INTERNATIONAL COMMISSION
for the
CONSERVATION of ATLANTIC TUNAS

R E P O R T
for biennial period, 1984-85
PART II (1985)
English version

MADRID, SPAIN 1986

INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS

Contracting Parties (as of April 1, 1986)

Angola, Benin, Brazil, Canada, Cape Verde, Cuba, France, Gabon, Ghana, Ivory Coast, Japan, Korea, Morocco, Portugal, Senegal, Sao Tomé & Principe, 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, 1986)

Panel	Contracting Parties	Chairman
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:	Chairman
Committee on Finance and Administration (STACFAD)	Ms. P. GARCÍA DOÑORO, Spain (from November 18, 1985)
Committee on Research and Statistics (SCRS)	Mr. J. S. BECKETT, Canada (from November 17, 1981)

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, 1984-85, Part II (1985)"***, describing the activities of the Commission during the second half of said biennial period.

The volume contains the reports of the Ninth Regular Meeting of the Commission, held in November, 1985, 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 1985

COM/85/7 (Amended)*

1. Member countries of the Commission

Since the last meeting (November, 1984), there have been no changes in Commission membership. The Commission currently comprises 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, Ivory Coast, Cuba, Angola, U.S.S.R., Gabon Benin, Cape Verde, Uruguay, São Tomé & Principe, and Venezuela.

The Food and Agriculture Organization of the United Nations (FAO), depository of the ICCAT Convention, informed the Commission that, as of October 15, 1985, France, São Tomé and Principe, the Republic of Korea, South Africa, Uruguay, Japan, and Senegal have ratified the Protocol to the Convention, approved at the Conference of Plenipotentiaries (Paris, July 1984), for accession of the EEC to the Convention.

2. Meetings organized by ICCAT

2.1. Working Group on Bluefin Tuna

The Working Group on Bluefin Tuna met at the NMFS Southeast Fisheries Center in Miami, Florida from September 18 to 28, 1985, at the invitation of the Government of the U.S.A. Just prior to the meeting, the data base was created and updated at the computer at Southeast Center. The Assistant Executive Secretary, the assistant programmer and one secretary attended the meeting from the Secretariat. The U.S. Government assumed the expenses for the conference room, document reproduction, computer facilities, professional interpreters, a word processor and transportation for participants between the meeting place and hotels.

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

2.2. SCRS Officers Meeting

The SCRS officers attending the Meeting of the Working Group on Bluefin Tuna met on September 20, 1985. They discussed overall SCRS organization and the progress made by the various working groups. The Secretariat's statistical work was also discussed at that time.

3. Meetings at which ICCAT was represented

3.1. Conference of Fisheries Ministers

At the invitation of the Spanish Government, the Executive Secretary attended a Conference of Ministers of Fisheries held at Toja Island, close to the Spanish port city of Vigo, September 15-18, 1985. This Conference was held within the framework of a program on the management and development of fisheries approved by the FAO World Conference on Fisheries held in July, 1984.

Mr. Carlos Romero, Spanish Minister of Agriculture, Fishing and Food, presided over the Conference. Other participants included Mr. Edouard Saouma, the Director General of FAO, as well as delegations from Algeria, Angola, Argentina, Belgium, Brazil, China, Equatorial Guinea, France, German Federal Republic, Greece, Guinea Conakry, Indonesia, Ireland, Italy, Madagascar, Morocco, Mauritania, Mexico, Mozambique, Netherlands, Portugal, United Kingdom, Uruguay and the European Economic Community. The two international fisheries commissions with headquarters in Madrid, ICCAT and ICSEAF, were invited as observers.

The majority of the delegations present took the floor to explain their respective countries' plans for fisheries development and expressed their willingness to cooperate on both a bilateral and multilateral basis.

The ICCAT Executive Secretary discussed the overall activities of the Commission and emphasized the importance of the availability of reliable statistics in order to establish rational fisheries management. He solicited the collaboration of the national fisheries administrations in facilitating the data requested and in returning tags recovered from fish.

3.2. FAO Committee on Fisheries (COFI)

The Executive Secretary attended the Sixteenth Session of the FAO Committee on Fisheries (COFI), held in Rome April 22-26, 1985.

At that time he held discussions of a technical and administrative nature with several delegations of ICCAT member countries.

3.3. Inter-Agency meeting of the Coordinating Working Party on Atlantic Fishery Statistics (CWP)/International Council for the Exploration of the Sea (ICES)

The CWP, of which ICCAT is an active member organization, held its Inter-Agency meeting in London, on October 5-6, 1985, prior to the ICES 73rd Statutory Meeting. The

Commission was represented by the Assistant Executive Secretary. The meeting focused its attention on the means to eliminate discrepancies in the data bases of the various participating organizations (see SCRS/85/13). The Assistant Executive Secretary also attended the beginning of the ICES meeting.

3.4. International Commission for the Southeast Atlantic Fisheries (ICSEAF)

The Executive and Assistant Executive Secretaries attended the Commission and scientific sessions of ICSEAF, held in Torremolinos, Spain, in December, 1984.

4. Collaboration with other organizations

As in the past, close working cooperation has been maintained with the Fisheries Department of the Food and Agriculture Organization of the United Nations (FAO). Mutual assistance in collecting statistics and other information continued as in other years. In particular, in 1985 an attempt was made to eliminate discrepancies in Atlantic tuna statistics between the data bases of the two organizations. The Assistant Executive Secretary visited FAO in May to study the bases with FAO staff (SCRS/85/13).

Close working relationships were also maintained with other FAO organizations, such as the FAO Fishery Committee for the Eastern Central Atlantic (CECAF), the General Fisheries Council for the Mediterranean (GFCM), the Indo-Pacific Fisheries Council (IPFC), the Indian Ocean Fisheries Commission (IOFC) and the tuna statistical field program in the western Pacific-Indian Ocean region.

The Commission also collaborated with various international organizations, such as:

- Inter-American Tropical Tuna Commission (IATTC)
- 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)

5. Coordination of Research

The coordination of research carried out by the Secretariat during 1985 is summarized in the "Secretariat Report on Statistics and Coordination of Research" (COM-SCRS/85/10).

Special mention should be made of the computer problem since there has been some delay in computer work at the Secretariat, particularly in 1985. The INFONET system, which the Commission has contracted until now, will be out of business in Spain in 1986. The SCRS recommended that scientists have direct access to the computer and the ICCAT data base. This led the Secretariat to conduct a comparative study regarding a few alternatives which the Commission can take in 1986. The study is presented in COM-SCRS/85/12.

Another special project involved the loan of a U.S. technician to establish a sampling scheme and train local personnel for port sampling from the Venezuelan tuna fleet. The offer was made at the last SCRS by the U.S. and the project was carried out in June-July, 1985. Details of the project are reported in COM-SCRS/85/10.

6. Publications

The following publications were issued in 1985:

a) Basic Texts-2nd Revision (English, French and Spanish)

b) Biennial Report, 1984-1985, Part I (English, French and Spanish)

c) Statistical Bulletin, Vol. 14 (1983) (Final Edition)

d) Statistical Bulletin, Vol. 15 (1984) (Provisional Edition)

e) Data Record, Vol. 25 (Data received from October, 1984 to February, 1985)

f) Collective Volume of Scientific Papers, Vol. XXII (Report of the Meeting of Working Group on Bluefin Tuna, Dartmouth, Canada)

g) Collective Volume of Scientific Papers, Vol. XXIII (1-3) (Report A and 1984 SCRS documents)

h) Statistical Series, Vol. 13 (Port sampling summary for 1984)

i) Newsletter (2 issues)

In 1985, laser printing (photo composition) was tried successfully for the first time for the printing of the Biennial Report. The text files created during the 1984 meetings by the word processors were edited, corrected and coded and used for the composition by computer. This new printing procedure represented a great savings in time and eliminated errors in retyping.

An unforeseeable delay has been experienced in the publication of the Skipjack Conference publication. This is due, in part, to the slow responses of a few authors (mostly because of slow mail services), and in part to difficulties in finalizing the chapters on literature cited and the index. The Commission contracted the Dobrocky Seatech, Ltd., a Canadian consulting firm, and later Dr. P. E. K. Symons to edit the skipjack publication. All the page proofs are finished except for the two chapters mentioned above and final page setting is being done. Therefore, we expect to distribute the publication in early 1986.

7. Secretariat and Administration

7.1. Staff

Mr. P. Kebe (Senegalese nationality) was hired as a systems analyst. This post had been vacant since mid-1984. Mr. Kebe was selected from among some forty applicants; he started working with the Commission in late June, 1985.

The current Secretariat staff (as of October 15, 1985) consists of the Executive Secretary, Assistant Executive Secretary, Biostatistician and Systems Analyst in the U.N. Professional Category, six multi-lingual secretaries, an assistant programmer and a clerk in the U.N. General Services Category and four locally contracted staff.

The Commission follows the general U.N./FAO guidelines for the classification of staff members in the General Services Category. Consequently, one multi-lingual secretary will be reclassified in 1986 from G-4 to G-5. This change in classification is in accordance with the recommendations made by the "Panel of Experts on Salaries and Benefits of the Secretariat Staff" (Madrid, 1981) and will have no budgetary repercussions.

7.2. Trips

In addition to those trips made by the Secretariat staff to attend meetings mentioned in Sections 4 and 5 of this Report, other official trips made by Secretariat staff included a trip by the Executive Secretary to Palma de Mallorca to organize the 1985 Commission Meeting and one by the Assistant Executive Secretary to Venezuela in March-April, 1985. The purpose of the Venezuelan trip was to help solve difficulties relating to fishery statistics and sampling of the Venezuela-based fleet and to make arrangements for the visit of the ICCAT sampling expert (U.S. expert on loan) at the sampling ports. Details of this trip are reported in COM-SCRS/85/10.

FINANCIAL REPORT 1985

COM/85/8 (Amended)*

REGULAR BUDGET

I. FISCAL YEAR 1984

1. Auditor's Report

The Auditor examined the books and accounts of the Commission up to December 31, 1984. 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 sent a copy of the Auditor's Report to all the member country governments in May, 1985. An extract of this Report has been included in the "Report for Biennial Period, 1984-85, Part I", and was presented to the Commission.

2. Financial Status at the end of Fiscal Year 1984

Statement 1 shows the Balance Sheet to the end of Fiscal Year 1984. There was a balance in Cash and Bank of $727,016.82 at the end of 1984. Of this amount, $175,000 were applied to the 1985 Budget. There were $552,016.82 available in the Working Capital Fund.

Member country contributions pending payment amounted to $296,882.57.

II. FISCAL YEAR 1985

1. Regular Budget 1985

The 1985 Regular Budget (*Statement 2*) was approved by the Commission at its Eighth Regular Meeting (Madrid, November 1983) (see Appendix 2 to Annex 9 of the 1983

*Updated to the end of Fiscal Year 1985. Modifications agreed upon by the Commission have been included.

STACFAD Report, contained in the Biennial Report, 1982-83, Part II), and revised by the Commission at its Fourth Special Meeting (Las Palmas, November 1984).

The 1985 Budget was established at $750,000. However, of this amount $175,000 were applied from the Working Capital Fund. Thus, the base for the member country contributions was $575,000.

2. Review of Commission Accounts

Statement 3 shows the status of the member country contributions at the end of 1985. There were contributions pending payment from 1985 and/or other years totaling $315,243.21 from: Angola, Benin, Brazil, Cape Verde, Gabon, Ghana, Ivory Coast, Morocco, São Tomé and Principe, Senegal and Uruguay.

Statement 4 shows the Budget, Expenditures and Balance to the end of Fiscal Year 1985. If all the member countries had paid their contributions, we would have ended the Fiscal Year with a positive balance of $144,523.99. However, the funds available from the 1985 Budget are as follows:

a) Member country contributions	$444,072.05	
b) From the Working Capital Fund	175,000.00	$619,072.05
Since expenditures amount to:		605,476.01
There is a positive balance of:		$13,596.04

This balance will be deposited in the Working Capital Fund.

3. General Comments on the Regular Budget

Chapter 1 - SALARIES

The effect of currency fluctuation has resulted in a substantial positive balance ($52,645.25) in this Budget chapter, since there were no increases in salaries for staff in the Professional Category. Instead, there were actually slight decreases in salaries for some months.

Chapter 2 - TRAVEL

Trips made by the Secretariat staff are detailed in the Administrative Report (COM/85/7).

Included in this Budget chapter are trips made by the Executive Secretary to Palma de Mallorca (to organize the annual meeting), Rome (to attend the meeting of the FAO Committee on Fisheries) and to La Toja, Vigo, Spain (to attend the Conference of Fisheries Ministers), and Tarragona, Spain (to attend the ICSEAF meeting).

Trips made by the Assistant Executive Secretary to London (to attend the CWP/ICES meetings) and to Colombo, Sri Lanka (to attend the Ad Hoc Consultation on Tuna Statistics) are also included in this Budget chapter.

"Home leave" trip expenses for the Assistant Executive Secretary and his family to Japan are also included in this Budget chapter.

Chapter 3 - ANNUAL MEETING

The amount budgeted for this chapter was estimated based on holding the annual Commission Meeting in Madrid. However, at the request of various countries, the Commission decided to hold the 1985 meeting in Palma de Mallorca. As a result, this Budget chapter shows a negative balance of $15,481.23.

A breakdown of expenses charged to this Budget chapter is as follows:

i)	ICCAT Secretariat staff (travel, per diem, overtime, etc.)	$36,006.89
ii)	Simultaneous interpreters (travel, salary, per diem)	16,958.81
iii)	Extra staff (2 multi-lingual translators, 1 receptionist, 1 copy machine operator)	12,901.66
iv)	Hotel conference rooms, working rooms, coffee break, and miscellaneous)	8,577.88
v)	Electronic equipment for simultaneous translation	6,005.73
vi)	Rental of 3 copy machines	5,632.09
vii)	Transport of equipment and material	4,414.01
viii)	Installation and miscellaneous expenses	2,184.17
	TOTAL	$92,681.23

Chapter 4 - PUBLICATIONS

The publications charged to this Budget chapter are listed in the Administrative Report (COM/85/7). There is a positive balance of $6,295.63.

Chapter 5 - OFFICE EQUIPMENT

The purchase of office furniture, monthly installments on two leased photocopy machines and the purchase of a calculator were charged to Chapter 5 of the Budget.

Chapter 6 - OPERATING EXPENSES

Expenses such as office material, reproduction of documents, mailing, telephone, telegrams, telex, distribution of documents and publications, equipment maintenance contracts, 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:

i)	Office material	$8,797.00
ii)	Reproduction of documents	4,946.14
iii)	Mailing expenses	9,083.80
iv)	Telephone	6,373.76
v)	Telegrams and telex	4,633.60
vi)	Equipment maintenance	9,135.26
vii)	Auditor's fees	1,584.26
viii)	Security bond	706.35
ix)	Electricity	2,578.10
x)	Office cleaning	3,009.40
xi)	Miscellaneous	1,134.24
	TOTAL	$51,981.91

This budget chapter shows a positive balance of $7,518.09.

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. There is a positive balance of $3,117.25 corresponding to this Budget chapter.

Chapter 8 - COORDINATION OF RESEARCH

a) Staff

This chapter includes the salaries of the biostatistician, the systems analyst (since July), an assistant programmer, a statistical assistant, and a data entry clerk. Also included are the expenses ($18.658.37) of the port samplers in Tenerife, Las Palmas, St. Maarten, Cape Town, Cumaná and Montevideo. There is a substantial positive balance ($49,545.02) due, in part, to the vacancy in the systems analyst position for the first six months of the year.

b) Travel

Trip expenses included in this sub-chapter are travel and per diem for the four candidates pre-selected for interviews in Madrid for the position of systems analyst. Also included are the trips by the Assistant Executive Secretary to Venezuela and Italy (Rome and Palermo) for the coordination of statistics, as well as the trip expenses of the systems analyst to assume his post at the Secretariat. The sub-chapter shows a positive balance of $5,802.07.

c) Office Equipment

Expenses, such as the purchase of office material and auxiliary computer equipment, (i.e. word processor, software, modem, etc.) for the statistical department, have been charged to this sub-chapter.

d) Data Processing

Data processing expenses have remained within the amount budgeted, in spite of increased processing work. There is a positive balance of $19,358.30 in this sub-chapter.

e) Meetings During the Year

Expenses related to the Meeting of the Working Group on Bluefin Tuna held in Miami, Florida, U.S.A., at which the Assistant Executive Secretary, the assistant programmer, and one secretary from the Secretariat attended, are charged to this Budget sub-chapter. There is a positive balance of $14,187.57.

f) Miscellaneous

Tag recovery rewards and the tagging lottery prizes are charged to this sub-chapter. The sub-chapter shows a positive balance of $4,042.65.

4. Income and Disbursements of the Regular Budget

Statement 5 shows the Income and Disbursements for Fiscal Year 1985.

The base for the member country contributions amounted to $575,000. Of this amount, $444,072.05 have been paid. There are $130,927.95 (30 percent) pending payment, which when added to the non-payments from other years, totals $315,243.21 in outstanding contributions. This situation is very alarming.

5. Breakdown of the Working Capital Fund

Statement 6 shows the status of the Working Capital Fund. Included in this Fund are 1985 bank interest ($59,195.74), contributions paid in 1985 but which corresponded to other years ($112,567.31), the extrabudgetary contribution corresponding to Venezuela ($31,436.00) and the 1985 positive balance ($13,596.04).

On the other hand, the following deductions –authorized by the Commission– were applied:

i)	Purchase of a computer	$113,929.61
ii)	Applied to the 1986 Budget	175,000.00
iii)	Applied to the Yellowfin Year Program	175,000.00

The funds available in the Working Capital Fund at the end of Fiscal Year 1985 amounted to $305,140.26, which is very close to minimum limit.

6. Purchase of a computer

At the Ninth Regular Meeting (Palma de Mallorca, November 1985), the Commission approved the SCRS proposal to purchase a computer in order to meet the needs of the Secretariat's statistical services. It was decided that the cost would be charged to the Working Capital Fund. To facilitate the expenditure, it was agreed that the computer would be paid in three annual installments (1986 to 1988).

After studying in detail the various firm offers, the Secretariat decided that the Digital "Micro-VAX 2" computer was the model which best fit our needs. On the other hand, Digital's bid was very lucrative if paid in full before the end of 1985, since we could obtain an extra discount thus avoiding an announced 1986 price increase and high interest rates as well.

We estimated a savings of some $60,000 (or 50 percent of the total cost) if we paid the computer in full. Taking these circumstances into account and the fact that we had the necessary funds available in the Working Capital Fund, the Secretariat decided to pay the computer in full ($113,929.61) (see Statement 6). We considered it more advantageous that the Commission itself finance the purchase of the computer, rather than paying the high interest rates of a financial services company.

