Preliminary information for 1987

Brazil is now inviting foreign vessels to operate inside the Brazilian EEZ under chartering contracts with Brazilian fishing companies or by establishing joint ventures in Brazil. The law allows the chartered vessels to receive the same treatment as a national vessel and to sell by-catches on the domestic market while exporting tunas. By means of these chartering and joint ventures, Brazil hopes to be able to give a more substantial contribution to the stock assessments and consequently to an appropriate management of tuna stocks.



Table 1. Number of boats by size and gear in 1985

<i>GRT</i>	<i>Baitboats</i>		<i>Longliners</i>	
	<i>Brazilian flag</i>	<i>Japanese flag</i>	<i>Brazilian flag</i>	<i>Japanese flag</i>
50	4			
51-150	38		12	
150-200	6			
201-300	--	4		7

Table 2. Tuna production (in MT) by gear in 1985

<i>Baitboats</i>	<i>Longliners</i>	<i>Artisanal fisheries</i>	<i>Recreational fisheries</i>
27,908	1,698	547.2	27.8

Table 3. Catch (in MT) by species in 1985

<i>Others</i>	<i>YFT</i>	<i>SKJ</i>	<i>BET</i>	<i>ALB</i>	<i>SWO</i>	<i>SAI</i>	<i>WHM</i>	<i>BUM</i>	<i>Shark</i>
1,132	2,466	25,067	380	324	287	27	37	27	471

# NATIONAL REPORT OF CANADA

by

D. Clay

## 1. Status of the fisheries

### 1.1 Bluefin tuna

Canadian landings of Atlantic bluefin tuna in 1985 totaled 325 large fish weighing 139.8 MT, a decline to about half the 1984 level and only a quarter the 1983 landings. The trap fishery took 26 fish.

The mean weight of bluefin caught in the Gulf of St. Lawrence in 1985 was 455.9 kg, slightly below the 1984 level of 457.5 kg. This is the first time since 1980 that the average has not been higher than the year before.

There has been no purse seine fishery for bluefin by Canadian vessels since 1981.

### 1.2 Swordfish

The nominal landings of swordfish for Canada in 1985 totaled 585 MT, mainly taken on longline, but with minor catches by the harpoon fishery. The 1984 catch was 499 MT.

## 2. Research studies

### 2.1 Bluefin tuna

Little biological sampling was conducted on the rod and reel and tended line catches due to the reduced availability of samples. The St. Margaret's Bay, Nova Scotia, trap fishery was sampled and otoliths were collected. The ages of these otoliths, and of those collected in 1982, were determined, and preliminary work started on validating the age readings.

Original report in English.

Individual weights were collected from all fish landed in 1985 and vessel log records from 1985 were collected and coded for computer analysis.

## 2.2 Swordfish

No new studies were initiated and no tagging was carried out during 1984.

## 3. Management

### 3.1 Bluefin tuna

Tuna fishery regulations are enacted under the federal Fisheries Act. The regulations for the Atlantic coast contain the following broad provisions:

- 1) a valid license is required
- 2) by-catch of bluefin by other fisheries is permitted only under specific circumstances
- 3) season quotas and closings are imposed and can be varied annually
- 4) gear restrictions limit a vessel to two "tended lines" with one hook each or angling with one hook per line
- 5) all bluefin landed must be tagged with a uniquely numbered identification tag

There are over 700 small (<15 m) vessels licensed to fish bluefin tuna and they are limited (based on location of the home port) to the following periods and quotas.

AREA	SEASON (dates)	QUOTA	
		SEASON	DAILY
1. Prince Edward Island	15/08/85 - 31/12/85	660	1
2. Newfoundland	15/07/85 - 15/10/85	50	no limit
3. New Brunswick	1/10/85 - 31/12/85	157	2
4. Quebec	1/08/85 - 31/12/85	83	3
5. Nova Scotia			
(Gulf of St. Lawrence)	15/07/85 - 31/09/85	40	2
	1/10/85 - 31/12/85	100	2
6. Nova Scotia			
(ATLANTIC - TRAP)	1/05/85 - 31/12/85	401	no limit
7. Nova Scotia			
(ATLANTIC - NON TRAP)	15/07/85 - 31/12/85	26	2
8. Atlantic by-catch	N/A	4	no limit
TOTAL		1,521	

#### 4. Preliminary information for 1986

##### 4.1 Bluefin tuna

The landings as of October 15, 1986, were approximately 30 percent of what they were at the same time in 1985, and no fish were taken in the trap fishery.

A program was initiated to tag bluefin caught early in the season by rod and reel charter boat operators, but unfortunately no fish were caught.

# NATIONAL REPORT OF CAPE VERDE

by

M. Dupret de Melo Tavares

## 1. Introduction

Tunas represent an important part of the catches of various countries. In Cape Verde, among the exploitable marine resources, tunas are very important, not only in providing food for the population, but also in exports.

The main species caught are yellowfin (Thunnus albacares), skipjack (Katsuwonus pelamis), bigeye (Thunnus obesus), Atlantic little tuna (Euthynnus alletteratus), frigate tuna (Auxis thazard) and wahoo (Acanthocybium solandri).

These species are exploited by the industrial fishery which began in the 1950's and by the artisanal fishery which already existed at that time.

## 2. Fisheries

### 2.1 Artisanal fishery

The vessels used by the artisanal fishermen are small wooden boats which are 4-5 meters in length and 1.5 meters in width, with or without outboard motor.

The main gear used is handline with lengths varying from 150 to 450 meters, harpoons and hooks. Dead bait mixed with live bait is used. Hanek et al (1984) described this type of fishing.

In accordance with its restricted area of activity, the artisanal fishery operates in the territorial waters with daily trips during the entire year. The main species caught is yellowfin.

The 1,173 boats are distributed throughout 75 landing sites of the nine islands which make up the country.

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Original report in Spanish.

## 2.2 Industrial fishery

The industrial and semi-industrial fleet is comprised of 38 vessels, of which only three have freezers. Many of these vessels have been used for many years and are in need of renovation; therefore, five vessels (two which are 16 meters in length and three which are 22 meters in length) have recently been incorporated into the tuna fleet.

The industrial fishery consists of baitboats using live bait and assisted by small water sprays.

The crucial problem of both this type of fishing and the artisanal fishery is obtaining the bait which is not very abundant in Cape Verde.

The industrial fishery operates from March to November. During March to July/August the most abundant species is yellowfin and from September to November skipjack is predominant.

## 3. Statistics

As regards statistics, Cape Verde tries to follow the ICCAT recommendations in collecting catch and effort data by 5°x5° squares.

The data collection system is the proposal CECAF coastal countries. For the artisanal fishery, sampling in several landing sites is carried out to estimate the total catch and effort. Until now, consistent sampling has not been possible in all the sites selected, which implies biases in the estimates. However, some progress has been made in incorporating sampling ports in several sites, including on islands where previously no sampling was done.

For the industrial fishery, catch and effort data by species are provided by the companies or by the shipowners. During the last five years, the catches have fluctuated in both the artisanal and industrial fisheries (Tables 1 and 2), with a declining trend for the artisanal fishery. No opinion has been expressed about the possible causes for this contradictory trend, since the potential catch calculated for this area has not been reached.

## 4. Research activities

Research activities are still reduced, primarily due to financial problems, as any type of research involves costs that are even higher when the islands are quite dispersed, which is the case of Cape Verde.

In 1982, regular biological sampling of skipjack and yellowfin began. During the Yellowfin Year Program and thanks to the financial support of ICCAT, port sampling has been intensified and the results will be sent to ICCAT later.

#### 5. Regulations

The national legislation is following the steps for ratification by the governmental organisms for publication. ICCAT will be informed as soon as implementation is possible.

Table 1. Catch (in MT) of tunas by the Cape Verde commercial fishery, 1981-1985

<i>Species</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>	<i>1985</i>
<i>T. albacares</i>	877	809	948	862	747
<i>T. obesus</i>	13	137	291	97	32
<i>K. pelamis</i>	1,584	1,584	1,338	1,030	1,961
<i>E. alletteratus</i> & <i>A. thazard</i>	235	218	4	6	24
<i>A. solandri</i>	<u>26</u>	<u>29</u>	<u>26</u>	<u>25</u>	<u>13</u>
Total	2,735	2,777	2,607	2,020	2,777

Table 2. Catch (in MT) of tunas by the Cape Verde artisanal fishery, 1981-1985

<i>Species</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>	<i>1985</i>
<i>T. albacares</i>	4,404	2,691	3,392	1,958	1,154
<i>T. obesus</i>	59	63	2	4	80
<i>K. pelamis</i>	4	52	62	342	69
<i>E. alletteratus</i> & <i>A. thazard</i>	1	40	30	10	136
<i>A. solandri</i>	<u>2,281</u>	<u>1,435</u>	<u>1,562</u>	<u>1,340</u>	<u>119</u>
Total	6,749	4,281	5,048	3,654	1,558



# NATIONAL REPORT OF COTE D'IVOIRE

by

J. B. Amon Kothias, F. X. Bard

## 1. Statistics

### 1.1 National yield

The tuna catches by the Ivorian fleet during the last seven years are shown in Table 1. Eight purse seiners operated up to 1983 with annual tuna landings between 14,000 and 18,000 MT, of which approximately 50 to 62 percent were yellowfin and 36 to 47 percent were skipjack.