Consequently, we have utilized funds from the Working Capital Fund, which should be returned to the Fund and charged to the 1986-88 budgets, in accordance with that approved by the Commission.

The Commission and STACFAD Chairmen have both expressed their approval of the decision to pay for the computer in full.

7. Balance Sheet of the Regular Budget

Statement 7 shows the Assets and Liabilities at the end of Fiscal Year 1985.

In Cash and Bank		$655,681.02
Of this amount, the following deductions have been made:		
i) Applied to the 1986 Budget	175,000.00	
ii) Applied to the Yellowfin Year Program	175,000.00	
iii) Advance on 1986 Budget	540.76	350,540.76
		$305,140.26

As can be seen from the above, there will only be $305,206.42 available for Fiscal Year 1986 to meet Secretariat staff salaries and Commission activities and to make up for delays in payments until member country contributions corresponding to 1986 are received.

SKIPJACK BUDGET

At the end of Fiscal Year 1984, skipjack funds available totaled $34,972.68. However, there were contributions pending payment amounting to $12,610.70 (see Biennial Report, 1984-85, Part I).

In Fiscal Year 1985, $4,766.00 (from Gabon and Morocco) were paid towards this Budget. Therefore, the status of skipjack accounts is as follows:

– Funds available at end of Fiscal Year 1984	$34,972.68	
– Income received in 1985	+ 4,766.00	$39,738.68
– Editorial expenses (Jan.-Nov., 1985)		-29,419.06
Balance		$10,319.62

This balance will be used to meet the expenses of the skipjack publication. If there are insufficient funds available to meet the total expenses of the publication, the difference will be paid from the Regular Commission Budget, in accordance with a Commission decision (Biennial Report, 1984-85, Part I).

On the other hand, there are still contributions pending payment to the Skipjack Budget totaling $7,844.00.

REGULAR AND SKIPJACK BUDGETS

1. Balance Sheet at Close of Fiscal Year 1985

Statement 8 shows the Assets and Liabilities corresponding to both Commission Budgets at the close of Fiscal Year 1985.

OBSERVATIONS

After having closed the books for the Fiscal year, Cape Verde's contribution corresponding to 1984 ($10,261) was received.

To simplify payment of their contributions, several member countries have opted for sending an international bank draft directly to the Executive Secretary and payable to the Commission. This procedure is acceptable and can be utilized by any member country who so wishes.

STATEMENT 1

Balance Sheet of the Regular Budget 1984 (US$)

ASSETS		*LIABILITIES*	
Cash and Bank	727,016.82	Available in Working Capital Fund	552,016.82
Contributions pending payment	296,882.57	Applied to the 1985 Budget	175,000.00
		Contributions pending payment	296,882.57
TOTAL	1,023,899.39	TOTAL	1,023,899.39

STATEMENT 2

Regular Budget - 1985 (US$)

	1985 Budget (750,000)
1. Salaries	300,000
2. Travel	15,000
3. Annual Meeting	77,200
4. Publications	32,000
5. Office Equipment	10,700
6. General Operating Expenses	59,500
7. Miscellaneous Expenses	9,600
Sub-total	504,000
8. Coordination of Research	
a) Salaries	160,000
b) Travel	12,900
c) Equipment	5,400
d) Data Processing	38,600
e) Meetings during the year (working groups, etc.)	24,000
f) Miscellaneous Expenses	5,100
Sub-total	246,000
9. Contingencies	0
TOTAL	750,000
From Working Capital Fund	**100,000**
From Bank Interest in 1984	**75,000**
From Country Contributions	**575,000**

STATEMENT 3

Status of Member Country Contributions at end of Fiscal Year 1985 - Regular Commission Budget (US$)

Country	*1984 Balance*	*Contributions for 1985, approved by the Commission*	*Contributions paid towards the 1985 Budget*	*Past due* or Other Contributions*	*Balance pending payment*
Angola	---	16,189	---	---	16,189.00
Benin	20,227.00	3,973	---	---	24,200.00
Brazil	51,960.00	25,024	---	51,960.00	25,024.00
Canada	---	14,783	14,783.00	---	---
Cape Verde	10,261.00	9,880	---	---	20,141.00
Cuba	4,953.86	18,729	18,729.00	4,953.86 (540.76)	(540.76)
France	---	69,054	69,054.00	---	---
Gabon	24,994.41	7,943	---	9,885.30	23,052.11
Ghana	75,731.27	23,185	---	---	98,916.27
Ivory Coast	27,556.15	23,496	18,421.05	27,556.15	5,074.95
Japan	---	54,244	54,244.00	---	---
Korea	---	36,550	36,550.00	---	---
Morocco	59,068.00	20,170	---	18,212.00	61,026.00
Portugal	---	23,312	23,312.00	---	---
Sao Tomé & Principe	---	3,971	---	---	3,971.00
Senegal	17,790.88	11,333	---	---	29,123.88
South Africa	---	9,893	9,893.00	---	---
Spain	---	125,440	125,440.00	---	---
Uruguay	4,340.00	4,185	---	---	8,525.00
United States	---	52,386	52,386.00	---	---
U.S.S.R	---	21,260	21,260.00	---	---
TOTAL	296,882.57	575,000	444,072.05	112,567.31 (540.76)**	315,243.21 (540.76)

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

**This amount will be applied to the 1986 Commission Budget.

STATEMENT 4

Budget, Expenditures and Balance of the Regular Budget for Fiscal Year 1985 (US$)

Chapter	*I* *1985 Budget*	*II* *Actual Expense*	*III* *Difference*
1. Salaries	300,000	247,354.75	+ 52,645.25
2. Travel	15,000	14,872.13	+ 127.87
3. Meetings	77,200	92,681.23	− 15,481.23
4. Publications	32,000	25,704.37	+ 6,295.63
5. Office Equipment	10,700	10,462.64	+ 237.36
6. General Operating Expenses	59,500	51,981.91	+ 7,518.09
7. Miscellaneous	9,600	6,482.75	+ 3,117.25
Sub-total	504,000	449,539.78	+ 54,460.22
8. Coordination of Research			
a) Staff	160,000	110,454.98	+ 49,545.02
b) Travel	12,900	7,097.93	+ 5,802.07
c) Equipment	5,400	8,271.84	− 2,871.84
d) Data Processing	38,600	19,241.70	+ 19,358.30
e) Meetings during the year (Sub-Committees, Working Groups, Training Courses, etc.)	24,000	9,812.43	+ 14,187.57
f) Miscellaneous	5,100	1,057.35	+ 4,042.65
Sub-total	246,000	155,936.23	+ 90,063.77
9. Contingencies	0	0	0
TOTAL	750,000	605,476.01	+ 144,523.99
From Working Capital Fund	**100,000**		
From Bank Interest 1984	**75,000**		
From Member Country Contributions	**575,000**		

STATEMENT 5

Income and Disbursements of the Regular Budget, Fiscal Year 1985 (US$)

INCOME			*DISBURSEMENTS*	
Cash and Bank (at the end of Fiscal Year 1984)		727,016.82	From the 1985 Budget	605,476.01
1985 Income:			Purchase of computer.	113,929.61
i) From 1985 Budget	444,072.05		Balance in Cash and Bank	655,681.02
ii) Past due and Other Contributions	112,567.31*			
iii) Bank interest	59,195.74*			
iv) Other income.	257.96*			
v) Extrabudgetary contribution (Venezuela) . .	31,436.00*			
vi) Advance on 1986 Budget (Cuba).	540.76	648,069.82		
TOTAL.		1,375,086.64	TOTAL	1,375,086.64

*To the Working Capital Fund.

STATEMENT 6

Breakdown of the Working Capital Fund - Fiscal Year 1985 (US$)

At the end of Fiscal Year 1984		552,016.82
-- Bank Interest – 1985	59,195.74	
-- Past due contributions	112,567.31	
-- Extrabudgetary contributions	31,436.00	
-- Other income	257.96	
-- 1985 Positive Balance	13,596.04	217,053.05
		769,069.87
Deductions:		
a) Purchase of computer, acquired and paid in Dec., 1985		113,929.61
		655,140.26
b) Applied to the 1986 Budget	175,000.00	
c) Applied to the Yellowfin Year Program	175,000.00	350,000.00
Available in the Working Capital Fund		305,140.26

STATEMENT 7

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

ASSETS		*LIABILITIES*		
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	
		Available in Working Capital Fund	305,140.26	
		Advance on 1986 Budget (Cuba)	540.76	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 130,927.95		315,243.21
TOTAL	970,924.23	TOTAL		970,924.23

Balance Sheet at Close of Fiscal Year 1985 — Regular Budget and Skipjack Budget (US$)

ASSETS			*LIABILITIES*	
Available: (Banco Exterior de España) (1US$ = 153 Pts.)			*Acquired holdings and guaranty deposit*	335,922.56
Acct. 84-31279-Z (time deposit)		600,399.34		
Acct. 82-31279-Q (US$)		52,265.29	*Available in the Working Capital Fund*	305,140.26
Acct. 30-17672-A (Pts.)	1,849,467.00			
Acct. 30-17329-F (Convert. Pts.)	3,206.00		Applied to the 1986 Regular Budget	175,000.00
Cash on hand (Pts.)	154,525.00			
	2,007,198.00	13,118.94	Applied to the Yellowfin Year Program	175,000.00
		665,783.57		
Difference in exchange rate		217.07	Skipjack Program Funds	10,319.62
		666,000.64		
Receivables:			Contributions pending payment:	
From Regular Budget:			Regular Budget	315,243.21
Angola	16,189.00		Skipjack Budget	7,844.70
Benin	24,200.00		Advance on 1986 Budget (Cuba)	540.76
Brazil	25,024.00			
Cape Verde	20,141.00			
Gabon	23,052.11			
Ghana	98,916.27			
Ivory Coast	5,074.95			
Morocco	61,026.00			
Sao Tome & Principe	3,971.00			
Senegal	29,123.88			
Uruguay	8,525.00	315,243.21		
From Skipjack Budget:				
Benin	3,044.70			
Ghana	4,800.00	7,844.70		
Equipment:				
Acquired before 1985	207,968.65			
Acquired during 1985	127,138.27	335,106.92		
Guaranty deposits:				
Before 1985	269.20			
During 1985	546.44	815.64		
TOTAL ASSETS		1,325,011.11	TOTAL LIABILITIES	1,325,011.11
Furniture ceded by Undersecretariat of Merchant Marine of Spain		3,365.38	Furniture ceded by Undersecretariat of Merchant Marine of Spain	3,365.38

The Executive Secretary: *O. Rodríguez Martín*

Certified by the Auditor: *B. Tahoces Acebo*

SECRETARIAT REPORT ON STATISTICS AND COORDINATION OF RESEARCH

SCRS/85/10

I. Data collection and sampling

1. Collection of 1984 statistics through national offices

Progress made by national offices and by the Secretariat is shown in Table 1 of Appendix 4 to Annex 10 of the Proceedings. This year the situation has been very bad. Many countries failed to report even Task I catches on time for issuing the Provisional Statistical Bulletin before the meeting. This required our sending many cables and telexes to request countries to submit data immediately. As a result, the issuance of species tables for rapporteurs as well as the Provisional Statistical Bulletin were very much behind schedule.

2. Improvements and remaining difficulties

a) Venezuelan catch and effort statistics

Uncertainties about Venezuelan catch data have been solved. Responding to our request, the Venezuelan Government began strict control of logbooks in 1983. No boat, not even a foreign flag boat, can have a sailing permit until it provides a logbook from its last trip. Since the regulations also require that 40 percent of the catches be landed at domestic ports, almost all the logbooks from the Venezuela-based boats have been collected.

Unfortunately, the log records have not been processed in the form required by ICCAT. The Venezuelan Government provided the Secretariat with all the log records, withholding the names of the boats. The data have been examined and verified by the Secretariat. We found that some logbooks recorded only the days a catch was made. The days missing in the records have been restored using some assumptions. Mixed catches by purse seiners have been broken down into tropical species using certain assumptions.

Catch and effort (in fishing days including searching days) by 1 x 1 area and month have thus been compiled for 1982 (partly), 1983 and 1984, for the national flag fleet and

for the foreign flag fleet. The data are being sent back to Venezuela for their analysis and later submission to ICCAT. Some suggestions for improving the format of the logbooks and instructions were also forwarded to Venezuela for future consideration.

The summary of these logbooks was used to estimate Task I catch for 1983 and 1984.

b) Venezuelan size data

Biological sampling from the developing Venezuelan tuna fleet was an urgent project assigned to the Secretariat. The Assistant Executive Secretary visited Venezuela in early 1985, studied all the tuna fisheries, landing situations and research programs, discussed the need for sampling with the Venezuelan Government authorities and agreed with the Government that ICCAT would send a sampling expert to help Venezuelan scientists begin sampling.

At the 1984 SCRS meeting, the U.S. offered to provide an expert for this project, so the Secretariat negotiated with the U.S. Government. Consequently, Mr. Eugene Holzapfel of NMFS, who initiated Ghanaian port sampling in 1974 for ICCAT, was once again contracted. He stayed at Cumaná, Venezuela, the major landing port, from June 10 to July 15, 1985, at the Commission's expense. His salary during this period, however, was paid by the U.S.

Mr. Holzapfel was assigned to set up and initiate a sampling scheme for the Venezuelan fleet which unloads Atlantic (including Caribbean) catches and to train local scientists and technicians. He successfully fulfilled his mission.

The Secretariat offered to process the data for the present time for the Venezuelan Government, until they have adequate facilities to assume this work. The initial part of the data thus collected have been received and are being processed at the Secretariat. The processed results are being sent back to Venezuela for their analysis and later submission to the Commission.

c) Moroccan catch data

Since the Secretariat has not received adequate tuna data from Morocco in the last few years, the Secretariat asked Mr. J. C. Rey of the "Instituto Español de Oceanografía", who is very familiar with Moroccan fisheries and scientists, to visit Casablanca for three days in June to discuss statistical problems with Moroccan scientists and statisticians. The trip was paid by the Commission. His mission was very successful in clarifying many statistical questions in past data and in obtaining additional data for 1983 and 1984.

d) Area breakdown (particularly for sailfish)

The problem of the areal breakdown for sailfish, as pointed out in 1984, continued as a major problem. In 1983, the SCRS recommended that sailfish catches which had been

reported for the whole Atlantic up to 1982 be reported by east and west Atlantic. However, all catches reported for past years were for the total Atlantic. The Secretariat has assigned catches by the coastal fleets (e.g., Senegalese, Brazilian, etc.) to the appropriate sides of the ocean but longline catches could not be separated. We requested those countries having fleets on both sides of the ocean to provide an east-west breakdown of past catches, but this has not been done.

3. Port sampling by the Secretariat

a) Longline fleet

Routine Secretariat port sampling from longliners at various transshipment ports was carried out as usual. The level of sampling was low in 1983 but recovered in 1984 and continued at a satisfactory level in 1985. A new sampler contracted at Las Palmas in late 1984 started sampling. Thus, coverage of Taiwanese vessels unloading there increased. Emphasis is now placed more on biological sampling than on abstracting logbooks.

b) Cuban fleet

As recommended at the 1984 SCRS meeting and as authorized by the Cuban Government, the sampler at Las Palmas has been instructed to sample from a Cuban purse seiner as well as from longliners. Up to now this has not been successful due to the lack of collaboration by the captains.

c) Ghana-based fleet

In 1984, the SCRS also suggested that the Secretariat collaborate with the scientists of Ivory Coast in port sampling from the Ghana-based fleet unloading its catches at Abidjan. The Secretariat, with assistance from the Ghanaian and Ivorian scientists, developed a new logbook for that fleet. The book is in three languages (English, Korean and Japanese), and designed for multi-purposes, particularly for the boats unloading part of their catches at Abidjan and the rest at Tema. One hundred books were prepared by the Secretariat and were distributed by Ghanaian authorities and by Ivorian scientists to all boats fishing from Ghana.

Copies of daily records in logbooks for trips made in late 1984 and early 1985 have already been turned in to the Secretariat. However, the landing sheets are still missing. As soon as the Secretariat receives copies of the landing sheets, we can start coding and entering them in the computer. The data seem to be satisfactory.

Following the recommendations made at the 1984 SCRS meeting, the Secretariat offered assistance in sampling fish unloaded in Abidjan and in processing the data thus collected. However, no formal contract has yet been made for this project.

II. Secretariat data processing

1. Facilities

The INFONET system was contracted again in 1985 for ICCAT data processing. However the INFONET system is getting old and no upgrading has been done by ENTEL, which operates the system. We have been informed that the system will be going out of business by the end of 1986 and that we should start transferring our files by mid-1986 at the latest to the new system ICCAT is going to employ.

The Secretariat has prepared a document, SCRS/85/12, concerning future data management arrangements, in which some alternatives which may be taken by the Commission are suggested.

2. Staff

There have been some changes in the Secretariat staff. The systems analyst position which had been vacant since mid-1984 has been filled by Mr. P. Kebe (Senegal) in June, 1985. The selection procedures are explained in the Administrative Report (COM/85/7). The Secretariat statistical staff presently consists of a systems analyst, an assistant computer programmer, a statistical secretary and a key puncher (data entry).

3. Data processing

The amount of data processing done at the Secretariat has been steadily increasing. With limited financial resources available, almost all computer processing has been submitted at low priority batch in order to save money. However, this savings in money is expensive in terms of time, i.e., the delay in finishing the work has been accumulating. In addition, replacing the systems analyst caused even more delay. The problem became very obvious in 1985. Some routine work is now almost a year behind schedule. This is another reason that the Secretariat is proposing that a drastic change be introduced in the ICCAT computer system.

Computer facilities during the meeting of the Working Group on Bluefin Tuna were provided by the United States NMFS. This offer reduced to a great extent the total data processing cost which would have been borne by the Secretariat.

The following data processing work was carried out by the Secretariat in 1985:

ROUTINE PROCESSING

a) Updating all data bases (Task I, Task II, etc.).
b) Data entry and processing of port sampling statistics.
c) Seaparation of Task I catch data into major areas (and sometimes into species) using Task II catch and effort and size data.
d) Output of Statistical Bulletin tables.

e) Processing of Task II data received recently (Data Record, Vols. 25 and 26).
f) Preparation of species catch tables for the SCRS meetings and SCRS Reports (1984 and 1985).
g) Updating tagging files and output of yearly recovery summary.
h) Creation and distribution of tapes, upon request, for member countries.

SPECIAL PROCESSING (See Sections I and III)

i) Processing of bluefin data for the Working Group on Bluefin Tuna (part of the updating was done on the U.S. computer at the NMFS Southeast Fishery Center during the meeting of the Working Group on Bluefin Tuna).
j) Entering and processing of field data from Venezuela-based fleets in order to provide Task I, Task II catch and effort data (1982 through 1985).
k) Comparison of tuna catches between the ICCAT data base and the FAO base.

III. Special statistical activities by the Secretariat

1. Updating and processing for the Bluefin Working Group

In June, 1985, the Secretariat critically reviewed the bluefin catch-by-size data base (up to 1982) used at the 1984 meeting (Dartmouth). All the data were updated, put into a uniform format and distributed to the pertinent scientists in late July, 1985. Details are reported in SCRS/85/20.

Due to the delay in submission of biological data by some national offices, the 1983 catch-by-size file was not completed for the west Atlantic and only partly completed for the east Atlantic until the time of the meeting of the Working Group on Bluefin Tuna.

2. Improvement in Venezuelan statistics

See Section I of this report.

3. Port sampling of the surface fleet

See Section I of this report.

4. Tuna data comparison between ICCAT and FAO bases

A comparative study was made between the ICCAT data base and the FAO data base. It resulted that the discrepancies between the two bases are quite significant. Changing either data base would affect various other agencies (NAFO, ICES, etc.), and this problem was discussed in depth at the Ad Hoc Inter-Agency Meeting of the Coordinating Work-

ing Party (CWP) held in London, October 5-6, 1985. The subject is reported in detail in SCRS/85/13.

5. Proposal for a Coordinating Working Party for Tuna

The Assistant Executive Secretary has proposed a special meeting of world tuna research agencies and national scientists to discuss mutual statistical problems. Details are given in SCRS/85/14.

6. Biostatistical work

The biostatistician participated with French and Spanish researchers in a project to recover historical catch and effort statistics for the 1950's and early 1960's in the eastern tropical Atlantic tuna fisheries. These data will be entered in the ICCAT data base after appropriate review by the SCRS.

Indices to the Collective Volume of Scientific Papers, Volumes I-XXI, 1973-84, were revised, completed, and issued as a separate publication. Indices by author, species names, subjects, areas and meeting document numbers are included. These indices are also available in computerized form.

Specialized studies of the ICCAT data base continued. An analysis of sampling for catch and effort by major fisheries and countries in the Task II base was carried out (SCRS/85/16). The ICCAT Task I data for small tunas was reviewed (SCRS/85/15). Estimates were made of the amount of under-reporting for various fisheries, and of misreporting of species. Suggestions of measures to be taken to improve these data are included.

The history and present composition of several of the ICCAT publications was reviewed by Mr. J. P. Wise. His personal views, that could lead to control of growth, are presented in SCRS/85/17.

A literature survey to find appropriate sample sizes and stratification procedures for Atlantic tuna fisheries was conducted through use of the Aquatic Sciences and Fisheries Information System (SCRS/85/18).

IV. Future program on the data base

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

The Secretariat needs to do some "house cleaning" of the data bases. The details were explained in the last Secretariat report. Some reformatting of the base has been done and some data verification programs have been prepared. The Secretariat decided to complete this task when the Commission decides on the future ICCAT computer system since we will have to transfer and thus reform the entire data base at that time.

2. Reorganization of tagging record data base

This program, as described in the 1984 Secretariat report, was partly delayed for the same reasons as described in Section IV-1.

V. Publications and dissemination of information

	Publication	*Published in*	*Contents*
a)	Quick estimates:	May, 1985 Oct. 1985	Estimates for all 1984 catches Estimates for first half of 1985
b)	Statistical Bulletin		
	Vol. 14 (Final)	Feb. 1985	1983 Final catches
	Vol. 15 (Prov.)	Oct. 1985	1984 Provisional catches
c)	Data Record		
	Vol. 25	Mar. 1985	Data received in Oct. 1984 Feb. 1985
	Vol. 26	in process	Data received in Mar.-Aug. 1985
d)	Collective Volume of Scientific Papers		
	Vol. XXII	Feb. 1985	Report of the Meeting of the Working Group on Bluefin Tuna (Dartmouth)
	Vol. XXIII (1-2)	Mar. 1985	1984 SCRS Report "A" and papers presented at the meeting
e)	Statistical Series		
	Vol. 13	Sept. 1985	Port sampling summary for 1984

CHAPTER II
Record of Meetings

PROCEEDINGS OF THE NINTH REGULAR MEETING OF THE COMMISSION

Palma de Mallorca, Spain
November 13-19, 1985

Table of Contents

OPENING PLENARY SESSION OF THE COMMISSION
November 13, 1985

Item 1. OPENING OF THE MEETING

1.1 The Ninth Regular Meeting of the Commission was held at the Hotel de Mar Sol, Palma de Mallorca (Spain), under the chairmanship of Mr. C. J. Blondin (U.S.A.). Mr. Blondin introduced the dignitaries of the Balearic Islands who shared the head table with

him: the President of the Autonomous Community, Mr. G. Cañellas Fons; the Counselor for Agriculture and Fisheries of the Autonomous Community, Mr. J. Simarro Marqués; the President of the Insular Council of Mallorca, Mr. J. Alberti Picornell; the Naval Commander of Mallorca, Mr. G. Molíns Saenz Diez; the Deputy Director General of Maritime Fisheries for International Relations, Mrs. P. García Doñoro, and the delegate from the Ministry of Agriculture, Fisheries and Food of the Autonomous Community, Mr. B. Simonet.

1.2 The Chairman introduced the Commission Officers who also shared the head table.

1.3 In the absence of the Spanish Secretary General of Maritime Fisheries, Mr. M. Oliver, due to illness, the Deputy Director General of Maritime Fisheries for International Relations presented the opening address on behalf of Mr. Oliver. She extended a warm welcome to all the delegates and observers. She noted that ICCAT is a special international organization which, through the dedication and hard work of its many experts, may become a model for other fisheries commissions. She stressed the need for fulfilling the obligations and responsibilities of the member countries as well as the need for further collaboration. (The Secretary General's address is attached as Annex 4.)

1.4 The President of the Autonomous Community of the Balearic Islands welcomed all participants to the island of Mallorca. He noted that in the Balearic Islands, swordfish is becoming more important and encouraged the Commission to continue its evaluations of the swordfish stock. (The President's address is attached as Annex 5.)

1.5 After a brief recess, the Commission Chairman formally opened the meeting. He expressed his appreciation to the Government of Spain for hosting this meeting and welcomed all the delegates and observers. He pointed out that the Commission now has twenty-two member countries and that the number of observers has also grown, indicative of the world-wide interest in the work of ICCAT.

1.6 He noted that the efforts of the SCRS to reach more precise objectives involve more sophisticated research techniques in order to deliver quantitative answers. As this may, at times, put a strain on the atmosphere of cooperation, the Chairman called on all the participants to maintain a positive attitude and to collaborate to reach their common goals.

1.7 He also pointed out that although ICCAT has achieved much, there are still many areas that require further research. He expressed, however, his confidence that the Commission will confront the challenges it faces through a stronger commitment by all the member countries. (Mr. Blondin's address is attached as Annex 6.)

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

2.1 The delegations from the member countries were introduced. (The List of Participants is attached as Annex 2.)

2.2 The Commission reviewed the Tentative Agenda circulated 90 days prior to the meeting. The delegate of France requested the Commission to consider the status of the ratification of the Protocol amending the Convention allowing the adhesion of the Euro-

pean Economic Community (EEC), under the agenda item "Other Matters", as well as a brief report on the IOFC meeting at which the delegate from France represented ICCAT. The Agenda was adopted with these provisions.

2.3 It was decided that Agenda Items 4-14, 23, and 25-27 would be referred to the Standing Committee on Finance and Administration (STACFAD). Items 21 and 24 were referred to the Infractions Committee. The List of Documents presented to the Commission is attached as Annex 3.

Item 3. ADMISSION OF OBSERVERS

3.1 All the observers, representing several countries and organizations, were welcomed and admitted (see Annex 2, List of Participants). The representative of the European Economic Community (EEC) reiterated the request of the French delegation to discuss the ratification of the Protocol which would allow the adhesion of the EEC to the Commission.

Item 15. REPORT OF THE FOURTH SPECIAL MEETING OF THE COMMISSION

15.1 The Executive Secretary reported briefly on the Fourth Special Meeting of the Commission held in Las Palmas, Canary Islands, in November, 1984. The report of this meeting is included in the "Report for the Biennial Period, 1984-85 (Part I)" which is available to the Commission.

SECOND PLENARY SESSION
November 14, 1985

Item 17. REPORT OF THE STANDING COMMITTEE ON RESEARCH AND STATISTICS (SCRS)

17.1 Mr. J. S. Beckett (Canada), Chairman of the Standing Committee on Research and Statistics (SCRS) presented his Committee's Report and summarized the scientific findings.

17.2 He reported that the scientists had been very active during 1985. One Working Group meeting was held to assess bluefin stock conditions and the plan was drawn up to study dynamic mechanisms of yellowfin stocks reacting to the recent reduction of fishing effort in the eastern tropical area.

17.3 The results of scientific discussions of the SCRS meeting held prior to the Commission meeting concerning changes in fishing patterns, stock structure, stock assessments, and evaluations of the effect of current regulations, were summarized. They appear in Item 8 of the SCRS Report. Item 8 also includes various Committee recommendations to the Commission.

17.4 The SCRS Chairman also reported on other scientific discussions concerning subjects such as the publication of the results of the Skipjack Program, various statistical and sampling activities, international cooperation on the improvement of tuna statistics, special scientific attention to be focused on bigeye tuna research in 1986, reorganization of statistical and scientific publication policy, consideration of future SCRS organization, and on the feasibility of expanding the library at the ICCAT Headquarters.

17.5 Three SCRS programs were presented by the SCRS Chairman which require special financial support by the Commission's budget. They are:

1) Acquisition of a new computer system for the Secretariat,
2) Yellowfin Year Program to monitor dynamics of the studies reacting to the reduction of fishing effort, and
3) Analysis of micro-constituents of bluefin hard parts which have already been sampled in the current studies.

The SCRS Chairman noted that the acquisition of a new computer system was of the highest priority.

17.6 He also noted that the Committee recommended that national regulations or economic and social factors which could have an impact on stock assessments through their influence on fishery patterns be reported in the national reports.

17.7 Finally, the SCRS Chairman reported that he had been chosen to serve another term as Chairman and that he had accepted for a one-year term so as not to set a precedent for three consecutive two-year terms.

17.8 The Commission congratulated the SCRS Chairman for his excellent leadership and the remarkable progress achieved in the field of research. The Commission approved the report together with the recommendations contained therein. The SCRS report is attached as Annex 10.

THIRD PLENARY SESSION
November 18, 1985

Item 18. REPORTS OF PANELS 1 - 4

18.1 The Chairmen of the Panels, Dr. L. Koffi (Ivory Coast) for Panel 1, Capt. J. G. Boavida (Portugal) for Panel 2, Mr. K. Shima (Japan) for Panel 3, and Mr. Y. Vialov (U.S.S.R.) for Panel 4, presented their reports to the Commission and highlighted the recommendations contained therein.

18.2 The Commission noted that there were no changes proposed by Panel 1 for the current size regulations on yellowfin and bigeye. Panel 2 proposed that the current management measures for bluefin tuna taken for 1985 be maintained in 1986 for the west At-

lantic stocks and that the regulations for the east Atlantic be unchanged. The Commission noted that Panel 4 proposed no changes for the current size regulations on bigeye tuna. The Commission endorsed all the recommendations proposed by the Panels concerning management measures and research.

18.3 The Chairman of the Commission asked the Cuban delegate to express his opinion on the bluefin recommendation in the west Atlantic for 1986. The delegate from Cuba stated that at the present time his country does not direct fishing effort on bluefin tuna, in spite of having caught bluefin tuna in a directed fishery until the early part of the 1970's, at which time this directed fishery was interrupted due to the low yields obtained. He also emphasized the great importance that his country places on this species and pointed out that he has no objections to the recommendation adopted for 1986.

18.4 The Commission Chairman, while noting that only three countries are exploiting southern bluefin stocks, i.e., Japan, Australia and New Zealand, and that they have adopted some conservation measures for southern bluefin tuna, suggested that the Commission might consider inviting Australia and New Zealand to attend the Commission meeting in an observer capacity.

18.5 The Commission approved the Report together with the various recommendations contained therein. The Panel Reports are attached as Annex 7.

Item 19. REPORT OF THE INFRACTIONS COMMITTEE

19.1 Mr. B. García 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 8.

FINAL PLENARY SESSION OF THE COMMISSION
November 19, 1985

The final Reports of Panels 1-4 became available. Since these reports were presented, discussed and approved under Agenda Item 18, the Commission formally adopted the reports (Annex 7).

Item 16. REPORT OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION (STACFAD)

16.1 The Report of Standing Committee on Finance and Administration (STACFAD) was presented by Ms. B. Keith Rothschild (U.S.A.), who chaired the Committee meeting in the absence of the STACFAD Chairman, Mr. J. Chao (Spain).

16.2 The delegate from Japan, noting that the funds available in the Working Capital Fund will be reduced to a level which could hinder the Commission's activities, ex-

pressed his deep concern for the Commission's financial condition. He urged the Executive Secretary, the Commission Chairman and all Commissioners to take every possible measure to pay pending country contributions.

16.3 The delegate of Canada also expressed his deep concern for the foreseeable financial problems the Commission will have to face within two years if it applies a large amount of the Working Capital Fund to the budget. He emphasized that the only solution would be payment of pending country contributions.

16.4 The Commission Chairman informed the Commission of his efforts (both personal and through diplomatic channels) to prompt countries with contributions pending to pay their outstanding amounts and noted that his efforts had had some positive results. He cautioned that much care should be taken in expenditures and in funding programs.

16.5 The delegate of the U.S.S.R. concurred with the views presented by Japan, Canada and the Chairman. The Spanish delegate expressed her wish that the micro-constituent studies be carefully considered for possible funding at the 1986 meeting.

16.6 The Commission, noting all these comments, approved the STACFAD Report and endorsed all the recommendations (including the 1986-1987 budget). The adopted STACFAD Report is attached as Annex 9. The Commission expressed its appreciation to the Chair for handling these difficult matters with extraordinary skill.

16.7 The Commission noted that the following Agenda Items referred to the STACFAD were properly dealt with and completed by the STACFAD 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. Review of Staff Rules

Item 9. Auditor's Report - 1984

Item 10. Financial status of Regular Budget - 1985

Item 11. Review of the Working Capital Fund

Item 12. Financial status of the Skipjack Program

Item 13. Regular Budget for Biennial Period 1986-1987

Item 14. Member country contributions to the Regular Budget 1986-1987

Item 23. Other activities in research and statistics

Item 25. Date and place of next meeting of the Council or Special Meeting of the Commission

Item 27. Date and place of the next Regular Meeting of the Commission

Item 20. REPORT OF SUBSIDIARY BODIES APPOINTED BY THE COMMISSION FOR THE MEETING

20.1 No subsidiary bodies were appointed by the Commission for the meeting and therefore, no reports were presented.

Item 21. STATUS OF THE REGULATIONS ADOPTED BY THE COMMISSION REGARDING YELLOWFIN, BLUEFIN, BIGEYE

21.1 The Commission noted that this subject had been dealt with by the Infractions Committee (see Annex 8).

Item 22. OTHER POSSIBLE REGULATORY MEASURES TO BE CONSIDERED

22.1 The recommendations for tuna management had been thoroughly dealt with by Panels 1-4 (see Annex 7) and there was no further discussion under this agenda item.

Item 24. STATUS OF THE PORT INSPECTION SCHEME

24.1 The Commission noted that this subject was covered by the Infractions Committee (see Annex 8).

Item 25. DATE AND PLACE OF NEXT MEETING OF THE COUNCIL OR SPECIAL MEETING OF THE COMMISSION

25.1 Noting that the STACFAD had proposed holding a Special Meeting of the Commission in 1986 to discuss financial matters and to review the 1987 Commission Budget, the Commission decided to hold the Fifth Special Meeting of the Commission in 1986. This will also meet the requirement of reviewing the bluefin stock condition for consideration of any further management measures for this species.

25.2 The proposed dates for the 1986 meeting are November 12 to 18. In principle, this meeting will be held in Madrid. However, the Executive Secretary can consider other alternatives as long as the cost does not surpass the amount budgeted for the meeting.

Item 26. ITEMS TO BE CONSIDERED BY THE COUNCIL AT ITS NEXT MEETING

26.1 Since there will be no Council Meeting held in 1986, this item was not discussed.

Item 27. DATE AND PLACE OF THE NEXT REGULAR MEETING OF THE COMMISSION

27.1 Discussion of this item was postponed until the Fifth Special Meeting of the Commission.

Item 28. OTHER MATTERS

28.1 The status of the ratification of the Protocol to the ICCAT Convention allowing the adhesion of the European Economic Community to the Commission was discussed under this agenda item. The delegate from France noted that seven countries had ratified the Protocol and recognized that administrative difficulties may be delaying ratification by some member countries. He asked the delegations to take steps to accelerate the ratification procedures of their countries.

28.2 The observer from the EEC thanked the delegates for their efforts to ratify the Protocol and requested each country which had not yet ratified the Protocol to report on the present status of the steps being taken. Spain, Portugal, Cuba and the U.S.A. reported that the legal procedures are under way and the delay is only due to administrative procedures, and that the delegates have taken the proper steps to accelerate the ratification.

28.3 The French delegate asked the Executive Secretary to circulate again a reminder to those countries which have not yet ratified the Protocol. The Executive Secretary promised to do so and, in addition, would remind the countries through the legal department of FAO, as depository of the Convention.

28.4 Mr. B. Labrousse (France) reported on the results of the General Conference of the Indian Ocean Fishery Committee (Bangkok, Thailand, July 1985), in at which he represented ICCAT. At this meeting he reported that ICCAT is a model case in which the developing coastal nations collaborate with the developed countries in the field of science and management measures. There has been some concern as to what type of management body would be best for the Indian Ocean area. The first tuna meeting will be held in Colombo, Sri Lanka, in November-December, 1985, and Mr. Labrousse, on behalf of the IOFC, extended an invitation to all ICCAT members to attend this meeting.

Item 29. ELECTION OF THE CHAIRMAN OF THE COMMISSION

29.1 Mr. S. Makiadi (Angola), First Vice Chairman, presided over the Meeting during discussion of this agenda item. The delegate of France proposed that Mr. C. J. Blondin, who had demonstrated excellent leadership for many years as Chairman of the STACFAD and then as Commission Chairman, be re-elected for another term. The proposal was seconded by Ivory Coast and supported unanimously by all the countries present. Mr. Blondin was elected Chairman for another two-year term.

29.2 Mr. Makiadi congratulated Mr. Blondin on his election to a second term and expressed his belief that ICCAT would continue to benefit from Mr. Blondin's excellent leadership in the future as in the past.