The decrease in catches observed in 1984 in the east Atlantic results from a considerable reduction in the fishing activities of the tuna vessels (3,783 MT in 1984 and 1,386 MT in 1985). The disastrous financial situation resulting from this decrease and the difficult competition from the more experienced fleets have led to a general tying up (no catches in 1986).

Studies are being on the possibility of a new fleet operating in this area.

### 1.2 Activities of other tuna fleets

Foreign fleets regularly continue their landings and transshipments at the Abidjan port with an overall volume of around 90,000 MT. These fleets include, in order of importance, Spanish, French and Norwegian purse seiners, and Ghanaian baitboats.

## 2. Research

The CRO of Abidjan regularly checks the lists of fishing licenses. It does size sampling of about 50,000 fish per year and biological sampling in the factory (gonads, hard parts).

Original report in French.

The processing of data from the Ghanaian baitboats is done according to an agreement with Ghana and ICCAT.

The CRO also participates actively in the Yellowfin Year Program with:

- on-board observers
- tagging cruises on the R.V. "Nizery" in collaboration with France and Spain
- "opportunistic" tagging cruises in collaboration with Ghana.

### 3. References

Documents presented to the SCRS in 1986 are listed in Appendix 2 to Annex 12 and/or are published in the Collective Volume of Scientific Papers, Vol. XXVI.

Table 1 Tuna catches (in MT) by Côte d'Ivoire, 1980-1986

<i>Species</i>	<i>1980</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>	<i>1985</i>	<i>1986</i>
Yellowfin	9,847	9,913	8,829	7,712	837	661	0
Skipjack	5,774	7,495	8,310	6,961	2,935	722	0
Bigeye	231	59	356	96	10	1	0
Albacore	77	93	128	72	1	2	0
Total	15,929	17,560	17,623	14,841	3,783	1,386	0

# NATIONAL REPORT OF CUBA

by

B. García Moreno

## 1. Tuna fleet

In 1985, the number of tuna vessels in operation was lower than the number active in 1984, essentially due to several vessels, after long years of use, ceasing their fishing activities because of mechanical problems. Most of the vessels which stopped fishing were 51-200 GRT longliners (10 vessels) and 500 GRT longliners (4 vessels).

The Cuban longline fleet which operated in 1985 was comprised of 14 large longliners (501-1,000 GRT) based in the port of Las Palmas de Gran Canaria, as well as 3 medium longliners (51-200 GRT) based in Cuban ports.

The only Cuban purse seiner in operation, which is in the 501-600 GRT category, fished in the Gulf of Guinea and adjacent areas.

Fifty-nine baitboats (51-150 GRT) caught skipjack and blackfin tuna in Cuban waters, while a similar number of small vessels used troll and modified surface longline.

## 2. Fishing areas

As in the past, the fishing area of the Cuban long-range longline fleet is the central Atlantic. In the far eastern part of this area, the Gulf of Guinea and its adjacent areas are the most important fishing areas and also make up the main fishing grounds of the only purse seiner in operation.

The waters in the Cuban Economic Zone were the fishing grounds for large, medium and small longliners, as well as for a large number of baitboats.

Original report in Spanish.

### 3. Catches

Cuban catches of tunas and tuna-like species in 1985 reached 8,846 MT, which represents a decrease in catch when compared to 1984 (9,610 MT). This decrease was basically caused by the fewer number of longliners in operation. The effect of this decrease was not so pronounced due to the moderate recovery in the yield of yellowfin tuna since the end of 1984.

The target species of the longliners continued being yellowfin, whose total catch reached 3,491 MT, followed in descending order by skipjack (1,878 MT), swordfish (1,463 MT), billfish (661 MT), blue marlin (451 MT), spotted Spanish mackerel (443 MT), bigeye (239 MT), blackfin tuna (157 MT), albacore (47 MT) and Atlantic little tuna (16 MT).

Table 1 and Figure 1 show Cuban catches of tunas and tuna-like species for 1980-1985.

Catches by gear are shown in Figure 2, where surface longline continues to be the gear catching the most fish (67.4 percent), followed by baitboat (20.4 percent), purse seine (7.9 percent), mesh nets (3.8 percent) and troll (0.5 percent).

### 4. Statistics

Copies of Forms 1.1, 1.2 and 2, with information corresponding to 1985, were sent to ICCAT.

### 5. Research

Biological sampling continued in Cuban ports on skipjack, blackfin tuna, billfish and blue marlin and this information served as a basis for completing Forms 3.4 and 3.5.

Research was also carried out in relation to abiotic-abundance parameters of skipjack and blackfin tuna, as well as on the abundance of larvae and other biological aspects of these species.

As regards Scomberomorus species in Cuban waters, biological sampling was carried out on commercial catches, collection of statistics, etc.

Table 1. Cuban catches (in MT) of tunas and tuna-like species, 1980-1985

	1980	1981	1982	1983	1984	1985
Yellowfin	5,800	4,900	3,754	2,709	4,005	3,491
Albacore	100	100	111	74	136	47
Bigeye	1,400	700	521	421	447	239
Skipjack	2,500	1,300	1,323	1,835	1,558	1,878
Spotted Spanish mackerel	500	600	476	689	544	443
Billfish	800	600	589	1,068	678	661
Swordfish	600	400	686	1,228	1,367	1,463
Blue marlin	--	300	436	396	373	451
Atlantic little tuna	--	100	77	6	15	16
Blackfin	--	700	622	558	487	157
Others	100	--	--	--	--	--
Total	11,800	9,700	8,595	8,984	9,610	8,846

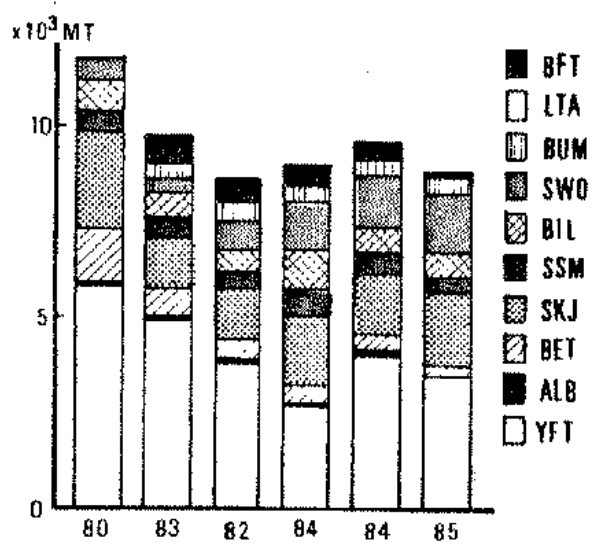


Fig. 1 Accumulated Cuban tuna catches by species, 1980-85.

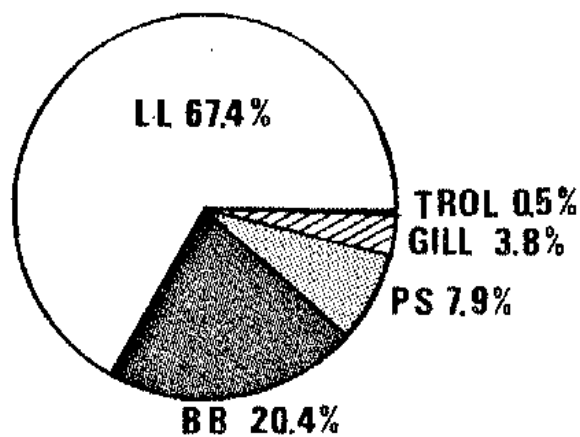


Fig. 2 Catch composition by fishing gear, 1985.

## NATIONAL REPORT OF FRANCE

### 1. State of the fisheries

	1978	1979	1980	1981	1982	1983	1984	1985
Yellowfin	41.6	38.7	43.6	40.6	29.2	31.9	5.8	9.3
Skipjack	19.9	15.2	22.5	27.2	26.1	20.5	13.2	6.8
Bigeye	2.2	3.1	0.8	0.4	3.0	6.0	2.1	6.3
Albacore	8.4	8.0	4.2	3.3	3.6	3.0	2.9	2.2
Bluefin	<u>2.3</u>	<u>1.8</u>	<u>1.7</u>	<u>2.4</u>	<u>5.0</u>	<u>4.1</u>	<u>4.2</u>	<u>5.6</u>
TOTAL (1,000 MT)	74.4	66.8	72.8	73.9	66.9	65.5	28.2	30.2

The tuna catches made by the French fleets in 1985 increased slightly; this increase principally results from a higher catch of tropical tunas and of Mediterranean bluefin.

#### 1.1 Bluefin

The landings of bluefin were high in 1985 with more than 5,600 MT coming mainly from Mediterranean purse seine fisheries.

#### 1.2 Albacore

The 1985 fishing season was mediocre at the beginning, essentially because of the poor meteorological conditions prevailing in July-August in the northeast Atlantic, and the catch only reached 2,200 MT. This declining trend in French catches of albacore continued in 1986 when the catch was around 2,000 MT.

Original report in French.