29.3 Mr. Blondin, while accepting the position of Chairman, thanked the members for their confidence in him and stated that he felt it was a great honor to be re-elected when the Commission is facing a difficult period.

Item 30. ELECTION OF THE VICE-CHAIRMEN OF THE COMMISSION

30.1 The U.S.A. proposed that Mr. S. Makiadi (Angola) be re-elected as First Vice Chairman of the Commission. This proposal was seconded by Ivory Coast and supported by all countries present. Mr. Makiadi was unanimously re-elected First Vice Chairman. Mr. Makiadi thanked the member countries for their support and emphasized the need for cooperation among all the countries.

30.2 Ivory Coast proposed that Capt. J. G. Boavida be re-elected as Second Vice Chairman of the Commission. The proposal was seconded by Spain and supported by all the members present. Capt. Boavida expressed his appreciation for the support shown by the member countries.

Item 32. ADOPTION OF REPORT

32.1 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 33. ADJOURNMENT

33.1 The Executive Secretary thanked the member countries, the Chairmen of the Commission and Committees for their collaboration. He mentioned the financial difficulties the Commission may be facing in the very near future, referring to the abrupt reduction in the Working Capital Fund, and asked for cooperation from the Commissioners to reduce the outstanding country contributions to the budget.

33.2 The Commission Chairman commended the worthy contribution and very positive participation of Mr. B. Labrousse over the past years. He expressed his wish that Mr. Labrousse would continue participating in the Commission after his retirement in 1986 and wished him well. Mr. Labrousse thanked him for his kind remarks and promised to try to collaborate with ICCAT in the future.

33.3 Mr. Labrousse expressed his appreciation to the Secretariat staff for their efficiency during the meetings and throughout the entire year and thanked the interpreters and all others who contributed to the successful meeting.

33.4 The meeting was adjourned.

Annex 1

AGENDA OF THE COMMISSION

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
8. Review of Staff Rules

Finance

9. Auditor's Report - 1984
10. Financial status of Regular Budget - 1985
11. Review of the Working Capital Fund
12. Financial status of the Skipjack Program
13. Regular Budget for Biennial Period 1986-1987
14. Member country contributions to the Regular Budget 1986-1987

Reports to the Commission

15. Report of the Fourth Special Meeting of the Commission
16. Report of the Standing Committee on Finance and Administration (STACFAD)
17. Report of the Standing Committee on Research and Statistics (SCRS)
18. Reports of Panels 1 - 4
19. Report of the Infractions Committee
20. Report 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, bluefin and bigeye
22. Other possible regulatory measures to be considered
23. Other activities in research and statistics
24. Status of the Port Inspection Scheme

Other matters

25. Date and place of next meeting of the Council or Special Meeting of the Commission
26. Items to be considered by the Council at its next meeting
27. Date and place of the next Regular Meeting of the Commission
28. Other matters
29. Election of the Chairman of the Commission
30. Election of the Vice-Chairmen of the Commission
31. Election of Council Members
32. Adoption of Report

Adjournment

33. Adjournment

Annex 2

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Annex 3

LIST OF COMMISSION DOCUMENTS

COM/85/	1	Commission Agenda
	2	Annotated Commission Agenda
	3	1985 Schedule of the Commission Meeting
	4	Agenda of the Standing Committee on Finance and Administration (STACFAD)
	5	Agenda for Panels 1-4
	6	Agenda of the Infractions Committee
	7	Administrative Report 1985
	8	Financial Report 1985
	9	Estimated Regular Budget, 1986-1987
	10	Secretariat Report on Statistics and Coordination of Research
	11	Report of the Meeting of the Working Group on Bluefin Tuna, (Miami, U.S.A., September 18-28, 1985)
	12	Comparative Study on the Acquisition of a New Computer System
	13	(Number not used)
	14	Panels
	15	Status of the Proposals Adopted by the Commission for the Conservation of yellowfin, bigeye and bluefin stocks
	16	Port Inspection

Annex 4

OPENING ADDRESS BY MR. M. OLIVER MASSUTI,* SECRETARY GENERAL OF MARITIME FISHING OF SPAIN

Distinguished guests, ladies and gentlemen:

On behalf of the Minister of Agriculture, Fishing and Food of Spain, Mr. C. Romero, I have the great pleasure of welcoming the ICCAT delegates, advisors, scientists, industry people and observers. I would also like to greet the island authorities of Palma who have honored us by their presence at this opening of the Ninth Regular Meeting of the International Commission for the Conservation of Atlantic Tunas.

It is an extreme pleasure for me to welcome you to this island, of which I am an ardent admirer, and where I think the pleasant atmosphere and warmth of the people will make you feel at home.

My greetings this year have a special significance because I am welcoming you to my home province, where I have spent the greater part of my life, where as a youngster I played in the streets of my home town, studied and later worked in the biological and fisheries field at the Oceanographic Laboratory in Palma.

All these thoughts come to mind now and justify the pleasure I feel at welcoming you to this Mediterranean island where I hope you will find the peace and tranquillity necessary to work efficiently, within the spirit of mutual respect and understanding and with a desire to cooperate, as always has been the case in the deliberations of this Commission.

This is the third time I have opened your meetings and it pleases me that in the distinct fora where world fisheries problems are discussed, I often hear laudable comments about ICCAT. This Commission is special as are the species which it tries to protect and manage. Tuna are highly migratory fish which are found in all oceans and which enter and leave the economic zones. Because of this, the management of these species requires a very efficient Commission. It is said that ICCAT functions very well, that it has an excellent team of specialists involved in the difficult fisheries science of tuna resources. It is also said that this Commission is very responsible and that it has been able to assemble a vast amount of knowledge and experience. I have heard many favorable comments about the

*In the absence of Mr. Oliver, his speech was read by Mrs. P. García Doñoro, Sub-Director for International Relations of the Secretary General of Maritime Fishing.

Secretariat and its easy access to biological, fisheries and statistical information, which as a biologist, pleases me immensely. It seems that there is no doubt that ICCAT has developed into an excellent fisheries commission, which could even serve as a model for future organizations.

Therefore, it is the responsibility of all of us to assure that this Commission maintains its high level, although doing so might entail making sacrifices regarding the completion of our national obligations and responsibilities of a financial nature as well as those of a scientific and statistical nature. I know that this is not easy, but we should commit ourselves to this end.

With respect to Spain, I should point out that my country has tried at all times to collaborate inasmuch as possible and currently it has a team of scientists from the Spanish Institute of Oceanography who are dedicated exclusively to active participation in ICCAT research programs and in carrying out the necessary work to be able to offer adequate advice.

As you all know, Spain has a maritime and fishing tradition. It has a large fishing fleet which operates in all oceans and has excellent and expert fishermen. The Spanish people consume large amounts of seafood. The Spanish fleet not only catches fish for the national market but also has to import large amounts of seafood to meet consumption demands.

For some years now Spain has been making great effort to adapt to new world fishing patterns resulting from the World Conference on the Law of the Sea, which will have some affect for Spain upon its entry into the European Economic Community.

It is without a doubt that the Spanish fishing fleet will continue navigating the oceans looking for the most suitable routes to continue fishing so that its fishermen and their families can live and so that the Spanish people will be able to enjoy the seafood of which we are so fond. To do this, my country must maintain contact and cooperate with other neighboring countries, some of which are here present and are part of the ICCAT family.

As a result of recommendations of the International Commission for the Conservation of Atlantic Tunas, the fisheries administrations of the member countries have enacted regulations oriented towards the protection of specific species such as yellowfin, bigeye and bluefin tunas.

The Commission has been giving special attention to the conservation of bluefin tuna in all areas of the Atlantic Ocean. The Standing Committee on Research and Statistics considers this matter of prime importance, as shown by the fact that specific meetings, such as the recent Miami meeting, have been held to discuss the evaluation and development of the different populations of this species in the distinct areas of the Atlantic.

We are open to all types of recommendations made by the Commission because we have confidence and faith in those persons who direct fisheries research within the SCRS and we believe that a reduction in fishing effort in some zones does not necessarily mean an increase in others.

In this sense, allow me as someone from the Mediterranean and one who is knowledgeable in the fishing resources of this Sea, on behalf of the fishermen of our islands and on behalf of all the Mediterranean fishermen, express the hope that because of the Commission's visit here in Mallorca preferential attention will be given to the conservation of tuna resources in the Mediterranean Sea. It is essential that the Commission recommend urgent protective measures after hearing the conclusions and advice of the scientists.

I understand that scientific studies are slow and require a lot of time and effort to reach definitive conclusions. For this, I think that the best scientific advances should be utilized in order to avoid that final and definitive recommendations are reached too late. Therefore, I am going to ask that the distinguished delegates here present 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.

Therefore, before hearing the official recommendations of the Commission, I ask you again that from this very moment, measures be taken by the national authorities to assure that large tuna vessels do not operate in the Mediterranean. Let's save the Mediterranean bluefin tuna.

I am going to end by wishing you a pleasant stay in Palma and recommend that you enjoy this marvelous island.

Thank you.

Annex 5

OPENING ADDRESS BY MR. G. CAÑELLAS, PRESIDENT OF THE AUTONOMOUS COMMUNITY OF THE BALEARIC ISLANDS

Mr. Chairman of the International Commission for the Conservation of Atlantic Tunas, member country delegates, members of the Executive Committee, distinguished ladies and gentlemen:

When I was invited to preside over the inauguration of this Ninth Regular Meeting of the Commission, I gladly accepted. I accepted because it is always an honor to welcome to our land distinguished visitors such as all of you. I also accepted because it allows me to come into contact with members of an intergovernmental organization such as ICCAT, which unites the countries really interested in fishery conservation (an important matter for the Insular Community) and especially in tunas and tuna-like species in the Atlantic, including adjacent seas such as our Mediterranean.

In my brief welcome, I would like to say that the Balearic Islands Government wishes to encourage this Commission - which has as one of its obligations is to maintain tuna and tuna-like populations in the Mediterranean, at least, at the maximum yield level - in its task of successfully managing tuna fisheries.

At present there is not a large market in the Balearic Islands for the species you are trying to conserve. However, I would like to intercede in favor of one of the tuna-like species, swordfish, which is beginning to attract the attention of our fishermen. There are vessels around the coast of Mallorca which are dedicated to catching swordfish because in the near future this species will have larger and better markets.

I understand, ladies and gentlemen, that there already exists a working group in the Commission which studies swordfish and which attempts to evaluate very carefully the stock status of this species. We encourage you to continue this work and hope that you have very successful results.

Mr. Chairman of the Commission and member country delegates, you are welcomed with open arms to this Mediterranean Autonomous Community and we hope that your stay with us will be fruitful and pleasant.

We will always be ready to welcome you again either for official business or for pleasure, or both!

With these wishes, I inaugurate the Ninth Regular Meeting of the International Commission for the Conservation of Atlantic Tunas.

Annex 6

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

Distinguished delegates, ladies and gentlemen:

It is with great pleasure that I greet and welcome you to Palma de Mallorca as we convene the Ninth Regular Meeting of the International Commission for the Conservation of Atlantic Tunas. It is a sign of our strength as a viable organization that we now number twenty-two members and that most of us are represented here today. On behalf of the Commission I also welcome the observers whose numbers have grown over the years and invite them to take part in our discussions here today. During these seven days I know we all look forward to continuing old friendships and perhaps beginning new ones.

I would like to express on behalf of all the delegations our deepest appreciation to the Government of Spain for hosting this meeting and for making an extraordinary effort to schedule our stay in such pleasant surroundings. I would also like to extend our deepest appreciation to the Executive Secretary, Dr. Olegario Rodríguez-Martín, the Assistant Executive Secretary, Dr. Peter Miyake, and the staff of the Secretariat, for their work in preparing for this meeting as well as for effectively carrying out all the administrative activities of the organization throughout the year.

I would like to express again my personal honor in chairing this Commission, and I look forward to your continued support and cooperation as I carry out my responsibilities.

In my remarks to you last year in Las Palmas, I spoke in detail of the past history of ICCAT and of the excellent work of the Standing Committee on Research and Statistics (SCRS). I noted the concerted and dedicated research efforts of this group and its significant accomplishments which have been the basis for the Commission's rapid growth as a highly respected and viable international organization.

The efforts of the SCRS continue to expand as evidenced by the resources and time devoted to intersessional meetings. As a result, our increased commitments to reach more precise objectives involving more sophisticated research techniques have also increased the pressure on our scientists to deliver quantitative answers. This process may have complicated our relationships and strained our traditional atmosphere of cooperation. Let us not be discouraged or retreat from our current path. We all share a common commitment to the resource – its conservation and management. While honest men and women may differ on the routes one might take in carrying out the commitment, we should strive to prevent

such differences from distracting us from our goal. In this respect, we commissioners must expand our efforts to maintain a positive atmosphere of good will and cooperation in which our scientists can operate unrestricted by conflicting national objectives.

The complex questions facing marine resource managers throughout the world create enormous burdens. However, such demands also create opportunities for discovery and for advancing the effectiveness of our solutions. And so it is with ICCAT. We have achieved much, but in our success, we have created new issues and expanded the field of inquiry on old ones. An example involves the deficiencies which remain in our data base, particularly for the billfish and swordfish stocks. We do not have definitive stock assessment results for these species and are not likely to have such results until substantial progress is made in current research. The SCRS has noted to the Commission that there currently is a "lack of basic data on growth mortality rates and stock structure which has severely hampered many of the conventional population dynamic analyses". These deficiencies limit our ability to make accurate stock assessments. We must seriously consider the establishment of a more efficient and effective mechanism by which catch data can be reported to our scientists. This mechanism, if it is to work, must be accepted and approved by all the members, who must be willing to insure its implementation. With sufficient and reliable data, our scientists will be able to make more accurate estimates of the status of the stocks on the basis of which the Commission can recommend the adoption of appropriate management measures.

While our progress to date on bluefin tuna has been striking, our efforts have and must continue, and I know we all look forward to hearing from the SCRS on this stock.

In conclusion, I would like to say that I am confident that the challenges that confront the Commission today will lead to a stronger commitment by all the members to take the steps necessary to expand our understanding of the Atlantic tuna and billfish resources in order to conserve and manage them effectively. I will delay no further the work that lies ahead of us this week, and announce that it gives me great pleasure to open officially the Ninth Regular Meeting of the International Commission for the Conservation of Atlantic Tunas.

Annex 7

REPORTS OF THE MEETINGS OF PANELS 1-4

Palma de Mallorca, November, 1985

Report of the Meeting of Panel 1

1. OPENING

The meeting was called to order by the Chairman, Mr. J. B. Amon Kothias (Ivory Coast).

2. ADOPTION OF AGENDA

The Agenda was adopted without changes (Appendix 1 to Annex 7).

3. ELECTION OF RAPPORTEUR

Mr. R. B. Stone (U.S.A.) was appointed rapporteur.

4. REVIEW OF PANEL MEMBERSHIP

There were no changes in Panel membership since the 1984 meeting. Angola, Cape Verde, Cuba, France, Ghana, Ivory Coast, Japan, Korea, Portugal, Senegal, Spain, U.S.A., and the U.S.S.R. were present.

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

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

5.a) Yellowfin

Mr. Beckett stated that the SCRS believes there are two stocks of yellowfin. Catches in the east Atlantic were lower in 1984 because of the reduction of effort in the purse seine fishery. Preliminary 1985 data show the catch is higher while the effort has remained about the same. Even if the effort levels remain the same as in 1984 and 1985, catches should continue to increase.

Total catches are increasing in the west Atlantic and reached about 40,000 MT in 1984. Much of this increase has come from the surface fisheries based in Venezuela (purse seiners and baitboats), which have been developing rapidly since 1984.

5.b) Skipjack

In the east Atlantic, total purse seine catches remained at about 65,000 MT but FISM catches decreased from 27,500 to 10,400 MT between 1983 and 1984 due to the transfer of fishing effort to the Indian Ocean. Spanish catches, however, increased from 29,100 to 45,600 MT. Baitboat catches were lower in 1984, mainly due to a decrease in the catches by the Ghanaian fleet.

In the west Atlantic, surface catches increased from 31,300 MT in 1983 to 35,500 MT in 1984, primarily due to Venezuelan catches that increased from 10,000 to 14,800 MT. Baitboat catches from Brazil decreased from 11,700 to 7,400 MT in 1984, but preliminary estimates indicate an increase again in 1985.

6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCKS

6.a) Yellowfin

The Chairman, Mr. Amon Kothias, reviewed the existing regulations and pointed out that the size regulation on yellowfin is ineffective in reducing fishing mortality on juvenile yellowfin. However, there were no suggestions for change since an increase in effort could occur quickly and with higher effort the regulation would bring gains in yield per recruit.

6.b) Skipjack

The SCRS Chairman, Mr. Beckett, suggested that management measures for skipjack were neither needed or desirable. The Panel agreed with this statement.

7. RESEARCH NEEDED TO BE CARRIED OUT

7.a) Yellowfin

The SCRS Chairman highlighted the opportunities that the decrease in fishing effort in the east Atlantic offered for studying the yellowfin populations. It would be a rare opportunity to test the efficiency of stock evaluation models, to learn more about stock struc-

ture, and to learn how fleets react to changing stock conditions. The study would involve collection of catch and biological data on a finer geographic scale than normal, intensive tagging cruises, possible studies of micro-elements of hard parts, and the use of observers on the various fleets. Mr. Beckett explained that the study should be started as soon as possible so that the recovery of the stock can be documented. He further explained that the proposed studies are not part of on – going work, require international support, and need coordination.

The Panel Chairman, Mr. Amon Kothias, asked for comments from the members and received them from a number of countries on both the merit of the study and the expense involved. The delegate from Ghana suggested the Panel first concentrate on the merits of the proposal and defer consideration of how much the study would cost and where the money would come from to STACFAD. Mr. Amon Kothias agreed with this approach and asked the Panel to address the appropriateness of the proposal.

After Senegal, Ivory Coast, and France supported the study, Portugal expressed some doubts and questioned the timing of the study in light of other priorities. Cuba and Angola suggested deferring the study for a year, and the U.S.A. asked the delegates to look at the Report of the Planning Group for the Yellowfin Year Program. The U.S.A. noted the sentence in the Report referring to possible financial or scientific adjustments that could be made if necessary and made the following proposal. The U.S.A. supported a yellowfin program, stressed that it must be immediate, and moved that Panel 1 approve, in principle, this program and allow the scientists to adjust the program as necessary after STACFAD acted upon the request for funds.

The motion was seconded by Ghana and supported by Ivory Coast, Angola, Cape Verde, in principle by Senegal, and by Japan with the caveat that the fishing effort should be kept down to achieve the full value of the study. Spain did not support the study. There were no other comments and the U.S.A. proposal was adopted by the Panel.

7.b) Skipjack

There were no research proposals for skipjack.

8. DATE AND PLACE OF NEXT PANEL MEETING

The next meeting of Panel 1 will be at the same time and place as the next Commission Meeting.

9. OTHER MATTERS

The observer from Mauritania stated that the scientific institute he represents would not see any major problem in the ratification by Mauritania of adhesion to ICCAT and offered to cooperate closely with ICCAT, and asked for information on catches by tuna fleets fishing in Mauritanian waters.

10. ELECTION OF CHAIRMAN

Ivory Coast was nominated by France and unanimously re-elected Chairman.

11. ADOPTION OF REPORT

The report was adopted.

12. ADJOURNMENT

The meeting was adjourned.

Report of the Meeting of Panel 2

1. OPENING

The meeting of Panel 2 was opened by the Commission Chairman, Mr. C. J. Blondin, in the absence of the Panel Chairman (Morocco). Portugal was elected to chair this session of the Panel and Capt. J. G. Boavida served in this capacity.

2. ADOPTION OF AGENDA

The Tentative Agenda was adopted without changes (Appendix 1 to Annex 7).

3. ELECTION OF RAPPORTEUR

Dr. P. M. Miyake (Secretariat) was appointed rapporteur.

4. REVIEW OF PANEL MEMBERSHIP

There were no changes in Panel membership since the 1984 session. Canada, France Japan, Korea, Portugal, Spain and the U.S.A. were present.

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

5.a) Bluefin

The SCRS Chairman, Mr. J.S. Beckett, presented the results of the SCRS studies. He stated that evidence supported the past hypotesis that there are two distinct stocks in the east and west Atlantic with some minor interchange at rates variable between years.

This was further supported by the X-ray analysis of micro-elements in the hard parts of bluefin. This analysis also suggested the possibility of two stocks in the east Atlantic.

The Working Group on Bluefin Tuna made progress in analyzing the data and bluefin stock assessments. Details can be found in the Group's Report contained in Vol. XXIV of the "Collective Volume of Scientific Papers".

The conclusions of the Group, for the west Atlantic stock, were somewhat different from those of 1984. This was due mainly to improvements made in the data base and to procedures adopted this year which permitted the scientists to use a combination of various series of abundance indices, rather than tagging data. In 1985, the stock is at a level of about 33 percent that of 1970, which was already lower compared with early 1960's.

The stock size has been showing some increase in terms of number of fish, particularly small fish, since the strict regulation started in 1982. Surplus production for 1986 was estimated at 4,400 MT. However, catching this amount would require a higher fishing mortality exceeding the mortality rate necessary to take the maximum sustainable yield at equilibrium.

An assessment for the east Atlantic stocks was made for the first time but was somewhat less accurate due to the lack of catch, effort and size data for many fisheries. The unreported catch of small fish has also caused problems. Nevertheless, the stock is considered to be in a healthy condition, and at equilibrium would produce about 17,000 to 18,000 MT per year on a sustainable basis. The recent recruitment has been at a relatively high level. No change in the management scheme was recommended.

Japan, in referring to a few past scientific papers, questioned the comparison of productivity between the Gulf of Mexico and the Mediterranean, and stated that it was hard to believe that the recruitment level to the west Atlantic stocks was only one-tenth that of the east Atlantic stocks as shown in the results of the Bluefin Working Group (See Appendix 2 to Annex 7).

The SCRS Chairman noted that the relative area of the spawning grounds does not necessarily coincide with relative productivity. Also, some of the studies made in the past compared only fecundity of the fish, or were based on a very small number of larvae which were extrapolated to the entire area, and therefore are not considered definitive.

Japan noted further that there is a big difference between the parameter of natural mortality used in 1985 ($M = 0.10$) and that used in 1984 ($M = 0.18$), and questioned the credibility of analysis (see Appendix 2 to Annex 7). The SCRS Chairman replied that the matter was thoroughly discussed at the scientific session and reported in the Working Group Report and the results are the scientists' best estimates at present.

5.b) Albacore, North

The Chairman of the SCRS reported that, up to now, the scientists had assumed there was one stock in the north. However, there is a possibility that a separate stock exists in the Mediterranean Sea. Since the catch in the Mediterranean, though still very minor, has shown some increase, this possibility should be studied carefully.

The north albacore catch has declined since 1983 due to the reduction in baitboat effort. The recruitment level measured by catch per unit of effort of age-3 fish has been at a low level for the last four years. However, the overall CPUE has been stable. The present catch is somewhat less than the estimated MSY level (60,000 to 70,000 MT). No management measures are proposed.

6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCKS

6.a) Bluefin

The delegate from Canada reiterated his country's strong support for the conservation measures made by the Commission in the recent years for the west Atlantic bluefin stocks and emphasized the need to work to rebuild the stock, particularly that of fish older than 16 years, in order to secure a larger sustainable yield. He proposed that the current management measures be maintained. His statement is attached as Appendix 3 to Annex 7.

The delegate from Japan, in drawing the Panel's attention to the 1984 SCRS Report, which advised that an increased catch would be allowed as the west Atlantic stock recovered, noted that a surplus production of 4,400 MT is estimated for 1986 by the SCRS. He proposed that a catch of 3,850 MT be allowed for 1986 for the purpose of scientific monitoring. His statement is attached as Appendix 2 to Annex 7.

The delegate from the United States observed that the west Atlantic stock size is still at a very low level, in spite of the strict regulations imposed by ICCAT. However, it is encouraging to see signs of some recovery in the stock size. The U.S. delegate, in noting that it would still take many years until the stock is rebuilt to a desired level, and that it would take some years for the scientists to collect new data series under this management scheme and to make more precise evaluations, fully supported the Canadian proposal. He also proposed that the current management measures be maintained for three to five years.

The delegate from France expressed his desire that the countries concerned with west Atlantic bluefin tuna management would reach a consensus as has been the case in the past, since the Commission's success in this matter depends on the countries' cooperation with each other.

After a lengthy discussion, a recess was called for the purpose of allowing delegations to consult since consensus had not been reached. After the recess, Canada proposed an amendment to its previous proposal to the effect that the current management measures for west Atlantic bluefin tuna be maintained in 1986. This proposal was supported by Japan and the United States.

The Panel Chairman recognized unanimity in accepting the Canadian proposal as amended. The recommendation of the Panel for west Atlantic bluefin management for 1986 is attached as Appendix 4 to Annex 7.

The delegate from France expressed his pleasure that the nations fishing in the west Atlantic reached a consensus on its management scheme. He noted that in the west Atlantic, catch measures should be fair so as not to encourage the vessels to shift to the area of interest to France. He reiterated the Fourth measure, i.e., the need for the member countries to take measures to avoid the transfer of fishing effort. He noted that since 1982 there has been a significant transfer from the west to the east, not only to the east Atlantic, but also to the Mediterranean. He added that the French fishery is basically artisanal and that the presence of large industrial fishing vessels provokes growing discontent among the French fishermen. He noted that his intervention is a last warning. If the situation continues, France will consult with interested neighboring countries as regards asking ICCAT to take the same type of measures in the east Atlantic as in the west Atlantic.

In response to the French delegate, the delegate of Japan referred to his comments made at the 1984 Panel session (paragraph 7 under Agenda Item 6.a). Further, he stated that, in order to comply with the ICCAT management measures, the Japanese Government implemented on March 3, 1982, a regulation that prohibits an increase in fishing effort on bluefin tuna in the east Atlantic. Japanese catches of bluefin in the east Atlantic, although high, have shown a downward trend since then, due to the reduction in the number of vessels and to a shift of fishing effort from bluefin to bigeye tuna. Japan has found it more difficult to reduce bluefin mortality as was hoped, due to the recent high abundance of the stock and consequently to high CPUEs.

The delegate from Japan further expressed that frustration caused by the inability to decrease these catches more rapidly has now led his country to limit the Japanese longline fleet in 1985 to 35 boats in the Mediterranean Sea, the major fishing grounds for bluefin tuna. He is optimistic that this action, coupled with the annual closure of the Mediterranean Sea from May 21 to June 30, will be effective and that the downward trend in bluefin catches will continue.

For the east Atlantic bluefin stock, the Panel decided that no additional management measures, other than those currently in effect, are necessary at this time.

6.b) Albacore, North

The Panel finds no evidence to take any conservation measures for this stock at this time.

7. RESEARCH NEEDED TO BE CARRIED OUT

The SCRS Chairman asked the Panel to refer to the recommendations on research that appear in the SCRS Report. In particular, he drew the Panel's attention to the recommendation that ICCAT would formulate a contract with IATTC to continue the X-ray analysis of micro elements in the hard part samples of bluefin which have been already col-

lected. This proposal includes analysis of data already obtained to observe the history of transatlantic movements of individual fish and to further investigate the possibility of a second group in the east Atlantic and would require funding of about US$30,000 by the Commission.

The Spanish delegate, in noting that the additional analysis would involve only completing the studies already carried out, supported the proposal. The Panel decided to endorse this SCRS recommendation and asked the Commission to study the financial aspect of the proposal.

The SCRS Chairman was also instructed to call an intersessional meeting before the next SCRS to re-evaluate the bluefin stock conditions if there is new information which may have a significant impact on the stock assessments.

8. DATE AND PLACE OF NEXT PANEL MEETING

The Panel will meet at the same time and the same place as the Council or Commission meeting, whichever takes place in 1986.

9. OTHER MATTERS

No other matters were discussed.

10. ELECTION OF CHAIRMAN

Morocco was re-elected Chairman of Panel 2.

11. ADOPTION OF REPORT

The report was adopted.

12. 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 (Appendix 1 to Annex 7).

3. ELECTION OF RAPPORTEUR

Mr. J. Walles (U.S.A.) was designated rapporteur.

4. REVIEW OF PANEL MEMBERSHIP

Three Panel members were present (Japan, South Africa and the U.S.A.). No changes in Panel membership were noted.

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

The SCRS Chairman noted that southern bluefin is common to all oceans of the southern hemisphere and that the principal harvest takes place in areas outside the Atlantic Ocean. Mr. Beckett pointed out that there has been some concern expressed about the status of the stock. As a consequence, the three principal fishing nations (Australia, New Zealand and Japan) have met in a trilateral forum to consider management of the stock. As a result of scientific advice that the spawning stock should not be allowed to decline further, these countries have adopted national regulations to support the conservation of the species.

5.b) Albacore, south

Mr. Beckett pointed out that this species is fished primarily with longlines. Catches reached a high of 30,000 MT in the early 1970's and then settled into a range between 10,000 and 23,000 MT in the past ten years. The catch peaked again in 1982 and declined sharply in 1983 and 1984. He noted further that a surface fishery has developed in the past five years, stabilizing at a level of 3,000 MT.

Though some concern has been expressed that the development of this surface fishery is related to the decline in the longline catch, Mr. Beckett noted that longline CPUE has remained constant over the past ten years and, therefore, the decline in the longline catch appears to reflect a reduction in effort.

Mr. Beckett referred to the production model used by SCRS, which indicates that the maximum sustainable yield on an annual basis is 24,000 MT. The species was fished at the maximum level in the 1970's and early 1980's. However, reduced effort in the past two years indicates that the tuna stock is now being fished below the MSY level. However, he cautioned that 1984 data are preliminary and will require further analysis.

6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCKS

6.a) Southern bluefin

As no management measures were recommended by the SCRS, the Panel did not consider any measures necessary.

6.b) Albacore, south

As no management measures were recommended by the SCRS, the Panel did not consider any measures necessary.

7. RESEARCH NEEDED TO BE CARRIED OUT

7.a) Southern bluefin

No new research was recommended. However, Mr. Beckett expressed the view that the SCRS should remain informed about work being done in the trilateral forum.

7.b) Albacore, south

The SCRS Chairman recommended that effort statistics be collected on the surface fishery. In addition, he expressed the view that the SCRS should update its formal analysis of this species, which dates to 1984. He suggested that a cohort analysis might be undertaken instead of the usual production model.

8. DATE AND PLACE OF NEXT PANEL MEETING

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

9. OTHER MATTERS

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

10. ELECTION OF CHAIRMAN

Japan was re-elected Chairman of the Panel.

11. ADOPTION OF THE REPORT

The report was adopted.

12. ADJOURNMENT

The meeting of the Panel was adjourned.

Report of the Meeting of Panel 4

1. OPENING

The meeting of Panel 4 was opened by the Chairman, Mr. Y. Vialov (U.S.S.R.).

2. ADOPTION OF AGENDA

The agenda was adopted without amendment (Appendix 1 to Annex 7).

3. ELECTION OF RAPPORTEUR

Mr. J. Walles (U.S.A.) was designated rapporteur.

4. REVIEW OF PANEL MEMBERSHIP

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

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

Mr. J. S. Beckett, SCRS Chairman, reviewed and summarized the SCRS findings regarding the many species of interest to Panel 4.

5.a) Bigeye

The SCRS Chairman noted that this species, which ranges widely in the Atlantic, is believed to consist of a single stock. Catches in the past 15 years have ranged between 40,000 and 60,000 MT. In recent years, the catch has been in the vicinity of 63,000 MT.

Two-thirds of the catch is taken by longlines, the rest in a surface fishery in the eastern tropical Atlantic. CPUE in the longline fishery has been steady in the past few years, and catch has varied generally with effort. Mr. Beckett noted further that the production model indicates a maximum sustainable yield of 70,000 MT. Thus, it appears that the species is being exploited at MSY with an appropriate amount of effort. In regard to research, Mr. Beckett recommended that SCRS focus on bigeye next year, with continued analysis of the effect of the change to deep longlining and an attempt to identify the actual catch of small bigeye.

5.b) Atlantic bonito and other small tunas

Mr. Beckett began by indicating the importance of Atlantic bonito and other small tunas in artisanal fisheries and as a by-catch in industrial fisheries. Catches of Atlantic bonito have been approximately 40,000 MT in recent years. Catches of other small tunas have been as high as 100,000 MT, though under-reporting for these species could amount to nearly 80,000 MT. Mr. Beckett also pointed to the need for better research and statistics on all these species.

5.c) Billfishes

Mr. Beckett noted that there is little information on these species (blue and white marlin, sailfish and long-billed spearfish). Most catches are incidental to longlining activity for other species, though there is also a directed recreational fishery. Low catches of 2,000 to 3,000 MT per species have made detailed scientific analysis difficult. Current analyses of blue and white marlin date to 1982 and 1983, but are still considered to be valid. In light of a declining CPUE, Mr. Beckett warned that any increase in effort would raise concern about the status of these stocks. Information regarding sailfish is somewhat better, and there are believed to be two stocks (one in the east Atlantic and a second in the west). The western stock is not believed to be fished at its maximum sustainable level. In the east, CPUE has fluctuated without trend, but there is no means available to evaluate the status of the stock.

In regard to research and statistics, Mr. Beckett recommended that catches be reported by smaller areas and that they be separated by species.

5.d) Swordfish

Mr. Beckett noted that this species was fished heavily in the 1960's, but that the catch dropped in 1971 in response to the imposition of regulations by several countries to limit mercury content. Catches recovered slowly over the years and are now at a level of

approximately 22,000 MT. He pointed out that there is much uncertainty regarding the structure of the stock. Fish are found throughout the Atlantic, though tag recoveries indicate that fish don't appear to mix or travel far. Size has declined in many fisheries in both the east and west, which could be related to shifts in fishing areas. Analysis done in the northwest Atlantic has suggested increasing mortality and a drop in the spawning stock biomass. Mr. Beckett discounted the possibility that mercury content regulation could have caused the decline in size of fish caught, as this decline apparently predates the imposition of these regulations. In regard to research, Mr. Beckett suggested greater attention to the relationship between size and geographic location.

6. REVIEW OF POSSIBLE MEASURES FOR THE CONSERVATION OF STOCKS

No new stock conservation measures were considered. The Panel did not consider any changes to the existing bigeye size regulation, which was previously extended for an indefinite period.

7. RESEARCH NEEDED TO BE CARRIED OUT

The recommendations of the Chairman of the SCRS regarding research are included in the descriptions of the species in Item 5 of this report.

The representative of the United States expressed concern about the continuing lack of information on the status of billfish stocks. He pointed out that the SCRS has found some evidence of declining stocks (such as diminished CPUE), that the SCRS has not had adequate scientific data to assess the situation, and that the recommendations of the SCRS in previous years have not led to a solution to this problem. In light of these factors, the U.S. representative recommended that the Panel direct the SCRS to prepare a comprehensive program for billfish assessment, including the cost of essential research activities to be presented for consideration by the Commission at its next session.

The representative from Cuba stated that he shared the concerns expressed by the United States and indicated that he believed these species should be given further study.

The Chairman of the SCRS agreed that this area could be explored further, including a significant tagging program which could extend over several years. He indicated that the SCRS would develop such a proposal for presentation at the next meeting of the Commission.

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. ELECTION OF CHAIRMAN

The current Chairman, U.S.S.R., was re-elected.

11. ADOPTION OF REPORT

The Panel adopted the report.

12. ADJOURNMENT

The meeting was adjourned.

Appendix 1 to Annex 7

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 the Report of the Standing Committee on Research and Statistics (SCRS)
6. Review of possible measures for the conservation of stocks:

Panel 1	*Panel 2*	*Panel 3*	*Panel 4*
a) Yellowfin	a) Bluefin	a) Southern bluefin	a) Bigeye
b) Skipjack	b) Albacore	b) Albacore	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. Election of Chairman
11. Adoption of Report
12. Adjournment

Appendix 2 to Annex 7

Statement of the Japanese Delegation

(Attached to Panel 2)

Generally speaking, fishery science, especially stock analysis, is at a very primitive stage when compared to other scientific fields, for example, space or genetics. We must admit that the tools available to our scientists are very limited. When we examine scientific discussions on bluefin tuna since 1980, it is apparent that no clear scientific advice is available. This is becoming more obvious year by year.

The conclusion of the 1985 Miami Bluefin Working Group assessment indicates that the estimated population number at age one (geometric mean) is 1,240,000 in the east Atlantic based on VPA. While that, in the west Atlantic, it is only 127,000. If these two estimates are correct, we are being asked to understand that productivity in the west Atlantic stock with spawning grounds in the Gulf of Mexico is only one-tenth of the east Atlantic stock spawning in the Mediterranean Sea. Common sense indicates that this is impossible. It is also clear that population numbers at age one in the Mediterranean Sea have been underestimated since age zero catches were not used when estimating the population number at age one by using VPA. Recognizing this, the west stock would be even less than one-tenth the size of the east stock. This makes even less sense.

The conclusion of the Working Group that the productivity of the west Atlantic is less than one-tenth as compared to that of the east stock is inconsistent with the following biological studies.