### 1.3 Tropical tunas

French catches of tropical tunas are increasing slightly in spite of the decrease in baitboat and purse seine effort. In fact, the catch rates of yellowfin and bigeye of these two fleets show a clear increase.

## 2. Research

The main organizations participating in tuna research programs are ORSTOM ("Office de la Recherche Scientifique et Technique d'Outre-Mer") for tropical tunas (yellowfin, skipjack and bigeye), and IFREMER ("Institut Français de Recherche pour l'Exploitation de la Mer") for temperate tunas (albacore and bluefin).

### 2.1 Albacore

Research cruises were continued in 1985 on commercial vessels. Thanks to the close collaboration between IFREMER scientists on land and on board vessels and the "Centre Météorologique Spatial" of Lannion which each day provided a map of isotherms and thermal fronts of the sea obtained by satellite radiometry, potential areas of albacore concentration were successfully located. In 1985, research activities were divided into two groups: a "traditional" group to monitor the fleet and a "far off-shore" group to cover the fishing areas around 30°W which are not frequented by the commercial vessels. In 1986 gill nets were successfully tried to increase the yield of the albacore vessels.

### 2.2 Bluefin

Bluefin sampling was continued in the Mediterranean on the plentiful landings of 23 French purse seiners.

### 2.3 Tropical tunas

Research on tropical tunas continued to be carried out by ORSTOM scientists stationed in Senegal, in Côte d'Ivoire and in Venezuela within the framework of the research programs of these three countries. Work was carried out on the biology and population dynamics of yellowfin, skipjack and bigeye.

In 1985 and 1986, studies were concentrated on the state of the yellowfin stock and on monitoring its recovery. France also participated actively in the planning and carrying out of research for the Yellowfin Year Program which is in progress. The research vessel "Nizery" carried out various tagging cruises in 1985 in

collaboration with Côte d'Ivoire and Senegal. This tagging is planned to continue to mid-1987.

### 3. References

Documents presented to the SCRS in 1986 are listed in Appendix 2 to Annex 12 and/or are published in the Collective Volume of Scientific Papers, Vol. XXVI.

# NATIONAL REPORT OF GHANA

by

M. A. Mensah

## 1. Tuna fleet

The tuna vessels that operated from Ghana in 1985 all flew the Ghanaian flag. The fleet was comprised of 27 baitboats and 6 purse seiners.

Throughout the year, most of the fish for export were landed in Abidjan, Côte d'Ivoire, as had begun in March, 1984. All landings of local market fish (undersized tunas or "mixed") were made in Tema. A few landings made in Tema included export fish as well.

## 2. Landings

The following landings, in metric tons, were made in 1985 by all the Ghana-flag tuna vessels.

<u>Species</u>	<u>Ghanaian Commercial</u>
Yellowfin	5,713.600
Bigeye	76.668
Skipjack	21,551.186
Little tunny	261.456
Frigate tuna	--
Mixed	<u>6,803.838</u>
Total	34,406.748

Original report in English

The total quarterly landings of baitboats were as shown below:

Species	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL
Yellowfin	452.350	335.260	634.080	519.231	1,940.921
Bigeye	20.459	--	46.999	--	67.458
Skipjack	3,978.707	4,153.401	4,886.753	6,134.088	19,152.949
Little tunny	38.624	45.288	52.141	60.114	196.167
Mixed	<u>1,591.677</u>	<u>1,225.020</u>	<u>1,846.981</u>	<u>1,205.792</u>	<u>5,869.470</u>
TOTAL	6,081.817	5,758.969	7,466.954	7,919.225	27,226.965

The total quarter landings of purse seiners were as shown below:

Species	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL
Yellowfin	1,403.061	1,076.213	778.488	514.917	3,772.679
Bigeye	6.443	--	0.900	1.867	9.210
Skipjack	523.505	316.659	872.963	685.110	2,398.237
Little tunny	45.772	--	2.200	17.317	65.289
Mixed	<u>151.360</u>	<u>245.855</u>	<u>423.883</u>	<u>113.270</u>	<u>934.368</u>
TOTAL	2,130.141	1,638.727	2,078.434	1,332.481	7,179.783

"Mixed" consists of all species considered undersized which cannot be exported and *Elegatis bipinnulatus*. Little tunny includes (*Euthynnus alletteratus*) include bonito (*Sarda sarda*).

### 3. Research

During 1985, collection of nominal catch statistics (Task I) and catch and effort (Task II) data continued. Whenever possible, that is, when total landings were made in Tema, biological data were also collected.

- i) For length frequency distribution, the following measurements were made: 6,210 skipjack, 5,060 yellowfin and 710 bigeye.
- ii) Port sampling at Tema was poor because the majority of the total landings were made in Abidjan.
- iii) No tags were recovered during 1985.

4. Research program for 1986-87

- i) If the fleet returns to Tema for landing total catches, efforts will be intensified to improve Task II statistics and size sampling.
- ii) Biological sampling would continue.
- iii) Considerable effort will be directed to the Yellowfin Year Program.

# NATIONAL REPORT OF JAPAN

by

S. Kume

## 1. Fishing activities

In 1985 and 1986, Japanese tuna fishing in the Atlantic was carried out by two types of gears: longline and purse seine. The 1985 Japanese catch of Atlantic tunas and billfishes is estimated to be 54,200 MT, 90 percent of which was taken by the longline fishery (Table 1). The 27 percent increase in catch in 1985 over 1984 was mainly due to the increased catch of bigeye tuna. The purse seine catch was about 5,200 MT in 1985. In 1986, as of the time of writing this report, no substantial change is observed in fishing patterns of either fishery compared to recent years.

### 1.1 The longline fishery

In 1985, 208 longliners, about the same number as in 1984, fished in the Atlantic (Table 2). The longline catch in 1985 was about 49,000 MT, a 25 percent increase from 1984 (Table 3). The bigeye catch increased remarkably to 31,500 MT, which is 64 percent of the total longline catch. This was a result of an increased concentration of the longline fleet in the bigeye fishing grounds. The catches of yellowfin tuna (5,600 MT, 11 percent) and swordfish (4,700 MT, 10 percent) followed the bigeye catch. It was reported that since July, 1986, about 30 boats have moved out of the Atlantic bigeye fishing grounds to eastern tropical Pacific.

### 1.2 The purse seine fishery

Two Japanese purse seiners operated in the Gulf of Guinea in 1985. One of these seiners began operating in July, 1985, and consequently, the catch in 1985 increased to 5,226 MT, which was exclusively skipjack and yellowfin tuna (Table 4). In 1986, the size of purse seine fleet has not been changed.

Original report in English.

## 2. ICCAT regulations

Japanese fishermen have been under national regulations concurring with those recommended by ICCAT for bluefin, yellowfin and bigeye tunas. As regards bluefin tuna regulations, the areal closure has been in effect in the Gulf of Mexico throughout the year and in the Mediterranean Sea during May 20-June 30, in addition to the areal quota as recommended by ICCAT. These closures seem to have served to reduce the fishing pressure on spawning stocks. To monitor the longline fleet, government patrol boats were dispatched to the Atlantic Ocean, especially in the Mediterranean Sea during the closure periods of 1985 and 1986. The tropical surface fleet has also been under national regulations in accordance with the ICCAT 3.2 kg size limits for yellowfin and bigeye tunas.

## 3. Research activities

The Far Seas Fisheries Research Laboratory (FSFRL) has been conducting the collection and compilation of Atlantic fishery data, on which scientific research on Atlantic tunas and billfish stocks is based. All the statistical data have been routinely reported to the ICCAT Secretariat and results of scientific research are also presented at the regular meetings of the Standing Committee on Research and Statistics (SCRS).

### 3.1 Fishery data

Until now, preliminary 1985 catch data (Task I) and final 1984 catch and effort data (Task II) for the longline fishery were reported to the ICCAT Secretariat. The quick reporting system of logbooks at a port of call has been functioning since its inception in April, 1984. Final processing of longline data for 1985 is now in progress. Task I and II data from the purse seine fishery were finalized and reported for 1985. On-board size sampling by longline boats has been continued, and compiled length data for 1984 were reported to ICCAT.

### 3.2 Tuna biology and stock assessment

The scientific research on biology and population dynamics on Atlantic tunas and billfishes has been focused on stock assessment studies on bluefin and bigeye tunas by the FSFRL. Among the seven papers presented at the 1986 SCRS meeting, three papers presented technical reviews of the assessment technique and a future management schedule for bluefin tuna. In addition, studies related to migration and an updated stock evaluation on bigeye tuna, an analysis on the interaction of yellowfin stocks and the trend of relative abundance of swordfish estimated from Japanese longline data were presented.

#### 4. References

The documents presented to the SCRS in 1986 are listed in Appendix 2 to Annex 12 and/or are published in the Collective Volume of Scientific Papers, Vol. XXVI.



**Table 1. Japanese catch (in MT) of tunas and tuna-like fishes by type of fisheries, Atlantic Ocean and Mediterranean Sea, 1980-1985**

Type of fishery	1980	1981	1982	1983	1984	1985
Total	48,833	52,975	63,174	33,995	42,566	54,211*
Longline						
(Home-based)	34,765	36,797	50,304	25,685	39,095	48,985*
Pole-and-line	14,068	16,178	10,620	5,577	565	--
Purse seine			2,250	2,733	2,906	5,226

\*Preliminary

**Table 2. Annual number of Japanese tuna boats operating in the Atlantic Ocean, 1980-1985**

Type of fishery	1980	1981	1982	1983	1984	1985
Longline						
(Home-based)	300	320	269	182	212	208
Pole-and-line	12	10	7	4	2	--
Purse seine	--	--	1	1	1	2

**Table 3. Catches (in MT) of tunas and tuna-like fishes taken by the Japanese longline fishery, 1980-1985**

Year	1980	1981	1982	1983	1984	1985*
Total	35,437	37,636	50,794	25,596	39,096	48,985
Atlantic	35,317	37,535	49,828	24,913	38,041	48,092
Albacore	1,369	2,298	1,350	1,318	800	1,500
Bigeye	20,477	21,044	32,867	15,141	24,310	31,500
Bluefin	4,816	4,286	2,865	3,320	2,210	1,512
Southern bluefin	2,788	2,506	1,135	505	1,636	1,400
Yellowfin	2,839	4,145	6,062	2,069	3,967	5,600
Swordfish	2,107	2,232	3,723	1,893	3,770	4,680
Blue marlin**	308	468	1,132	440	833	1,100
White marlin	106	143	111	44	76	200
Sailfish***	55	94	173	69	97	100
Others	452	319	410	114	342	500
Mediterranean	120	101	966	683	1,055	893
Bluefin	119	100	961	677	1,036	873
Swordfish	1	1	5	6	19	20

\*Preliminary

\*\*Includes minor amount (less than 30 MT) of black marlin.

\*\*\*Includes shortbill spearfish

# NATIONAL REPORT OF KOREA

by

National Fisheries Research and Development Agency

## 1. Fishing activities

The size of the Korean tuna fleet fishing in the Atlantic Ocean has decreased continuously since 1977 and was comprised of 45 longliners and 1 baitboat in 1985, a decrease of six fishing vessels compared to 1984 (Table 1). No baitboat has been operating since April, 1985.

The total Korean catch of Atlantic tuna and tuna-like species in 1985 amounted to 17,704 MT, a 12 percent increase compared to the 1984 catch (Table 2).

The total catch for the first half of 1986 was estimated at 6,070 MT.

### 1.1 Longline fishery

There have been no significant changes in fishing patterns or grounds of the Korean longliners in recent years.

The total longline catch for 1985 amounted to 17,454 MT, an 18 percent increase compared to that of the previous year. The catch composition by major species is as follows:

Bigeye	10,691 MT (61 percent of the total catch)
Yellowfin	3,329 MT (19 percent of the total catch)
Albacore	901 MT (5 percent of the total catch)

Bigeye tuna has become the principal species caught by the Korean longline fishery in the Atlantic Ocean, a change from yellowfin tuna and albacore since 1980. The bigeye catch in 1985 increased approximately 20 percent from the previous year (Table 3).

Original report in English.

## 1.2 Baitboat fishery

One Korean baitboat, based at Tema, operated in the Gulf of Guinea during the period of January to March, 1985, and caught 250 MT skipjack, a 74 percent decrease from the 1984 catch.

Since April, 1985, Korea has had no baitboats operating in the Atlantic Ocean because of changing the vessel's flag to another nation.

## 2. Research activities

The National Fisheries Research and Development Agency (FRDA) collected catch and effort data as well as size data on tunas and related species from the commercial fishing vessels as in the past. In particular, deep longline data have been collected from the fishermen since 1984. Task I, II, and size data were regularly sent to ICCAT.

An intensive effort was made to improve the coverage rate and accuracy of data for a better assessment of Atlantic tuna and tuna-like species resources. As a result, Task II data coverage reached 63.5 percent for the longline fishery in 1985.

## 3. Non-biological elements

Since the beginning of the fishery, all the Korean tuna fishing vessels operating in the Atlantic Ocean landed their catches at European or African ports. In recent years, however, some semi-home-based longliners are participating in the Atlantic Ocean tuna fishery. Most of their catches are exported to Japan.

Information on the market prices on tunas and tuna-like species is gathered by the Korean Deep-Sea Fisheries Association.

**Table 1. Number of Korean tuna vessels in the Atlantic Ocean, 1976-1985**

<i>Type of gear</i>	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Longline	121	120	97	66	54	56	52	53	51	45
Pole & line	6	15	20	18	16	8	4	4	1	1
Total	127	135	117	84	70	64	56	57	52	46

**Table 2. Korean catch (in MT) of Atlantic tunas and tuna-like fishes by type of gear, 1975-1985**

<i>Type of gear</i>	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Longline	31,575	38,849	29,094	20,069	18,952	22,306	21,033	16,224	14,785	17,454
Pole & line	3,339	6,202	10,364	17,188	9,901	9,529	3,503	1,697	969	250
Total	34,914	45,051	39,458	37,257	28,853	31,835	24,536	17,921	15,754	17,704

Table 3. Nominal catches (in MT), by species, of tunas and tuna-like fishes taken by the Korean Atlantic longline fishery, 1971-1985

<i>Year</i>	<i>Bluefin</i>	<i>Yellow- fin</i>	<i>Albacore</i>	<i>Bigeye</i>	<i>Skipjack</i>	<i>Sword- fish</i>	<i>Blue marlin</i>	<i>White marlin</i>	<i>Sail- fish</i>	<i>Other billfishes</i>	<i>Others</i>	<i>Total</i>
1971	3,039	9,901	11,539	7,353	47	--	--	--	--	780	4,078	36,737
1972	30	11,078	13,577	5,730	45	--	--	--	--	1,714	3,562	35,736
1973	66	12,844	8,525	5,829	--	--	--	--	--	1,984	2,809	32,057
1974	56	15,518	5,216	7,376	116	--	--	--	--	1,335	3,951	33,568
1975	23	15,344	6,073	10,162	196	451	--	--	--	990	5,580	38,819
1976	10	11,211	8,755	6,747	26	1,147	--	--	--	1,015	2,664	31,575
1977	3	16,347	9,345	7,610	9	1,240	164	202	141	449	3,339	38,849
1978	--	11,512	4,418	9,182	42	1,333	177	79	29	111	2,211	29,094
1979	2	6,997	3,875	7,305	2	606	95	13	20	96	1,058	20,069
1980	--	5,869	1,487	8,963	4	683	9	1	5	167	1,764	18,952
1981	--	6,650	1,620	11,682	47	447	81	13	11	171	1,584	22,306
1982	--	5,872	1,889	10,615	21	684	17	24	16	114	1,781	21,033
1983	3	3,405	1,077	9,383	530	462	65	20	4	51	1,224	16,224
1984	--	2,673	1,315	8,943	29	406	61	5	3	423	927	14,785
1985	77	3,239	901	10,691	20	344	54	1	105	729	1,293	17,454

Table 4. Nominal catches (in MT), by species, of tunas and tuna-like fishes taken by the Korean Atlantic pole-and-line fishery, 1973-1985

<i>Year</i>	<i>Yellowfin</i>	<i>Bigeye</i>	<i>Skipjack</i>	<i>Albacore</i>	<i>Unclassified and others</i>	<i>Total</i>
1973	900	--	922	--	--	1,822
1974	2,169	--	2,123	--	120	4,412
1975	1,259	1,750	4,469	--	175	7,653
1976	365	810	1,948	--	216	3,339
1977	1,075	640	3,600	--	887	6,202
1978	941	965	8,132	43	283	10,364
1979	2,871	1,712	12,017	--	588	17,188
1980	2,122	563	6,718	113	385	9,901
1981	947	61	8,085	--	436	9,529
1982	22	--	3,386	--	95	3,503
1983	144	--	1,553	--	--	1,697
1984	116	4	846	--	3	969
1985	--	--	250	--	--	250

# NATIONAL REPORT OF SAO TOME AND PRINCIPE

by

G. Espirito Santo

## 1. The fishery

São Tomé and Príncipe does not have an industrial or semi-industrial tuna fleet, which explains why it has no specific catch of tunas. However, tuna is caught by the artisanal canoe fishery using hand lines.

The main tuna species caught within the São Tomé EEZ are Thunnus albacares, Katsuwonus pelamis, and Auxis thazard.

## 2. Catches

Catches are made by licensed foreign-flag vessels and occasionally by small canoes near the shore.

### 2.1 National catch

Landings of small tunas are registered. The total catch in 1986 (236.2 MT) and in 1985 (215.2 MT) is higher than in 1984 (103 MT) and in 1983 (149.3 MT).

### 2.2 Foreign catch

One of the problems faced by São Tomé is that some countries which fish under license do not provide any data on their total catches or on the species caught, which makes precise reporting difficult.

## 3. Research

In conjunction with the foreign countries in 1985 and 1986, research continued in order to evaluate the stocks of tunas and tuna-like species and to estimate the species composition.

Particular attention is paid to the problem of meteorologic and hydrological studies of the marine environment and its influence on the distribution of the species.

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Original report in French.

# NATIONAL REPORT OF SENEGAL

by

P. Cayré

## 1. Tuna fisheries

### 1.1 Yellowfin, skipjack and bigeye

The tuna fleet based in Dakar in 1985 was comprised of 21 baitboats and 4 purse seiners.