1. Two scientists, Dicenta and Piccinetti (SCRS/79/45) compared productivity between two separate spawning areas, the Gulf of Mexico and the Mediterranean Sea. According to this study, productivity in the Gulf of Mexico is clearly higher.
2. The larval surveys conducted by the U.S. showed high abundance in the Gulf of Mexico in both 1978 and 1983.

These studies show that what has been produced at the Working Group on Bluefin this year cannot be accurate.

Also at this meeting scientists concluded that bluefin of age 10-plus in 1984 would be about one-sixth of the level of 1970. If such a decline did occur, how is it possible to reconcile that with the U.S. studies that show no downward trend in larval abundance in the Gulf of Mexico?

In 1983 the SCRS stated that the 1973 year-class recruited as a strong spawning stock. In 1984, the SCRS changed its view and said that this was no longer true because the 1973

year-class had declined. Now in 1985 the SCRS has once again changed its view and said that the 1973 year-class has never been particularly strong. Why does the SCRS change its opinion so often and so drastically?

We would point out that the natural mortality used in 1984 was 0.18 and was changed to 0.1 this year. The natural mortality coefficient is extremely important in estimating stock status. The SCRS agreed that natural mortality ranges between 0.1 to .18, however, VPA analysis and yield-per-recruit values are extremely sensitive to any changes in natural mortality. Such changing of this important parameter is inconsistent.

We would like to draw the Commissioners' attention to Report B on bluefin from the SCRS last year. "The SCRS notes that, following confirmation of the response of the stock to the present management regime, it would be possible to increase the allowable catch gradually in proportion to the recovery rather than hold a constant catch level until the stock has stabilized." (Report for Biennial Period, 1984-1985, Part I)

The SCRS has stated that for 1986 there will be a surplus production of 4,400 MT. Even though the surplus production is underestimated in Report B, to be conservative, we propose that scientific monitoring for 1986 be increased to 3,850 MT, which is the surplus production for 1985. This level will allow for an increase in biomass. Commissioners should note that 3,850 MT are significantly lower than 5,542 MT which is the average bluefin catch in the west Atlantic from 1970 to 1981.

Appendix 3 to Annex 7

Statement by Canada on Bluefin Tuna

(Attached to Panel 2)

For several years, the Canadian delegation has strongly supported the conservation measures adopted by the Commission for the purpose of arresting the decline in the west Atlantic stock and to begin a process of rebuilding. It is important to continue the efforts and ensure that the bluefin tuna stock does rebuild itself to a level where it will sustain higher catches.

To relax prematurely the regulations for the Atlantic tuna catch would negate the results of the conservation efforts carried out in the last few years. These conservation measures have meant sacrifice for the Canadian industry because of the restrictive management policies that were also imposed to limit the participation, the seasons, the selection of harvesting gear and the number of fish to be landed per day by some 700 licensed tuna fishermen located in many small harbors.

We have felt, Mr. Chairman, that relaxing these restrictive policies would not respect the intent of the regulations for the Atlantic bluefin tuna catch agreed to by this Commission and we have resisted changes in spite of the strong urgings of our industry.

We have maintained our controls on the fisheries believing that any attempt to increase the effort in order to catch more fish would impact negatively on the conservation efforts of ICCAT. We also wish to maintain the data series that are requested by ICCAT and not change the pattern of the fishery. We remain hopeful that local bluefin abundance will fluctuate back and that our existing fishing effort will harvest fully the available resource and that our industry will see the benefits of these controls.

The Canadian industry is particularly interested in ensuring a rebuilt stock. The bluefin tuna does not visit our waters before its sixteenth year and SCRS has stated that the number of fish in this age group are in decline. We need to rebuild the stock, as rapidly as we can, so that the decline will not only be averted but that it will be reversed. Our Commission should strive to maintain populations of fish at levels that will permit the maximum sustainable yield. Clearly that task is not complete in the management of bluefin tuna and we should not deter from this very basic goal.

Mr. Chairman, based on SCRS advice, the Canadian delegation feels that the most reasonable approach at the present time would be to maintain the current management measures which already generate high fishing mortality.

Appendix 4 to Annex 7

Proposed Regulations for the Atlantic Bluefin Tuna Catch (1986)

(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 1986:

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 1986 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 1985.

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 being 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 1986 Meeting, appropriate management measures, including the continuation of the current management measures, throughout 1987.

Annex 8

REPORT OF THE INFRACTIONS COMMITTEE

Palma de Mallorca, November, 1985

1. OPENING OF THE MEETING

The Chairman, Mr. B. García Moreno of Cuba, opened the meeting and noted that the member countries represented were Angola, Canada, Cape Verde, Cuba, France, Ghana, Japan, Korea, Portugal, Senegal, South Africa, Spain, U.S.A. and U.S.S.R.

2. ADOPTION OF AGENDA AND ORGANIZATION OF THE MEETING

Mr. García Moreno briefly reviewed the Tentative Agenda, which was adopted without change (Appendix 1 to Annex 8).

3. ELECTION OF RAPPORTEUR

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

4. REVIEW OF THE WORK OF THE COMMITTEE TO DATE

The Chair called attention to Document COM/85/16 and asked the Secretariat to review it. In his review, the Executive Secretary pointed out that the document contained a brief history of the work of the Committee in its previous meetings, and noted that the full text of the Port Inspection Scheme is now available in the revised Basic Texts. He also touched on the approved identification card for inspectors (also available in the Basic Texts), and the problems that had been pointed out with the inspection form. He mentioned that COM/85/16 contained the current list of inspectors, required by the Scheme, and the current list of national correspondents.

5. NATIONAL REGULATIONS ON SPECIES

The Chair asked the Executive Secretary also to review Document COM/85/15, which contains the texts of the Commission's recommendations for management of yellowfin, bigeye and bluefin tunas, as well as tables showing a summary of the latest information available on national actions to implement these recommendations. (This information is also available in the revised Basic Texts, updated as of January, 1985.) The Executive Secretary pointed out the salient points of the tables which show the dates of adoption of national regulations, and asked that the delegates review them for completeness and accuracy, informing the Committee or the Secretariat of any discrepancies. Appendix 3 to Annex 8 shows these tables up-to-date as of November 19, 1985.

The Chair thanked the Executive Secretary for the valuable reviews that he had made of the two documents, and asked the delegates for any relevant comments or information. The Cuban delegate said that the Commission recommendation on bigeye tuna had continued in force, and that the Secretariat would be informed of the details. The Cuban delegate also called attention to the fact that her country had no catches from directed fisheries of bluefin tuna at this time. The delegate of the U.S.A. noted that, as in the case of Cuba, the bigeye size limit regulation implemented in 1981 remains in effect. Appropriate documentation indicating the extension of the regulations will be provided to the Secretariat. The delegate from Cape Verde informed the Committee that her country was temporarily working under the fisheries laws in effect before independence, but that Cape Verde has new legislation in process and will send the necessary information in due time.

The U.S.S.R. stated that the national regulations implemented in 1978 for species regulated under Commission recommendations are still in force, but that they had been amended and the amendments transmitted to the Secretariat. South Africa indicated that the prohibition on catching undersized bigeye had been made effective for an indefinite period at the end of 1980, and that he would inform the Secretariat by mail of the details. The delegate from South Africa also called the Committee's attention to the powers of his country's inspectors, and assured the Committee that he would furnish information to the Secretariat in writing. Portugal noted that the extension of regulations on bigeye tuna for an indefinite period were effective from August 10, 1984.

6. NATIONAL LEGISLATION ON PORT INSPECTION

The Chair invited the delegates to furnish any information they wished to the Committee on this subject. The delegate from Cuba said that relevant legislation was in process in her country, and that she would inform the Secretariat when the process was completed.

7. REPORT OF PORT INSPECTIONS CARRIED OUT IN 1985

South Africa informed the Committee that 14 inspections, all but two of South African vessels, had been carried out in 1985, and that his country intended to amplify implementation of the Inspection Scheme. He also noted that his country had furnished completed copies of the inspection forms to the Secretariat. The delegate of the U.S.A. said that

her understanding of the application of the Scheme was that formal reports of inspections were only necessary in the case of foreign vessels, and that none had been carried out by the U.S.A. in 1984. However, inspections of domestic vessels are regularly carried out to determine compliance with regulations based on ICCAT recommendations. Cuba agreed that the main purpose of the Scheme was to provide for the inspection of foreign vessels. A Cuban inspector has been accredited by the Spanish Government to cover Cuban vessels transshipping their catch in Las Palmas, but has not been very busy since the only Cuban purse seiner operating and landing in Las Palmas has had technical difficulties.

South Africa expressed the view that it would be useful to have a summary presented annually at the Infraction Committee's meetings of the results of national inspections.

The representative of the EEC asked the Chair's permission to touch briefly on his organization's inspection scheme, which antedates 1983. It is of increasing importance to ensure that EEC member countries comply with fisheries agreements and regulations.

8. REVIEW OF PRESENT INSPECTION FORM

Mr. García Moreno called upon the Chairman of the SCRS to present the results of his Committee's review of the present version of the inspection form. The Chairman responded that his Committee had found the form in general adequate for the purpose for which it was designed, but described ambiguities in some of the items. He said that he would pass some suggestions to the Secretariat for appropriate modifications. The Secretariat agreed to modify the form to eliminate the ambiguities and to circulate a revised version in the near future. The delegate of the U.S.A. supported the remarks of the Chairman of the SCRS and noted that similar concerns had been communicated to the Secretariat by letter earlier in the year.

9. APPLICATION OF THE INSPECTION SCHEME

a) National correspondents

b) Nomination of inspectors

The Chair said that he believed that both of these points had been covered under previous Agenda items, and asked for comments from the floor. Portugal informed the Committee a list of inspectors and correspondents had been furnished to the rapporteur. France also provided the rapporteur with the name and address of its correspondent. These lists, which supplement those in COM/85/16, are attached as Appendix 2 to Annex 8.

10. DATE AND PLACE OF NEXT COMMITTEE MEETING

It was agreed that the Committee would meet at the same time and place as the next meeting of the Commission.

11. OTHER MATTERS

No other matters were raised.

12. ELECTION OF CHAIRMAN

The U.S.S.R. nominated Cuba to continue as Chairman of the Committee, and the nom-J ination was seconded by the U.S.A., Angola, Japan, and Cape Verde. Mr. García Moreno said that Cuba felt deeply honored by this show of support, but that certain administrative problems would prevent acceptance. Angola requested that Cuba re-examine its position because of the exceptional service that Cuba and Mr. García Moreno had given to this Committee. Spain reiterated Angola's point, as did France and the U.S.A. Mr. García Moreno said that he was deeply touched and that, considering this show of support, Cuba would agree to serve as Chair for another term.

13. ADOPTION OF REPORT

The report was adopted.

14. ADJOURNMENT

The meeting was adjourned.

Appendix 1 to Annex 8

Agenda of the Infractions Committee

1. Opening of the meeting
2. Adoption of Agenda and organization of the meeting
3. Election of Rapporteur
4. Review of the work of the Committee to date
5. National regulations on species
6. National legislation on port inspection
7. Report of port inspections carried out in 1985
8. Review of present inspection form
9. Application of the inspection scheme
   a) National correspondents
   b) Nomination of inspectors
10. Date and place of next Committee meeting
11. Other matters
12. Election of Chairman
13. Adoption of Report
14. Adjournment

Appendix 2 to Annex 8

Port Inspection

Portugal - Inspectors

Mainland:

Direcção Geral das Pescas
Av. 24 Julho, 80
1200 Lisboa

Azores:

João Gil Pereira
Orlando Goulart Quaresma
Luis Fernandes
Manuel F. García Serpa
Norberto M. Cabral Serpa

(All with the following address:)

Direcção Regional das Pescas
R. Consul Dabney
9900 Horta

Madeira:

Direcção Regional das Pescas
Av. Zarco
9000 Funchal

Portugal - Correspondents

Mainland:

Director Serviços Recursos e Cooperação Internacional
Direcção Geral das Pescas
Av. 24 Julho, 80
1200 Lisboa

Azores:

Eugenio Leal
Director Regional das Pescas
R. Consul Dabney
9900 Horta

Madeira:

José A. T. de Ornelas
Director Regional das Pescas
Av. Zarco
9000 Funchal

France - Correspondent

M. Latreille
Chef du Bureau de la Reglementation de la Direction des Pêches
Secretariat d'Etat à le Mer
3 Place Fontenoy
75007 Paris

Status of adoption of regulatory measures on size limits by the member countries for YELLOWFIN, BIGEYE and BLUEFIN TUNAS

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*		Aug.18, 1977
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			
Ivory Coast	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	Nov27, 1976
Sao Tome and Principe				
Senegal	Jul. 2, 1976	Jul. 2, 1976		
South Africa	May, 1973	Dec. 5, 1980		Jun. 27, 1975
Spain	May 29, 1974			Mar. 3, 1975
Uruguay				
U.S.A.	Nov. 5, 1975	Mar. 30, 1981		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.

Status of adoption of regulatory measures on BLUEFIN TUNA fishing mortality by the member countries

Commission recommendation	*Limiting fishing mortality to recent levels*				
		1st Extension	*2nd Extension*	*3rd Extension*	*4th Extension*
Area of application	*Entire Atlantic*	*Entire Atlantic*	*Entire Atlantic*	*Entire Atlantic*	*E. Atlantic only*
Date of entry into effect	*Aug. 10, 1975*	*Aug. 10, 1976*	*Oct. 10, 1978*	*Sep. 4, 1980*	*Jul. 21, 1982*
Date of expiration	*Aug. 10, 1976*	*Aug. 10, 1978*	*Aug. 10, 1980*	*Aug. 10, 1982*	*Indefinite*
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	
Cape Verde					
Cuba	----------Zero catches in 1976-78----------				
France		Dec. 27, 1974	Dec. 27, 1974	Dec. 27, 1974	
Gabon	----------No fishing----------				
Ghana					
Ivory Coast					
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: This table is unofficial. For more details, please request information from the national administrations.

Status of adoption of regulatory measures on west Atlantic BLUEFIN TUNA catches by the member countries*

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

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

Annex 9

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

Palma de Mallorca, November, 1985

Item 1. OPENING OF THE MEETING

1.1 The 1985 meeting of the Standing Committee on Finance and Administration (STACFAD) was opened by the Commission Chairman, in the absence of the STACFAD Chairman, Mr. J. Chao (Spain). The following member countries were present: Angola, Canada, Cape Verde, Cuba, France, Ivory Coast, Japan, Korea, Portugal, Senegal, South Africa, Spain, United States, and the U.S.S.R.

1.2 Since the Committee Chairman was not present, Japan proposed that Ms. B. Keith Rothschild (U.S.A.) chair the 1985 financial committee meeting.

Item 2. ADOPTION OF AGENDA

2.1 After reviewing the Commission Agenda items referred to the Committee, the STACFAD Agenda, circulated in advance of the meeting, was adopted (Appendix 1 to Annex 9).

Item 3. ELECTION OF RAPPORTEUR

3.1 The Secretariat served as rapporteur.

Item 4. PANEL MEMBERSHIP

4.1 The Executive Secretary referred the Committee to document COM/85/14 which gives full details on Panel membership. The Committee noted that there have not been any changes in Panel membership over the past year.

Item 5. ADMINISTRATIVE REPORT

5.1 The Administrative Report (COM/85/7) was presented by the Executive Secretary. He noted the present Commission membership and the seven countries who up to now have ratified the Protocol to the ICCAT Convention for accession of the EEC to the Convention. He also outlined overall Secretariat and Commission activities.

5.2 He made particular reference to meetings at which the Commission was represented, especially the Conference of Fisheries Ministers recently held in Spain, cooperation with other organizations, the intersessional bluefin meeting held in September, ICCAT publications, and the status of the skipjack publication. He also introduced the new ICCAT systems analyst, P. Kebe (Senegal) to the Committee.

5.3 With regard to the Secretariat's role in the coordination of research, the Committee was referred to document COM/85/10. Special mention was made of the Secretariat's efforts to improve statistics from the tropical west Atlantic, which included sending a sampling expert, on loan from the U.S., to Venezuela to establish a sampling scheme there. To improve Mediterranean tuna statistics, a Spanish scientist was sent to Morocco. The work carried out by both these experts was commended.

5.4 In recommending the Administrative Report for adoption, the Chair, on behalf of the member countries, commended the excellent work of the Secretariat.

Item 6. RELATIONS WITH OTHER ORGANIZATIONS

6.1 The Executive Secretary referred the Committee to the pertinent section of the Administrative Report which reviews the relationship the Commission maintains with various international organizations. He specifically noted the recent collaboration which ICCAT has been developing with various international organizations to improve tuna statistics. The Committee found these to be satisfactory.

Item 7. COMMISSION PUBLICATIONS

7.1 The Committee was again referred to the Administrative Report (COM/85/7) for details on ICCAT publications. In reviewing the report, the Executive Secretary informed the Committee that the skipjack publication would be distributed in early 1986.

7.2 The Executive Secretary also presented the recently revised version of the "Basic Texts of the Commission". The Chair, on behalf of all Committee members, thanked the Executive Secretary for having such a useful document prepared at this time.

Item 8. REVIEW OF STAFF RULES

8.1 The Executive Secretary referred briefly to the "Staff Rules" and reiterated that the Commission follows the FAO scheme for salaries and promotions of staff in the General Services category. He proposed that this procedure be continued in the future.

Item 9. AUDITOR'S REPORT - 1984

9.1 In discussing this Agenda item, the Executive Secretary noted that the 1984 Auditor's Report had been distributed by the Secretariat earlier in the year. He informed the Committee that an abstract of the Report was included in the 1984 Financial Report (contained in the Report for the Biennial Period, 1984-85, Part I).

Item 10. FINANCIAL STATUS OF THE REGULAR BUDGET - 1985

10.1 The 1985 Financial Report (COM/85/8) was presented by the Executive Secretary. Revised financial statements, updated since the Financial Report was distributed, were presented to the Committee members for review and were explained in detail by the Executive Secretary. Special emphasis was given to the problem of the pending contributions to the Commission's budgets over the past few years.

10.2 The delegate from Senegal informed the Committee that just before he had left the country an order had been given to pay the amount pending payment by his country ($29,133.88).

10.3 The Committee noted that any unused positive balance would be deposited to the Working Capital Fund at the end of 1985. However, emphasis was placed on the negative cash balance of the 1985 Fiscal Budget foreseen due to the pending contributions which will have to be covered by the funds actually available in the Working Capital Fund.

Item 11. REVIEW OF THE WORKING CAPITAL FUND

11.1 The Committee reviewed the status of the Working Capital Fund shown in the Financial Report (COM/85/8) and updated financial statements (distributed during the session). It was noted that with the latest contributions received by the Secretariat, the total amount accessible in the Working Capital Fund is $693,816.15.