An increase in overall catches by these vessels in 1985 (14,948 MT) was noted for 1984 (+ 1,836 MT). This increase is due in part to increased baitboat effort, but in particular to the good catch rates of yellowfin.

In 1986, in spite of a marked reduction in the number of baitboats in operation (19 at the beginning of the season and only 16 by July), and the cruises getting a late start, the total landed up to August 31, 1986, is near that observed for 1985 at the same time of year; the exceptionally high catch rates of yellowfin by the baitboats seem, at first analysis, to be responsible for this phenomenon.

Landings and transshipments of the FISM purse seine fleet (5,660 MT) at Dakar in 1985 showed an increase when compared to those of 1984 (+ 4,500 MT, Table 1). The foreign purse seine fleets (basically Spanish and FISM) landed or transshipped at Dakar 25,437 MT in 1985, an amount similar to that observed in 1984.

These total landings and transshipments of tunas at Dakar in 1986 will reach a record figure of nearly 41,000 MT.

### 1.2 Other species

The landings of small tunas in 1985 (5,861 MT, Table 2), are comparable to those of 1984 (6,238 MT). There is, however, a marked decrease in the catches of Atlantic little tuna, apparently due to a change in effort on this species by the artisanal canoe fishery.

Original report in French.



Sailfish catches (Table 3) in 1985 (280 MT) are higher than in 1984. This increase, in spite of a decrease in catch rates, seems due to an increased effort by the artisanal fishery which targets this species. The year 1985 is marked by the late arrival of the species to the Senegalese coasts and by low catch rates.

Swordfish (Xiphias gladius) catches in Senegalese waters in 1985 are negligible because of an almost complete halt of the longline fishery which targets this species.

## 2. Research

The collection of tuna statistics and sampling of catches in Dakar in 1985 continued as in the past. The sampling rate on bait-boats as well as on purse seiners was around 80 percent.

Tagging cruises carried out on artisanal vessels in 1985 tagged about 700 small tunas, mostly Atlantic little tuna (Euthynnus aletteratus) and frigate tuna (Sarda sarda). Recoveries (around 3 percent) seem to indicate quite important coastal migrations between Senegal and Mauritania.

Various studies carried out by CRODT in 1985 led to:

--the calculation of an abundance index for yellowfin based on Spanish and FISM tuna fleet data, and the demonstration of the biases which resulted from calculations made from data of only one of the fleets (FISM); these biases essentially come from the periodic transfer of effort of these fleets from yellowfin to skipjack.

--showing the influence of changes in hydrologic conditions (surface temperature anomalies) on the catch rates of yellowfin.

--a first-time analysis of the results of an important longline swordfish fishery off west Africa.

--proposing a data collection system for artisanal fisheries catching Atlantic little tuna.

Finally, the importance of participation by the CRODT in 1985 and 1986 in the writing of a west African tropical tuna synthesis should be noted. This synthesis will be published in 1987 by FAO.

## 3. Publications

The documents presented to the SCRS in 1986 are listed in Appendix 2 to Annex 12 and/or are published in the Collective Volume of Scientific Papers, Vol. XXVI.

**Table 1. The tuna fishery in Dakar, Senegal, 1985-1986**

Fishery	No. of boats	1985					1986 <sup>1</sup>					
		Effort (days at sea)	YFT	Catch (MT)		Total	No. of boats	Effort (days at sea)	YFT	Catch (MT)		Total
				SKJ	BET					SKJ	BET	
Dakar												
– Baitboats	21	3,177	5,469.2	3,513.7	1,423.8	10,406.7	19	987	2,087.6	1,222.5	611.1	3,921.2
– Purse seiners	4	521	944.0	3,351.1	245.8	4,540.9	3	239	595.3	1,050.7	1.1	1,647.1
Total	25	--	6,413.2	6,864.8	1,669.6	14,947.6	22	--	2,682.9	2,273.2	612.2	5,568.3
Foreign												
FISM (landings & transshipments)	8	457	2,770.5	2,881.2	8.8	5,660.5	5	248	2,645.0	971.0	--	3,616.0
Spain <sup>2</sup> (landings & transshipments)	31	3,237	12,279.1	6,307.7	1,189.5	19,776.3				----- Not available -----		
Total	39	3,694	15,049.6	9,188.9	1,198.3	25,436.8						

1. Provisional data up to August 31, 1986, and species composition of the provisional catches.

2. The 1986 total (up to August 31) does not include Spanish landings.

**Table 2. Landings (MT) of small tunas in Senegal, 1984-1985**

<i>Species</i>	1984			1985		
	<i>Artisanal fishery</i>	<i>Commercial fishery</i>	<i>Total</i>	<i>Artisanal fishery</i>	<i>Commercial fishery</i>	<i>Total</i>
Atlantic little tuna ( <i>E. alletteratus</i> )	4,444	796	5,240	2,994		
W. African Spanish mackerel ( <i>Scomberomorus tritor</i> )	868	--	868	1,145	1,196*	
Atlantic bonito ( <i>Sarda sarda</i> )	130	--	130	524		
<b>Total</b>	<b>5,442</b>	<b>796</b>	<b>6,238</b>	<b>4,663</b>	<b>1,196</b>	<b>5,859</b>

\*Total of the three species.

**Table 3. Landings (in MT) of sailfish (*Istiophorus albicans*) in Senegal, 1985**

	<i>Number of individuals</i>	<i>Weight (MT)</i>	<i>Percent</i>	<i>Percent in 1984 Report</i>
Artisanal fishery	8,424	244.3	87.1	60.4
Sport fishery	1,244	34.8	12.4	26.7
Commercial fishery	42	1.3	0.5	12.9
<b>Total</b>	<b>9,710</b>	<b>280.4</b>	<b>100.0</b>	<b>100.0</b>
1984 Report	5,245	154.2		

# NATIONAL REPORT OF SOUTH AFRICA

by

A. J. Penney

## 1. Tuna landings

Tuna landings during 1985 are compared with those during 1984 in Table 1. The albacore catch continued to increase and the 1985 catch (5,360 MT) was 89 percent higher than 1984 and the highest catch of this species yet reported. This increased albacore catch resulted in a 58 percent increase in the total tuna catch to 5,865 MT. Practically all the effort in the fishery was directed to pole-fishing off the north-west coast on the albacore shoals located during 1983, with the result that the proportion of fish taken by poles increased by 8 percent, to make up 96 percent of the total catch. As a consequence, longline and purse seine effort was negligible and catches by these methods declined to extremely low levels. In addition to the catches of tuna made on tuna longlines, 5 MT of broadbill swordfish were caught on hake and kingklip longlines. Only one purse seine operator made any attempt to catch tuna, landing 7 MT of albacore. Increased poling effort also increased the proportion of the other tuna species taken by poles. The bigeye and skipjack catches (117 MT and 52 MT respectively) increased slightly over 1984 while the yellowfin tuna catch decreased by 59 percent to 328 MT.

## 2. Research

### 2.1 Length-frequency sampling

Monitoring of local tuna catches and length-frequency sampling of both local and Taiwanese catches was significantly improved. A total of 10,385 albacore were measured from 93 Taiwanese longliners transshipping 10,950 MT of tuna in Table Bay harbor. This represents a marked increase over the 2,690 fish measured in 1984. In order to provide similar data for South African catches, a length-frequency sampling program was initiated at major landing ports on the west coast, as a result of which 3,746 albacore were measured.

Original report in English.

## 2.2 Catch and effort data collection

Recording of actual catches of tuna by local boats was greatly improved by the issue of tuna catch logbooks to all major operators. This logbook has been designed to facilitate the reporting of daily catches in a format that will allow computerized analysis of catch and effort in the formats required by ICCAT.

## 2.3 Environmental research

A number of multi-disciplinary research cruises were conducted in tuna-fishing areas, during which various physical, chemical and biological surveys were conducted.

**Table 1. Reported South African tuna landings (in MT) during 1984 and 1985**

<i>Species</i>	<i>C a t c h</i>	
	<i>1984</i>	<i>1985</i>
Albacore . . . . .	2,834	5,360
Yellowfin tuna . . . . .	806	328
Bigeye tuna . . . . .	36	117
Skipjack tuna . . . . .	10	52
Swordfish . . . . .	28	8
Total . . . . .	3,714	5,865

## NATIONAL REPORT OF SPAIN

by

A. González-Garcés

### 1. The fisheries

Spanish catches of tunas and tuna-like species in the Atlantic and Mediterranean in 1985 reached 156,261 MT, an increase of around 7,616 MT (5 percent) compared to 1984, and represented the highest catches for Spain of tunas and tuna-like species in these areas since the inception of the fisheries (Figure 1).

The catches (in metric tons) of the main species the the last few years are shown in Table 1.

Spain fishes for tunas in five different areas of the Atlantic: tropical east, tropical west, Canary Islands, northeast Atlantic and Mediterranean. Table 2 presents total catch data for these large areas for 1978-1985. This table also shows that at the present time the majority of the catches is taken from the tropical east Atlantic, followed distantly by the northeast Atlantic, Canary Islands, Mediterranean and finally, with few catches, the tropical west Atlantic.

#### 1.1 The tropical east Atlantic fishery

Spain began its fishery in the tropical east Atlantic in the mid-1950's with a baitboat fleet that was gradually converted to a fleet of large purse seiners. In 1984 the Spanish tropical fleet in the east Atlantic was comprised of 55 vessels, while in 1985 there were 54 purse seiners operating in this area, that is, one less than the previous year.

However, during 1984, 14 vessels (four in category 6 and ten in category 7) left the Atlantic and operated in the Indian Ocean. In 1985, of the 54 vessels, 16 operated in the Indian Ocean as follows: eight (five in category 6 and three in category 7) remained in the Indian Ocean the entire year, the other eight vessels (all in category 7) were in the Indian Ocean for part of the year (an average of 7 months) and in the Atlantic the rest of the year (an average of 5 months).

Original report in Spanish.

In 1986, there was a change in the composition of the fleet, with respect to 1985. As of September 30, one boat in category 4 and four boats in category 6 had stopped operating for different reasons (two had sunk and three had economic reasons for ceasing their activities).

The distribution of the fleet in the last four years, according to gross registered tonnage (GRT) was as follows:

Category	GRT	1983	1984	1985	1986*
4	300-450	2	2	2	1
5	451-750	9	9	9	9
6	751-1,250	24	24	25	21
7	more than 1,250	<u>17</u>	<u>20</u>	<u>18</u>	<u>18</u>
TOTAL		52	55	54	49

\*Up to September 30, 1986.

Taking into account the number of vessels and the months they operated in the Atlantic, the carrying capacity of the Spanish fleet in the tropical east Atlantic was estimated at 30,163 MT. This implies a decrease of about 10 percent compared to 1984, and is around the 1980-81 level.

In spite of the decrease in carrying capacity, the total catches of the Spanish fleet in the tropical east Atlantic increased, going from 98,655 MT in 1984 to 102,421 MT in 1985. This rise was due to the significant increase in the catches of yellowfin plus bigeye (increase of 17,116 MT). On the contrary, skipjack catches decreased (11,160 MT) from 1984 to 1985. This decrease in skipjack catches was due to a change in the target species to yellowfin because of its abundance and better price.

The catches in the tropical east Atlantic in the last few years are presented in Table 3. It should be noted that the data in this table through 1984 reflect the corrections made in accordance with the recommendations of the Working Group on Juvenile Tropical Tunas. However, the data presented for 1985 have not been corrected by this system, which results in the bigeye catches being included in the yellowfin catches (in the data for 1985, approximately 8,000 or 10,000 MT of yellowfin are really bigeye).

In 1985, the total catches in this area were higher than ever before, reaching for the first time around 100,000 MT.

Catches in the first three quarters of 1986 are estimated to be about 51,000 MT for yellowfin plus bigeye, about 40,000 MT for skipjack and about 3,100 MT for other species.

## 1.2 The tropical west Atlantic fishery

Spanish catches in the tropical west Atlantic are shown in Table 4. This table shows that, after three years without fishing in this area, the catches for 1983 and 1984 are considerable. The catches in 1984 are the highest in the historical series.

In 1985 only one Spanish vessel operated in this area, which alternated the western Atlantic with the Pacific. In 1986, this vessel is believed to be inactive.

## 1.3 The Canary Islands fishery

During the present year, the fleet which operates in this area was renovated. This fleet can be divided into two types: one that remains in the Canary Islands during the entire year, and one that remains in the Canary Islands only a few months during the albacore fishing season (first months of the year).

The permanent fleet in the Canary Islands is basically comprised of small boats of less than 10 GRT. The composition of this fleet, all baitboats, in 1985 was as follows: 304 boats of less than 10 GRT, 77 boats of 10-19 GRT, 17 boats of 20-49 GRT, 16 boats of 50-100 GRT, and 14 boats of more than 100 GRT, giving a total of 428 boats.

The fleet from the peninsula which operated in the Canary Islands in 1985 and 1986 was comprised of 69 baitboats, distributed as follows: 1 boat less than 50 GRT, 5 boats of 50-99 GRT, 55 boats of 100-150 GRT, 6 boats of 150-200 GRT, and 2 boats of more than 200 GRT.

Catches in this area in the last few years are given in Table 5. The 1985 catches were double the 1984 catches (almost 7,000 MT more). This was essentially due to the increase in skipjack, bigeye and albacore catches. On the other hand, yellowfin catches also increased, although only slightly with respect to 1984, continuing to be much higher than in previous years. Bluefin catches remained low.

Catches for 1986, up to September 30, seem to have decreased with respect to 1985, and 300 MT yellowfin, 1,640 MT skipjack, 2,232 MT bigeye, 68 MT bluefin, 403 MT albacore and 6 MT other species are estimated.

## 1.4 The northeast Atlantic fisheries

There are three basic fisheries for tunas and tuna-like species in this area: an albacore fishery which operated from June to Octo-



ber in a wide area from Gibraltar to Ireland and from the European coasts to 35°W, a swordfish fishery which operates during the entire year, but primarily in the first and fourth quarters in an area from Senegal to Ireland and from the African and European coasts to 50°W, and a bluefin fishery which operates in two distinct areas, the Bay of Biscay in summer using live bait and the Gulf of Cadiz in spring using traps.

In 1986, information on the Spanish albacore fleet in this area was revised and updated. This revision included boats of less than 20 GRT which were not included previously. Therefore, the fleet which operated in 1985 was comprised of 228 baitboats and 505 trollers. The swordfish fleet was comprised of about 185 longliners.

In 1985, four traps were set and an indeterminate number of boats operated which incidentally caught tuna, usually bluefin, as they did not target these species; for example, purse seiners which targeted sardines or anchovies, trawlers which put out lines at night, vessels using gillnets in which once in a while a tuna became caught, etc. These vessels usually operate to the south of the Iberian Peninsula.

The distribution of the troll and baitboat fleets which operated in 1985 was as follows:

GRT	Troll	Baitboat
Less than 20	110	2
20-49	160	8
50-99	121	58
100-149	80	155
150-199	28	5
200-249	9	—
Total	508	228

The catches in this area in the last few years are shown in Table 6. An increase in the catches can be noted, compared to 1984 (4,565 MT more), although even with this increase, the catch level did not reach that of 1983.

The increase in catches in 1984 and 1985 was essentially due to albacore, although the catches of this species were lower than the average of previous years. Swordfish catches also increased significantly, as did the catches of "Others", while bluefin catches decreased in the traps as well as in the baitboat fishery in the north of the Iberian Peninsula (Bay of Biscay).

In the Bay of Biscay, 1,985 MT of bluefin were caught, of which 1,487 MT came from just one port, Fuenterrabia, which has a fleet

of 20 boats exclusively targeting this species. The other 363 MT were caught by the albacore fleet as an incidental catch.

For the first three quarters of 1986, 3,000 MT bluefin, 22,000 MT albacore, 5,000 MT swordfish, and 700 MT other species are estimated. According to these estimates, the bluefin and swordfish catches will remain at the same level as 1985, while the catches of albacore will increase.

### 1.5 Mediterranean fisheries

A varied fleet operated in this area and included longliners (118 vessels), trollers, baitboats (114 vessels), small purse seiners, sport vessels, "saltillo" (handline), small trap nets, gill nets ("boniteras", "melveras", "soltas", etc.), three large traps and several small traps.

The catches of the last few years are shown in Table 7. In 1985 they decreased by 2,353 MT, basically due to the recently developed bluefin and albacore baitboat fishery, and were approximately at the 1982-83 level.

## 2. Research

### 2.1 Tropical fisheries

The collection of ICCAT Task II catch data and sampling in African ports, in which the Spanish fleet unloads most of its catches, were carried out in collaboration with the "Centre de Recherches Océanographiques" of Abidjan (Côte d'Ivoire) and the "Centre de Recherches Océanographiques" of Dakar (Senegal). It should be emphasized that without the collaboration and help of these two research organizations the statistical sampling coverage would have been impossible to achieve.

In 1986, observers were on board a Spanish purse seiner, within the framework of the Yellowfin Year Program, and another cruise is expected to be carried out before the end of the year.

### 2.2 Canary Islands fisheries

As regards ICCAT Task I and II data, the fisheries in this area have continued to be monitored by means of an information and sampling network which covers 100 percent of the catch.

Up to September 30, 1986, 7,875 tuna were sampled for size (3,621 bigeye, 2,919 skipjack, 671 albacore, 622 yellowfin and 42 bluefin). Ninety-eight albacore were sampled thoroughly for morphometric studies.

In 1985 as well as in 1986, tagging cruises were carried out, in which 221 skipjack in 1985 and 90 yellowfin and 183 skipjack in 1986 were tagged.

### 2.3 Northeast Atlantic fisheries

The collection of detailed ICCAT Task II statistical data (catch and effort) covers 95 percent of the total catches of this area. As regards size sampling, in 1985, 20,000 albacore, more than 50,000 swordfish, around 4,000 bluefin, 1,500 Atlantic bonito, 1,000 frigate tuna, 1,200 yellowfin, and 500 bigeye were sampled.

In 1985, two tagging cruises were carried out, one for albacore (126 albacore tagged) and one for bluefin (407 bluefin tagged).