11.2 The delegate from Japan asked that the definition of the Working Capital Fund be clarified and observed that there are still pending contributions accumulated from previous years. The Executive Secretary stated that the total pending contributions as of this date amounted to $380,010.41 and therefore out of the sum of $1,073,826.56, only approximately $694,000 are available for use.

11.3 The question was asked if 15 percent of the total Budget would be enough to maintain an adequate level of the Working Capital Fund. The Executive Secretary responded that at least $200,000 to $250,000 cash is needed in the Working Capital Fund to meet the Commission's financial obligations. The delegate of Japan emphasized the need for sufficient funds because of unstable currency fluctuation on an international level.

11.4 The Committee, while approving the present status of the Working Capital Fund, decided that application of some of the Working Capital Fund be discussed together with the Budget for the next biennial period.

Item 12. FINANCIAL STATUS OF THE SKIPJACK PROGRAM

12.1 The Executive Secretary referred the Committee to the pertinent section of the Financial Report (COM/85/8) which gives the status of skipjack funds. The Committee recommended that the Skipjack Budget be closed as such and that these funds be administered through the Commission's Regular Budget. He noted that there are still $11,750.70 pending payment.

Item 13. OTHER ACTIVITIES IN RESEARCH AND STATISTICS

13.1 The SCRS Chairman discussed future activities of the scientific committee which have financial implications. These include the acquisition of a computer by the Secretariat, the Yellowfin Year Program, and the further analysis of bluefin tuna hard parts. He commented that the purchase of the computer has top priority. He referred the Committee to the 1985 SCRS Report for full details on the research aspects of these activities and to Item 14 of this Report.

13.2 The SCRS Chairman noted the possibility of an intersessional meeting on bluefin tuna and the need to address the lack of knowledge on billfish in 1986.

Item 14. REGULAR BUDGET FOR BIENNIAL PERIOD 1986-1987

14.1 The Estimated Budget for the Biennial Period 1986-1987 (COM/85/9), circulated more than two months before the Commission Meeting, was presented by the Executive Secretary. He commented that the Budget was estimated in the context of budget austerity, but accurate estimates are difficult under the current unstable currency exchange conditions.

14.2 The delegate from Spain observed that the total budget estimated for 1986 ($725,000) was reduced from the 1985 level ($750,000) while an 8 percent increase was forecast for 1987 ($785,000). She expressed Spain's view that the budgets for international organizations should not be increased and that Spain could not accept a total budget increase of 8 percent in 1987. She proposed that the total of the Regular Budget for 1986 and 1987 be the same as 1985, i.e., $750,000. This Spanish proposal was accepted by the Committee.

14.3 The special funding proposed by the Standing Committee on Research and Statistics (SCRS) was then discussed. The United States offered a proposal covering the several areas of funding with which the Committee had to deal. First, the United States proposed that the funding requested by the Secretariat (COM/85/12) and supported by the SCRS to purchase a computer system be approved by the Committee and Plan 2 (paying in three annual installments) should be used. Funding for the Yellowfin Year Program should be permitted, but only in the amount of $175,000 which would allow the Program to proceed but at a reduced level which would still produce meaningful results. He further proposed that funding for the micro-constituents study of bluefin hard parts be reviewed at next year's meeting in light of the Commission's funding situation.

14.4 The U.S. delegate further proposed that the funding for these special programs be covered by the Working Capital Fund, while the Commission's Regular Budget should be covered by the country contributions. (The U.S. proposal is attached as Appendix 2 to Annex 9.)

14.5 The French delegate proposed that even for the Regular Budget, $175,000 should be appropriated from the Working Capital Fund in order to reduce the country contributions, repeating the same procedures applied in 1985. His country cannot accept an increase of country contributions of more than 3 to 4 percent. This proposal was supported, in principle, by Spain which opposed any increase in country contributions.

14.6. The Chair emphasized that if $175,000 of the Regular Budget for 1986 is covered by the Working Capital Fund as proposed by the delegate of France, and if the special funding is also covered by the Working Capital Fund, the balance of available cash in the Fund would be reduced to approximately $300,000 at the end of 1986. If another $175,000 is used to cover a part of the 1987 Budget and funding for the partial payment for the computer in 1987 is also covered by it, the Fund would be reduced to approximately $100,000. The Japanese and U.S. delegates expressed serious concern over this situation. These two delegations also observed 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.

14.7 In addressing this Agenda item, the delegate from France requested that the SCRS Chairman comment on how the reductions in the proposed SCRS research budget would affect SCRS research programs.

14.8 The SCRS Chairman noted that the revised budget would not permit any funds to be applied towards the bluefin hard part studies and that research efforts would be concentrated on yellowfin tuna. He also felt that the reduced allocation ($175,000) would allow for considerable research work on this species. However, he noted that tagging, especially in the west Atlantic, would have to be curtailed considerably and that more emphasis would be placed on the observer program. He commented that an adequate program could be devised and would provide meaningful results. However, he added that the Activity Teams would have to re-evaluate their research plans and may conclude that the funds are inadequate.

14.9 The Executive Secretary displayed several funding scenarios and proposed that the $219,000 of special funding plus $175,000 to offset member country contributions could come from the Working Capital Fund for Fiscal Year 1986. The U.S. representative again restated his concern over this approach in that it would reduce the Working Capital Fund to a dangerously low level. The delegate from Spain expressed her doubts about the timeliness of reducing the Working Capital Fund so drastically.

14.10 The delegate from Angola suggested the possibility of postponing the special funding for the Yellowfin Year Program and reviewing it once more as already suggested by Angola and Cuba at the Panel 1 meeting. Mr. Beckett, however, had said this could not be delayed due to the opportunity that was presented only for the coming year.

14.11 The delegate of Senegal noted that while the STACFAD's responsibility involves recommendations for funding research, the primary problem facing the Commission involves the large amount of money outstanding in country contributions.

14.12 There was quite a lengthy discussion to determine if the Committee would recommend the application of the Working Capital Fund not only for the 1986 Budget but also for the 1987 Budget. The delegate from Ivory Coast proposed that the Budget adopted at the present time not include reference to the amount of funds applied to the 1987 Budget from the Working Capital Fund. Following a short recess and consultations among the delegates, the Chair proposed and the Committee approved a compromise proposal modeled after the original proposal of the Executive Secretary. This proposal involved tentative application to the 1987 Regular Budget of $175,000 from the Working Capital Fund on the condition that such withdrawals be reviewed at the Committee's 1986 meeting in light of the status of the Working Capital Fund and the financial condition of the Commission.

14.13 This proposal was supported by most of the countries present. The delegate of Spain declared that in the present financial circumstances, and bearing in mind the foreseeable deficit in the Commission contributions for the 1986-1987 biennial period, it does not seem very advisable to adopt such a proposal. However, in the spirit of harmony and solidarity with the other delegations, the delegate of Spain noted that she would not oppose the proposal although she requested that her declaration be included in the record.

14.14 The U.S. delegate voiced significant concern over the financial impact of this proposal and reiterated his earlier statements regarding the need to cautiously use the Working Capital Fund. That concern having been duly noted, in the spirit of cooperation in moving forward, the U.S. delegate also accepted the proposal.

14.15 The Budget, thus approved by the Committee to be forwarded to the Commission for its adoption is attached herewith as Appendix 3 to Annex 9.

Item 15. MEMBER COUNTRY CONTRIBUTIONS TO THE REGULAR BUDGET 1986-1987

15.1 The member country contributions were calculated based on the latest catch and canning figures for 1983 agreed to by all the members, in accordance with the formula outlined in Article X of the Convention. Of the total Budget, $575,000 will be financed by the country contributions (attached as Appendix 4 to Annex 9). This procedure was accepted by the Committee and recommended to the Commission for adoption.

Item 16. DATE AND PLACE OF THE NEXT MEETING OF THE COUNCIL OR SPECIAL MEETING OF THE COMMISSION

16.1 The Chair referred to Article 3, paragraph 5 of the Rules of Procedure and proposed that the Fifth Special Meeting of the Commission be held in 1986, instead of a Council meeting. The proposed dates for the 1986 meeting are November 12 to 18.

16.2 As no invitation was received from any of the member countries, the Chair proposed that the 1986 Special Commission Meeting be held, in principle, in Madrid, but that the Executive Secretary consider other alternatives if information is presented, in consultation with the Commission Chairman, and always with austerity in mind.

Item 17. ITEMS TO BE CONSIDERED BY THE COUNCIL AT ITS NEXT MEETING

17.1 Since the Council will not be meeting in 1986, this Agenda item was not discussed.

Item 18. DATE AND PLACE OF THE NEXT REGULAR MEETING OF THE COMMISSION

18.1 The Committee recommended that this Agenda item be discussed at the time of the Fifth Special Meeting of the Commission in 1986.

Item 19. OTHER MATTERS

19.1 The observer from Equatorial Guinea informed the Committee that his country is taking the necessary steps to become a member of the Commission.

Item 20. ELECTION OF CHAIRMAN

20.1 The Chair nominated Mrs. P. García Doñoro (Spain) for Chairperson of the Standing Committee. This proposal was seconded by Angola, Cuba, France, Ivory Coast, Portugal, Japan and the U.S.S.R.

20.2 The Committee commended the excellent leadership of Ms. B. Keith Rothschild.

Item 21. ADOPTION OF REPORT

21.1 The report was adopted.

Item 22. ADJOURNMENT

22.1 The meeting was adjourned.

Appendix 1 to Annex 9

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. Review of Staff Rules
9. Auditor's Report - 1984
10. Financial status of the Regular Budget - 1985
11. Review of the Working Capital Fund
12. Financial status of the Skipjack Program
13. Other activities in research and statistics
14. Regular Budget for Biennial Period 1986-1987
15. Member country contributions to the Regular Budget 1986-1987
16. Date and place of the next meeting of the Council or Special Meeting of the Commission
17. Items to be considered by the Council at its next meeting
18. Date and place of the next Regular Meeting of the Commission
19. Other matters
20. Election of Chairman
21. Adoption of Report
22. Adjournment

Appendix 2 to Annex 9

U. S. Proposal

A. In order to address the financial questions facing STACFAD, it is necessary to reach several interrelated decisions. This proposal is based on the following judgments.

1. Accept the budgets for 1986-1987 as proposed by the Secretariat.

2. Recognizing the desirability of in-house data processing capability within the ICCAT Secretariat and the long-term financial attractiveness of such an arrangement, accept the recommendation to acquire a new computer system. To minimize the financial impact of this purchase, use Plan 2 which phases the capital expenditure portion of the acquisition over a period of three years.

3. In order to take advantage of the unique scientific opportunity presently existing with regard to yellowfin stocks, the Yellowfin Year Program is a very desirable activity in which to engage. However, due to continuing resource constraints, the program cannot be undertaken at the level of magnitude recommended by SCRS, i.e., $362,500. Therefore, consistent with Section 3 of document SCRS/85/7-Revised, Appendix 3, it is proposed that this program be allotted initially $175,000.

4. Due to higher priority activities and limited funding, the Proposal for Further Work on Micro-Constituents of Bluefin Tuna Vertebrae cannot be accepted at this time. This proposal should be reviewed in light of the Commission's funding situation at next year's meeting. (Alternatively, with the support given to this proposal by Panel 2, upon review by the responsible scientists, all or part of this proposal could be funded, but only within the total of $175,000 suggested above.)

B. The funding arrangements necessary to accommodate the decisions above are as follows.

1. For Fiscal Year 1986, use $175,000 from the Working Capital Fund to carry out the Yellowfin Year Program. This will have the same effect as Secretariat Plan A on Member Country contributions for 1986.

2. In addition, in order to purchase the new computer, use from the Working Capital Fund up to $54,000. (In practice it is expected that the Working Capital Fund will need to contribute only $44,000 or less due to savings during the year in eliminating the INFONET system. The difference, if any, will remain in the Working Capital Fund.)

3. For Fiscal Year 1987, use $100,000, plus accrued 1986 interest, from the Working Capital Fund for the total budget. Depending on the interest income realized, this will have the same effect on 1987 contributions as Plan B.

4. Additionally for Fiscal Year 1987, use from the Working Capital Fund up to $17,000 to augment the already-budgeted data processing funds of $38,000 in order to continue with the three-year computer purchase arrangements.

C. While the above suggested decisions do not allow for the full scope of proposed scientific investigation recommended by SCRS, they do provide a realistic approach to both research needs and funding constraints. It should be noted, however, that these actions will further reduce the Working Capital Fund, making additional effort necessary in the future to insure that contributions to the general budget are promptly submitted. Since its flexibility has been substantially diminished, the Working Capital Fund can no longer be viewed as a resource for unprogrammed activity if the Commission is to continue its work unthreatened.

Estimated Regular Budget, 1986-1987
(US$)

	Advance Estimate 1986 (750,000)	*Advance Estimate 1987 (750,000)*
Chapter:		
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	10,000	10,000
Subtotal	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	5,000	5,000
Subtotal	237,000	237,000
9. Contingencies	0	0
TOTAL	750,000	750,000
From Working Capital Fund	*175,000*	*175,000**
From Member Country Contributions	*575,000*	*575,000*
SPECIAL FUNDING		
1. Purchase of computer	44,000	21,000
2. Yellowfin Year Program	175,000	0
Subtotal	219,000	21,000
FROM WORKING CAPITAL FUND	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).

Table of Member Country Contributions to the 1986 Regular Commission Budget

Total Budget - $750,000 — Contributions (K) $575,000

Country	*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
Ivory Coast	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
Total	37	100.00	451.753	131.316	583.069	100.00	22,000	37,000	172,000	344,000	575,000

A – Panel membership.
B – Percentage of payments for annual membership and panel membership (G + H).
C – 1981 catch (live weight).
D – 1981 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).

Annex 10

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

Palma de Mallorca, November 7-12, 1985

Table of Contents

Item 1. OPENING OF THE MEETING

The Standing Committee on Research and Statistics (SCRS) met from November 7 to 12, 1985, in Palma de Mallorca, Spain, at the Hotel de Mar Sol 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.

The SCRS Chairman opened the Sixteenth Regular Meeting of the Committee and welcomed all the scientific delegations. The Chairman requested a minute of silence in memory of the late Dr. R. T. Yang of Taiwan University who died while carrying out research activities in May, 1985. Dr. Yang had been associated for a long time with ICCAT and his contributions to tuna research will be long remembered by all the scientists.

Mr. Beckett commented on the achievements made in tuna research by the scientists during 1985 and expressed special satisfaction with the results of the Bluefin Working Group which met at the NMFS Southeast Fisheries Center, (Miami, Florida, September 18-28, 1985). The meeting was very successful and considerable work was carried out.

The SCRS Chairman noted that there are a few proposals for special programs which require some funding by the Commission, namely the Yellowfin Year Program, the purchase of new computer facilities for the ICCAT Headquarters and a micro-element study of tuna hard parts.

Item 2. ADOPTION OF AGENDA AND ARRANGEMENTS FOR THE MEETING

The Tentative Agenda, circulated prior to the meeting, was adopted (attached as Appendix 1 to Annex 10). The scientists nominated as rapporteurs and coordinators of the Report are:

For Agenda item 8:

Tropical Tunas (General)	A. Fonteneau
YFT-Yellowfin	F. X. Bard
BET-Bigeye	S. Kume
SKJ-Skipjack	D. Au
ALB-Albacore	N. Bartoo
BFT-Bluefin	J. J. Maguire
BIL-Billfishes	R. Conser
SWO-Swordfish	D. Clay
SBF-Southern bluefin	S. Kume
SMT-Small tunas	J. P. Wise
MLT-Multi-Species	G. T. Sakagawa
For all other Agenda items:	P. M. Miyake

Two ad hoc working groups were created, both with open participation: one group, headed by Dr. N. Bartoo (U.S.A.), to review the Secretariat proposal for a new ICCAT computer system; and another, headed by Dr. F. X. Bard (Ivory Coast), to review ICCAT editorial and publication policy for scientific materials.

Item 3. INTRODUCTION OF DELEGATIONS

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

Item 4. ADMISSION OF OBSERVERS

The observers were introduced, admitted and welcomed to the 1985 SCRS Meeting (included in the List of Participants). 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 SCRS was informed that this year all documents were submitted before the deadline and were accompanied by the necessary number of copies to be reviewed by the rapporteurs groups and later by the entire Committee. All the documents were accepted by the SCRS. (The List of SCRS Documents is attached as Appendix 2 to Annex 10.)

Item 6. REVIEW OF NATIONAL FISHERIES AND RESEARCH PROGRAMS

6.1 ANGOLA

During the first nine months of 1985, the overall catch of the tuna fleet reached 1,473 MT, broken down as follows: skipjack 469.9 MT, skipjack 63.4 MT, bonito 36.3 MT, frigate tuna 39.7 MT, yellowfin 110.3 MT, swordfish 179.5 MT and others 574.2 MT.

As can be seen, the 1985 catch is far below the catch of previous years. This decrease is due to the mechanical difficulties of the Angolan tuna vessels and to the bad weather experienced in the entire Atlantic.

It should be noted that 660.1 MT of the 1985 catch were canned.

As regards research, some biological sampling on weight, size and age was carried out on the main tuna species.

6.2 BENIN

No summary was submitted.

6.3 BRAZIL

The 1984 Brazilian tuna catch amounted to 22,752 MT, a slight decrease as compared to 1983. The most important species were skipjack (13,567.8 MT) and yellowfin (2,140.7 MT).

The tuna fleet was comprised of 69 boats. Of these, 58 were Brazilian boats (11 longliners and 47 baitboats) and 11 were foreign leased boats (3 Japanese longliners, 6 Japanese baitboats and 2 Spanish purse seiners). The Spanish purse seiners and the Japanese longliners discontinued their activities in March and August, respectively. The Brazilian baitboat fleet continued to show a decrease in the number of boats.

Catch and effort data (Task II) were collected from more than 70 percent of the catches. Size sampling work was improved, making it possible to measure a greater number of fish than in 1983. For the first time size sampling was also conducted from yellowfin baitboat landings.

As regards Brazilian experiments on floating aggregating devices (FAD) carried out since 1982 in the south and southeast region, there is still no evidence of their success. The last experiments are still being tested in the south, and will conclude this project in the region. In 1986, FAD experiments will be tried off the northeastern coast where there is already an experimental model being tested.

6.4 CANADA

Canada has national fisheries for two ICCAT species, bluefin tuna and swordfish. Bluefin tuna landings for 1984 were down to 590 fish (264.2 MT), a 50 percent drop from

1983. The swordfish landings were also down by 50 percent in 1984 to 499 MT. Swordfish effort was down in 1984 because many fishermen were targeting other unrelated species.

Canada conducts a sea sampling observer program for foreign vessels fishing within the 200 mile zone. Analysis of the data as well as logbook data for the national inshore bluefin fishery is a research priority. Age and growth studies and size frequency sampling are also routinely conducted on bluefin tuna.