In 1986, two cruises were made to tag tunas in the Bay of Biscay. One cruise, made by a small boat targeting albacore, tagged 120 of this species. The other cruise, made by a boat targeting bluefin, tagged 837 bluefin and 93 albacore. This second cruise can be considered very successful due to the extraordinarily high number of bluefin tagged.

During 1986, the swordfish and shark tagging program on long-liners continued. At the time of writing this report, 70 swordfish and 40 sharks have been tagged.

As regards bluefin tuna, the collection and analysis of fin spines for creating size-age keys are continuing. In 1985, 614 spines were examined and so far in 1986, 500 have been collected.

In 1986, the collection of bluefin and albacore stomachs has continued to carry out studies on stomach contents and feeding of these species. A document was presented to ICES on the stomach contents of bluefin tuna and one on albacore was presented to the SCRS.

A study of sexual maturity and fecundity was begun on swordfish in the area between the Iberian Peninsula and the Azores (Portugal).

### 2.4 Mediterranean fisheries

In 1985 the collection of ICCAT Task II statistical data continued, reaching a coverage rate of 70 percent. For size data, 8,401 bluefin, 11,794 swordfish, 136 albacore, 2,608 Atlantic bonito, 956 frigate tuna and 82 Atlantic little tuna were measured.

Studies on the age structure of Spanish bluefin catches in the Mediterranean, as well as detailed studies on the swordfish and albacore fisheries were conducted.

3. References

The documents presented to the SCRS in 1986 are listed in Appendix 2 to Annex 12 and/or are published in the Collective Volume of Scientific Papers, Vol. XXVI.

Table 1. Spanish catches (in MT) of tunas and tuna-like species in 1978-1985

Year	YFT	SKJ	BET	BFT	ALB	SWO	OTH	TOTAL
1978	35,665	27,097	6,850	4,190	25,404	4,342	6,803	110,351
1979	41,135	19,800	5,419	3,656	29,810	3,382	5,409	108,611
1980	38,759	26,384	8,430	2,468	25,202	4,560	10,365	116,168
1981	51,428	35,458	10,010	2,601	22,631	5,134	8,370	135,632
1982	54,164	38,016	9,332	3,813	26,156	5,454	7,306	144,241
1983	49,114	30,634	12,420	5,257	30,387	8,422	6,512	142,746
1984	46,052	50,263	10,599	7,561	17,331	7,560	9,279	148,645
1985	67,425	40,670	5,101	5,796	21,358	8,688	7,223	156,261

Table 2. Spanish catches of tunas (in MT) by large fishing area, 1978-1985

Year	ETRO	WETRO	CANA	NE	MEDI	TOTAL
1978	61,500	4,060	7,360	32,967	4,464	110,351
1979	60,600	2,104	5,812	35,703	4,392	108,611
1980	73,100	0	7,203	31,582	4,283	116,168
1981	95,874	0	7,818	27,150	4,790	135,632
1982	98,593	0	5,762	33,795	6,091	144,241
1983	88,100	2,166	5,370	41,080	6,030	142,746
1984	98,655	6,586	8,280	26,478	8,646	148,645
1985	102,421	1,500	15,004	31,043	6,293	156,261

Table 3. Spanish catches (in MT) of tunas, by species, in the eastern tropical Atlantic in 1978-1985

Year	YFT	SKJ	BET	ALB	OTH	TOTAL
1978	33,393	24,508	2,999	0	600	61,500
1979	39,938	17,418	2,444	0	800	60,600
1980	38,682	24,222	4,396	0	5,800	73,100
1981	51,332	31,307	7,598	889	4,748	95,874
1982	53,779	34,650	7,496	106	2,562	98,593
1983	46,358	29,114	9,816	295	2,517	88,100
1984	39,532	45,621	7,742	307	5,453	98,655
1985	63,556	34,461	834	155	3,415*	102,421

\*Includes frigate tuna and Atlantic little tuna.

Table 4. Spanish catches (in MT) of tunas in the west tropical Atlantic, 1978-1985

<i>Year</i>	<i>YFT</i>	<i>SKJ</i>	<i>TOTAL</i>
1978	2,029	2,031	4,060
1979	1,052	1,052	2,104
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	1,957	209	2,166
1984	3,976	2,610	6,586
1985	1,000	500	1,500

Table 5. Spanish catches of tunas (in MT) in the Canary Islands, 1978-1985

<i>Year</i>	<i>YFT</i>	<i>SKJ</i>	<i>BET</i>	<i>BFT</i>	<i>ALB</i>	<i>OTH</i>	<i>TOTAL</i>
1978	243	558	3,851	1,548	1,160	0	7,360
1979	145	1,330	2,975	758	604	0	5,812
1980	77	2,162	4,034	397	518	15	7,203
1981	96	3,876	2,313	524	1,009	0	7,818
1982	385	3,366	1,449	43	519	0	5,762
1983	690	1,255	2,352	305	768	0	5,370
1984	2,449	2,013	2,817	16	985	0	8,280
1985	2,824	5,652	4,920	133	1,470	5	15,004

**Table 6. Spanish catches (in MT) of tunas in the Northeast Atlantic, 1978-1985**

<i>Year</i>	<i>BFT</i>	<i>ALB</i>	<i>SWO</i>	<i>OTH</i>	<i>TOTAL</i>
1978	2,477	24,244	3,622	2,624	32,967
1979	2,783	29,206	2,582	1,132	35,703
1980	1,938	24,684	3,810	1,150	31,582
1981	1,723	19,833	4,014	1,580	27,150
1982	2,781	24,959	4,554	1,501	33,795
1983	4,140	28,789	7,100	1,051	41,080
1984	4,802	14,708	6,315	653	26,478
1985	3,497	19,202	7,460	884	31,043

**Table 7. Spanish catches of tunas (in MT) in the Mediterranean Sea, 1978-1985**

<i>Year</i>	<i>BFT</i>	<i>ALB</i>	<i>SWO</i>	<i>BON</i>	<i>FRI</i>	<i>OTH</i>	<i>TOTAL</i>
1978	165	0	720	711	1,676	1,192	4,464
1979	115	0	800	713	1,771	993	4,392
1980	133	0	750	480	2,120	800	4,283
1981	354	900	1,120	710	1,700	6	4,790
1982	989	572	900	990	1,935	705	6,091
1983	812	535	1,322	1,225	2,135	1	6,030
1984	2,743	1,331	1,245	984	2,301	42	8,646
1985	1,471	531	1,227	1,005	2,047	12	6,293

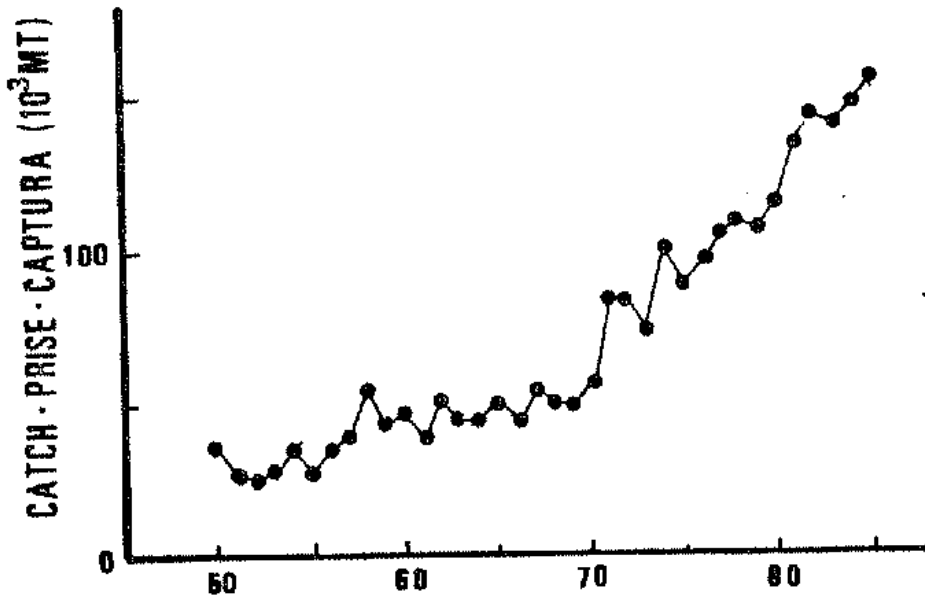


Fig. 1 Total Spanish catch of tunas in the Atlantic and Mediterranean, 1950-85.



# NATIONAL REPORT OF THE U.S.A.

by

National Marine Fisheries Service\*

## 1. Introduction

In the United States, the National Marine Fisheries Service (NMFS) has the responsibility for monitoring fishery statistics and conducting research on Atlantic tunas and tuna-like species in support of the ICCAT Convention. This responsibility was shared by the Southwest Fisheries Center, La Jolla, California, and Southeast Fisheries Center, Miami, Florida. These Centers' accomplishments in satisfying these responsibilities in 1984-85 are described in this report.

## 2. Fisheries monitoring

The NMFS monitors U.S. tuna fisheries for the principal tropical tuna species, yellowfin, bigeye and skipjack tunas, and the principal temperate tuna species, bluefin and albacore tunas. Billfish fisheries and other scombrid fisheries of lesser commercial importance, although of major recreational importance, are also monitored. Monitoring activities include the design of sampling programs, collection of fisheries statistics, maintenance of a comprehensive data base, and the summarization and dissemination of fishery information to ICCAT and other organizations.

### 2.1 Tropical tunas

The reported U.S. combined catch of the three principal species increased to 8,400 MT in 1985 from 2,500 MT in 1984. In 1985, the catch consisted of 6,259 MT of yellowfin tuna, up from 1,252 MT from 1984, 353 MT of bigeye tuna, down from 408 MT in 1984, and 1,786 MT of skipjack tuna, up from 817 MT in 1984. Most of this

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\*Prepared by staff members of the Southwest Fisheries Center, La Jolla, California, and the Southeast Fisheries Center, Miami, Florida.  
Original report in English.

increase was due to large purse seiners that operated in the west Atlantic, primarily in the Caribbean Sea. Most of the remainder of the total tropical tuna catches were incidental catches by small purse seiners and longliners targeting other species as well as other small fisheries operating in the Gulf of Mexico and off the U.S. east coast.

During 1986 (January through September), two U.S. purse seine vessels fished in the Caribbean, landing 121 MT of yellowfin and 170 MT of skipjack.

## 2.2 Temperate tunas and billfishes

United States vessels caught 1,400 MT of bluefin tuna in 1985. The fishery was conducted off the east coast of the United States and in the Gulf of Mexico. The catch was made primarily by rod and reel, purse seine and handline gears and under strict quota regulations.

United States vessels caught 4,033 MT of swordfish in 1985, up slightly from the 1984 catch of 3,981 MT. The vast majority of these landings were from the longline fishery.

The U.S. catch of albacore tuna was 17 MT. This catch was primarily incidental to swordfish longline operations along the U.S. east coast.

## 3. Research activities

Scientists from the Southwest and Southeast Fisheries Centers conduct research on Atlantic tunas and tuna-like species. This research involves the execution of analyses aimed at assessing the status of various stocks and the development of new methods to improve assessments. The scientists also participate in regular ICCAT meetings and special working group meetings where their research plans and research results are discussed.

### 3.1 Southwest Fisheries Center

Research at the Southwest Fisheries Center in 1985 and 1986 was devoted to the longline fisheries. This study, presented as an ICCAT document, pointed out the role of market forces in determining the species composition of the catches.

### 3.2 Southeast Fisheries Center

Research at the Southeast Fisheries Center emphasized bluefin tuna, marlin, and swordfish.

Surveys were made to estimate recreational fishery catches in the northeastern U.S. for tunas and billfish. In the southeastern U.S. and Caribbean, catch and catch rates were monitored for tournaments and at selected docks.

The number of billfish tagged was 3,447 in 1985. Recaptures included a bluefin tuna at liberty almost 18 years, two recaptures in the western Mediterranean of bluefin tagged in the western Atlantic and a transatlantic migration of a blue marlin.

Research continued on age and growth of large pelagics and a document describing the status of these studies on blue marlin was prepared for ICCAT. A second document analyzed recreational CPUE for blue marlin from the U.S. east coast, Gulf of Mexico, Bahamas and the Caribbean.

Bluefin tuna research was directed towards preparing analyses for use in the assessment of the status of the stock at the ICCAT meeting and a document describing catch rates in the Japanese long-line fishery recorded by U.S. observers was prepared. A methodology study concerning estimation of partial recruitment vectors for use in cohort analysis was also preserved as an ICCAT document. In addition, considerable effort was given to placing stock assessment computer programs on the new ICCAT computer.

Swordfish research was directed towards improving the fishery data base for assessment and the conducting of an assessment workshop. Dr. Miyake represented ICCAT at that workshop. The results at that assessment workshop were presented as an ICCAT document.

A Southeast Fisheries Center scientist assisted in the Yellowfin Year Program by providing tagging expertise in Venezuela.

#### 4. References

The documents presented to the SCRS in 1986 are listed in Appendix 2 to Annex 12 and/or are published in the Collective Volume of Scientific Papers, Vol. XXVI.

## NATIONAL REPORT OF THE U.S.S.R.

by

Yu. A. Vialov and V. V. Ovchinnikov, AtlantNIRO

### 1. The fisheries

In 1985 the total catch of tunas and related species constituted 15,496 MT, broken down as: 3,768 MT yellowfin tuna, 870 MT bigeye tuna, 1,404 MT skipjack, 1,040 MT Atlantic little tuna, 6,055 MT of frigate and bullet tunas, 73 MT swordfish, 7 MT marlins, 2,073 MT Atlantic bonito and 206 MT king mackerel. In the eastern central Atlantic, 15,288 MT were yielded with all fishing gears: 6,647 MT with trawls, 7,370 MT with purse seines and 1,271 MT with longlines. In the southeast Atlantic, only trawling was done which resulted in 208 MT.

Compared to 1984, the catch increased by 2,892 MT, mainly due to the increased catch per effort in the purse seine fishery for yellowfin tuna, skipjack and Atlantic little tuna, and in the trawl fishery for bonito. The catch of bigeye tuna and swordfish taken with longlines decreased. The total fishing effort expended by the longline fishery was 1.4 million hooks, and in the purse seine fishery, 1,517 fishing days.

Preliminary catch statistics for the first half of 1986 are as follows: 1,230 MT of yellowfin tuna, 240 MT of Atlantic little tuna, 371 MT of frigate mackerel, 1,425 MT of skipjack, 156 MT of bigeye tuna, 5 MT of marlins and 227 MT of Atlantic bonito. The total catch from the eastern Atlantic amounted to 3,654 MT.

### 2. Scientific research

During the above-mentioned period, the peculiarities of behavior and distribution of yellowfin and bigeye tunas, skipjack and Atlantic little tuna were studied in addition to bigeye tuna stock assessments and comparative studies on the size of tuna schools from the purse seine catches.

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## 2.1 Bigeye tuna

The total allowable catch (TAC) estimated using Fox's model was 32.9 thousand MT for the North Atlantic stock of bigeye tuna at an effective fishing effort of 174.7 million hooks, and 38.0 thousand MT for the south Atlantic stock at the fishing effort level of 183.1 million hooks. The vertical distribution of bigeye tuna from longline catches is determined by the water temperature. The optimum water temperatures providing for formation of commercial concentrations are 11-16°C and are usually recorded at a depth of 115-270 m.

## 2.2 Yellowfin tuna and skipjack

The size of the yellowfin tuna and skipjack catches is subject to considerable annual fluctuations, even when the state of the stock is stable. These fluctuations can be attributed to the influence of abiotic conditions, primarily water temperatures, on the fishery. Both tuna species perform vertical migrations mainly in the 0-50 m layer. The range of vertical migrations is larger during the daytime. Purse seine fishery statistics show that in the open Gulf of Guinea, the size of the yellowfin tuna schools varies between 70 and 220 individuals, and that of skipjack amounts to 6,700 individuals. The largest number of individuals in one school in the neritic zone represented by mixed tuna species (yellowfin tuna, skipjack, Atlantic little tuna) can be up to 20,000 individuals, which exceeds the open ocean aggregations.

## 3. Research cruises

In 1985-1986, two scientific exploratory expeditions were carried out in the eastern central Atlantic with the purpose of studying the purse seine fishery for tunas, and two scientific research expeditions in the western central Atlantic aimed at investigation into prospective longline fisheries. Three observers were taken aboard the fishing seiners.

The collected material on tunas involve:

<u>Longline fishery</u>	
Biological analysis	295
Samples for feeding studies	15
Samples for genetic-biochemical analysis (muscles)	25
Hydrographic stations	58

Purse seine fishery

Massive measurements	5,644
Samples for age determination	150

Trawling

Massive measurements	472
Samples for age determination	329
Samples for fecundity studies	114
Samples for parasitological studies	12

4. Information submitted to ICCAT

1. Data on species composition of tunas and swordfish in Soviet catches for 1985.
2. Data on size composition of bigeye and yellowfin tunas, skipjack and Atlantic little tuna in 1985.
3. Soviet catch, operation of the fleet and the number of ships participating in the fishery for tunas and related species in 1985.
4. Tuna catch statistics for 1985 and preliminary tuna catch statistics for the first half of 1986.
5. Translation of scientific and Russian names of tunas, swordfish, billfishes, etc.

5. Publications (in Russian)

- Bataljants, K. Ya. Some behavioural peculiarities of concentrations of little tuna (Euthynnus alleteratus). In "Behaviour of commercial fishes," Moscow, VNIRO, 1985, pp. 131-135.
- Ovchinnikov, V. V. Migrations and aggregative behaviour of tunas. In "Behaviour of commercial fishes," Moscow, VNIRO, 1985, pp. 101-111.
- Ovchinnikov, V. V., A. A. Nesterov. Fish of epipelagial Atlantic Ocean. In: "Biol. Res. Gidrosp.," 1986, pp. 199-230.

**Table 1. Data on the U.S.S.R. catch of tunas,  
in the first half of 1986**

<i>Species</i>	<i>MT</i>
Skipjack . . . . .	1,425
Yellowfin tuna . . . . .	1,230
Frigate tuna . . . . .	371
Atlantic little tuna . . . . .	240
Bonito . . . . .	227
Bigeye tuna . . . . .	156
Marlin . . . . .	5
Total . . . . .	3,654