6.5 CAPE VERDE

The tuna fleet in 1984 was comprised of 1,173 small boats, 2 freezer baitboats and 27 baitboats without freezer facilities.

Catches reached 5,674 MT, broken down as follows: 2,820 MT yellowfin, 101 MT bigeye, 1,372 MT skipjack, 1,365 MT wahoo and 16 MT frigate tuna and Atlantic little tuna.

There is a satisfactory system of collecting statistical data (catch and effort, biological and size sampling) from the baitboats. No reliable estimates are available for small-boat catches since 1981. A sampling system was started in 1985, and it is believed that more reliable data will be available from 1986.

Size sampling of tunas caught by the small boats is being carried out at present.

6.6 CUBA

The Cuban tuna fleet which operated in the Atlantic in 1984 was similar in number of vessels to that which operated in previous years. However, in 1985 there was a slight decrease in the number of vessels since some large longliners discontinued operations because of technical difficulties.

In 1984-1985 the Cuban fleet operated mainly in the central east Atlantic and in the Cuban economic zone. Catches in 1984 reached 9,610 MT, with fishing effort directed mainly at yellowfin tuna.

Biological sampling continued in Cuban ports on skipjack, blackfin, billfish and blue marlin and the data collected were sent to ICCAT on Forms 3.4 and 3.5. Some research was also conducted on the relation of numeric parameters and the abundance of skipjack and blackfin tunas.

6.7 FRANCE

French catches in 1984 amounted to 28,200 MT, (5,800 MT yellowfin, 13,200 MT skipjack, 2,100 MT bigeye, 2,900 MT albacore and 4,200 bluefin).

Of particular note is the departure since May, 1984, of the French purse seine fleet to the Indian Ocean, which resulted in a drop in French catches of tropical tunas.

Research conducted by ORSTOM and IFREMER included:

– The location of zones of albacore concentrations in relation to the weather conditions west of 30°W as well as within the traditional fishing area. The collection of catch and effort data as well as size composition data continued.

– The evaluation of bluefin catches by fishing areas and size composition continued in the Mediterranean.

– Research on tropical tunas included studies on the biology and population dynamics of the various species, management of the juvenile tropical fisheries using multi-gear and multi-species simulation models.

6.8 GABON

No summary was submitted.

6.9 GHANA

During 1984, there were 27 baitboats and 4 purse seiners in operation. Four Japanese flag vessels which had operated in Ghana for some years left during the first quarter of the year for other areas.

In March, 1984, socio-economic constraints compelled the relocation of the Tema transshipment base to Abidjan, Ivory Coast. This left Tema with mainly the landing of undersized (local market) fish.

During the year 31,266 MT of tropical tuna were caught. Of these, 23,000 MT were taken by baitboats and 8,266 MT by purse seiners.

The collection of nominal catch data (Task I) and catch and effort data (Task II) was initially hampered by the shift of the landing base to Abidjan. This was, however, resolved with the cooperation arrangement that was established on the issue with the CRO personnel at Abidjan.

Studies were continued on length frequency distributions, maturity and feeding of the three commercial tuna species, namely yellowfin, skipjack and bigeye. A total of 3,273 skipjack, 2,394 yellowfin and 305 bigeye were measured in Tema for length frequency distribution during the year.

6.10 IVORY COAST

No summary was submitted.

6.11 JAPAN

In 1984, the Japanese tuna and billfish catch in the Atlantic amounted to 42,500 MT. The longline fishery operating in the entire Atlantic produced 39,000 MT (92 percent of the catch), more than 60 percent of which was comprised of bigeye tuna. The surface

fleet in the Gulf of Guinea took 3,400 MT (8 percent) of tropical tunas. Due to the withdrawal of the baitboats in 1984, this surface fleet is now comprised of two purse seiners. All the tuna fleets have been operating under governmental measures to comply with ICCAT regulations on yellowfin, bigeye and bluefin tunas.

Since April, 1984, a quick reporting system of logbooks has been practiced satisfactorily and on-board size sampling by the longliners has been continued. The Far Seas Fisheries Research Laboratory (FSFRL) has been in charge of collecting and processing the fishery data, which have been routinely reported to ICCAT. Scientists of the FSFRL participated in the meeting of the Working Group on Bluefin Tuna (Miami, September, 1985). Research results on biology and stock assessment of bluefin and bigeye tunas were presented to the SCRS in six documents.

6.12 KOREA

The total catch of Atlantic tunas and tuna-like fishes in 1984 amounted to about 16,000 MT, a decrease of 12 percent from the 1983 catch.

The longline catch was about 15,000 MT, which showed a 9 percent decrease compared to that of the previous year. There have not been any changes in the fishing patterns and fishing areas by this fishery for recent years when the deep-longline method has been used.

One Korean Tema-based baitboat participated in fishing activities in the Gulf of Guinea from January to August, 1984. The total catch by this boat was 970 MT, a 43 percent decrease from the 1983 catch.

Catch and fishing effort statistics, as well as size frequency data, for 1984 on Atlantic tunas and related species were collected from the commercial fishing vessels by the National Fisheries Research and Development Agency. The 1984 Task I and Task II data for both the longline and baitboat fisheries and size frequency data on major species were submitted to ICCAT.

An intensive effort was made by this Agency to improve the coverage rate and accuracy of Task II data in light of last year's SCRS recommendation on statistics.

6.13 MOROCCO

No summary was submitted.

6.14 PORTUGAL

Portuguese catches of tunas and tuna-like fishes in 1984 rose to 9,479 MT, broken down as follows: 4,215 MT bigeye, 3,842 MT skipjack, 792 MT albacore, 503 MT yellowfin, and 127 MT other species. The 1984 catches were the highest recorded in recent years.

The preliminary estimate of the total catch made in the first three quarters of 1985 for the Azores and Madeira is 8,800 MT, similar to that of 1984. In comparison with the

preceding year, there was an increase in 1985 of about 60 percent in the bigeye catch and a decrease of about the same amount in the skipjack catch.

As regards research, sampling activities and the collection of statistics continued as in the past. Size frequencies collected at Madeira from 1979 to 1984 were sent to the Secretariat.

Sixty skipjack were tagged in Azores and Madeira.

In the Azores, an experimental longline has been used since 1984 and experience with tuna aggregating devices has been continued by floating three new rafts in 1985.

6.15 SAO TOME AND PRINCIPE

No summary was submitted.

6.16 SENEGAL

The tuna fleet based in Senegal (21 baitboats and 4 seiners in operation) landed 13,100 MT of tropical tunas (yellowfin, skipjack and bigeye) in 1984. The landings of the three aforementioned species showed a significant increase (+35 percent) as compared to those of 1983. The overall activity at the port of Dakar in 1984, as shown by the 38,000 MT of tunas transshipped or landed there, exceeded considerably the 1983 landings (26,000 MT). The decrease in the landings or transshipments of the French, Ivorian, and Moroccan tuna fleet has been more than compensated for by the catches of the other fleets (Spanish, Mexican).

The landings of small tunas in 1984 (6,200 MT) were slightly lower (-13 percent) compared to those reported for 1983.

The low catchability of sailfish observed for the various artisanal and sport fisheries was the reason for the low catches of this species in 1984 (154 MT). Spanish longliners caught about 550 MT of swordfish in Senegalese waters in 1984.

In addition to research carried out by Senegal on tropical tunas, as shown by the numerous documents presented to the SCRS Meeting, a unique tagging program on small tunas (1,132 fish tagged) from canoes was initiated. The recoveries already made (about 2 percent) demonstrate the efficiency of this inexpensive technique.

6.17 SOUTH AFRICA

No summary was submitted.

6.18 SPAIN

Spanish catches of tunas and tuna-like species in 1984 reached 148,423 MT, a slight increase (4 percent) with respect to 1983. The eastern tropical purse seine fishery increased its catch by 10,500 MT (12 percent) with respect to 1983, in spite of the fact that during

the year 14 large purse seiners left this area to fish in the Indian Ocean. Catches by large purse seiners in the western tropical Atlantic also increased, from nil catch in the period 1980-1982 to 6,586 MT in 1984. The Canary Islands fisheries also increased their catches after a decrease in 1982 and 1983. However, in the northeast Atlantic there was a sharp drop (14,600 MT) of approximately 35 percent with respect to 1983. This decrease was due to the poor yield of albacore which was half that of the previous year. In the Mediterranean, catches increased 2,600 MT (43 percent) with respect to 1983.

The species caught, in order of importance, were: skipjack (50,087 MT), yellowfin (46,061 MT), albacore (17,323 MT), bigeye (10,566 MT), swordfish (7,560 MT), bluefin (7,547 MT), and other species (9,279 MT).

Research in the tropical area was based on detailed analyses of the Spanish tuna fleet, studies of the duration of the sets, fishing potential, species composition of the sets, behavior of the schools, etc. In the Canary Islands, two cruises were carried out to study the biology of the species in the area, basically to study bigeye growth. In the northeast Atlantic four tagging cruises were carried out in 1983-1984 and research continued on the problems of status of stock evaluations of the three main species in the area: albacore, bluefin and swordfish. In the Mediterranean, research centered on the improvement of ICCAT Task II statistics, on one age-0 bluefin tagging cruise, and on the study of the biology of the so-called "small tunas".

In general, there was an improvement in all areas in the ICCAT Task II coverage rate, which reached 85-90 percent in the majority of the fisheries. Size sampling was intensified considerably in 1984 with the sampling of more than 150,000 fish of different species.

6.19 UNITED STATES

United States fishermen landed in excess of 13,000 MT of Atlantic tuna and tuna-like species in 1984, 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, hand lines, trolls, harpoons, traps, gill nets and trawls.

Tropical tuna catches (yellowfin, skipjack, bigeye) totaled 2,477 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 1,338 MT, taken by small purse seine, rod and reel, longline, hand line and harpoon gears along the U.S. east coast and in the Gulf of Mexico. Catches of other species including albacore, swordfish, marlins, bonito, king and Spanish mackerels, little tunny and unclassified species totaled 9,316 MT.

In 1984, U.S. scientists conducted research on bluefin and yellowfin tunas, and on marlin and swordfish. Research topics range from biological studies of age and growth, larval distributons and physiological conditions impending natural death 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.

6.20 URUGUAY

No summary was submitted.

6.21 U.S.S.R.

In 1984, the U.S.S.R. catch totaled 12,604 MT, and consisted of 2,168 MT yellowfin, 1,233 MT bigeye, 1,000 MT skipjack, 613 MT little tuna, 5,903 MT frigate and bullet tuna, 174 MT swordfish, 1,290 MT bonito, and 223 MT Spanish mackerel. Compared to 1983, the catch of skipjack, little tuna and bonito decreased while the catch of yellowfin, bigeye, bullet and frigate tunas increased. Scientific research centered on the peculiarities of the formation of commercial aggregations of bigeye tuna, the migration of skipjack, the feeding of yellowfin tuna, and the age structure of Atlantic little tuna and frigate tuna. Three research cruises were carried out. Six observers were on board fishing vessels. There were 10,178 tunas measured, 2,465 biological analyses made, and 2,266 age samples collected. Over 200 hydrological stations were occupied in the fishing areas of the central Atlantic.

6.22 VENEZUELA

No summary was submitted.

6.23 CHINA (TAIWAN)

The total number of Taiwanese longliners in the Atlantic Ocean increased from 99 vessels in 1983 to 116 at the end of 1984, an increase of about 17 percent over the previous year. The total landings made by Taiwanese longliners also increased from 23,653 MT in 1983 to 24,964 MT in 1984. Albacore was still the target species in 1984 and comprised 91.4 percent (22,817 MT) of the total landings (24,964 MT). Of the albacore landings, 14,923 MT were from the North Atlantic and 7,889 MT were from the south Atlantic.

Size measurements of the ten most important species caught by longline were carried out in 1984. About 265,000 fish were measured, including 249,587 albacore, 5,074 yellowfin tuna and 7,155 bigeye tuna.

The standardized total longline effort series on albacore was updated to 1984. 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 1984.

6.24 EUROPEAN ECONOMIC COMMUNITY

At the request of the SCRS Chairman for a summary, the observer of the European Economic Community (EEC) stated that he did not have to present a report or even any information on tuna statistics. He noted that, at the present time and as regards the EEC,

the ICCAT member countries which are already members of the EEC, or would be in 1986, had already presented their individual reports.

He emphasized that the EEC would present a report, in collaboration with all those countries, from the moment that it becomes a full member of ICCAT. He added that the EEC follows ICCAT activities with great interest and hoped that the ratification of the Protocol amending the Convention and thereby permitting its adhesion, would be signed by all the countries as soon as possible.

6.25 ST. HELENA ISLAND (UNITED KINGDOM)

Tuna catches in 1984 by six artisanal boats around the island comprised 112 MT of yellowfin, bigeye and albacore, 23 MT of wahoo and 84 MT of skipjack. Historically, the three large tuna species represent approximately 74 percent, 18 percent and 8 percent, respectively, of the total tuna catch. In most years, between 60 and 90 percent of the three species are taken in January-June and 95 percent of skipjack catches, which are extremely variable from year to year. An offshore fisheries survey within the 200-mile EEZ is now being conducted and improvements to the inshore artisanal fishery with new vessels and gear are under way.

Item 7. REVIEW OF THE REPORT OF THE WORKING GROUP ON BLUEFIN TUNA

Mr. J. J. Maguire (Canada), Convener of the Working Group on Bluefin Tuna, reported on the results of the Group's meeting held at the NMFS-Southeast Fishmber 18-28, 1985 (SCRS/85/11 contained in the "Collective Volume of Scientific Papers, Vol. XXIV").

The Working Group reviewed current research, drafted Report A and made assessments of the stock status of west and east Atlantic bluefin tuna stocks. Catch-at-age tables covering 1970 through 1984 for the west Atlantic and 1970 through 1982 for the east Atlantic were agreed upon by the Group. An improved algorithm and computer program to tune VPA stock size estimates to multiple series of abundance indices was used.

The instantaneous rate of natural mortality used for the west Atlantic ($M = 0.10$) is different from the one presented in the 1984 SCRS Report. Reasons for this change are presented in Section 6.1.c of the Working Group Report. Several series of age-specific partial recruitment were proposed and tested. The final selection of CPUE series and the results of the VPA analysis are described in the report for both the east and west Atlantic. Surplus production estimates (up to 1986) were made for the in Agenda item 8 of this SCRS Report.

The SCRS expressed its appreciation to the Co-conveners and participants of the Working Group meeting for their excellent work and particularly for having analyzed the east Atlantic stock this year. Thanks were also expressed to the NMFS Southeast Laboratory staff for providing special assistance.

It was pointed out, however, that due to the lack of complete reliability in the data base, particularly for the east Atlantic stock, confidence in the results of stock assessments should be evaluated very carefully. This also holds true for west Atlantic stock assessments, even though a data base has been agreed upon for this stock. The results of the 1984 analysis had been changed to some extent in 1985, as discussed in the report.

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

YFT-YELLOWFIN TUNA

YFT-1. Description of fisheries

Fishing for yellowfin is carried out by both surface fleets (purse seine and baitboat) and by the longline fleet. In recent years, surface catches have been the main component.

The reported catches by gear for 1970-1984 and preliminary catch estimates for 1985 are given in Table 1 and Figure 1. The total Atlantic yellowfin catches increased steadily to a maximum of 163,500 MT in 1983, then dropped suddenly in 1984, and seem to be increasing again in 1985. The sudden decrease in 1984 corresponds to a drop in surface catches due to reduced effort while the longline catch remained stable at a relatively low level. It should be noted that although catch data for 1981-1984 have become available for the first time for the Cape Verde hand line fishery for large yellowfin, this fishery is known to have produced annual catches of about 2,000 MT for many years.

The major surface fishing area has been the east Atlantic. The sharp decrease in surface fishing effort in 1984 was the result of the departure of many purse seiners to the Indian Ocean and the purse seine effort level remained low in 1985, while baitboat and longline effort remained stable. The indices for the nominal (carrying capacity) (Table 2 and Figure 2) and effective surface fishing effort (Figure 2) show the extent of this drop for the east Atlantic, which should be reflected by decreased fishing mortality. Therefore, substantial changes in the state of the stock can be expected, particularly in the east Atlantic. Some of these changes, such as improved yields for the seiners remaining in the east Atlantic, seem to have been taking place, particularly in 1985.

In the west Atlantic, the surface fishery has been developing rapidly in the last few years, reaching 40,000 MT annually. In particular, the Venezuelan-based purse seine fishery has grown since 1981 to take a substantial yellowfin catch of about 20,000 MT per year.

YFT-2. State of the stocks

As before, no new information is available which would make it possible to select between the classic alternative hypotheses on the yellowfin stock structure, which are: two stocks separated at 30°W and one single Atlantic stock. The two separate stock hypothesis is, however, more plausible. It should be noted, on the other hand, that because of the predominance of catches in the east Atlantic up to 1983 and the lack of analyses of recent information from the west Atlantic, the majority of the analyses and conclusions presented here concern the east stock.

YFT-2.1 East Atlantic stock

Up to 1983, abundance trends for the east Atlantic stock were monitored with an index derived from catch/effort data from the FISM fleet. Since 1981, however, this fleet has undergone a gradual change in concentrating exploitation on skipjack tuna rather than on

yellowfin tuna. At the same time, the Spanish fleet continued to concentrate more on yellowfin than skipjack. Consequently, a new procedure that combined data from both fleets to derive a standardized CPUE was developed for this year's assessment. This new index shows a less rapid decline for the period 1984-1983 than the previous index based solely on FISM data. It follows that the effective effort, which is derived from this index, has increased less during those same years than what was previously estimated.

In 1984, however, it is also possible that the Spanish fleet was targeting skipjack, which affected the representativeness of the abundance index for that year in particular.

Finally, it seems that in 1985 the two fleets, FISM (8 purse seiners) and Spain (41 purse seiners), are again targeting yellowfin.

The new abundance index thus described is shown in Figure 3 along with an index of biomass derived from the cohort analysis. Good agreement is noted between these two indices, showing a regular and moderate decline in the mean abundance of the stock from 1969 to 1983. For the reasons cited above, the real 1984 abundance is probably underestimated.

Examination of the production model indicates that the high fishing effort applied from 1976 to 1982 has permitted only a marginal increase in catch, and the previous analyses clearly indicate that the stock exploitation level was about that producing MSY. However, since 1983, the decreasing trend in fishing effort shows that the stock has been much less intensely exploited (Figure 4). The uncertainty mentioned above in the significance of the CPUE for 1984 implies that fishing effort cannot be exactly specified for that year. However, it is noted that no matter which value is used within the margin of estimates presented, the fishing effort is well below the 1981-1983 levels.

The fit of the curves for the classic values of $k = 3$ and $m = 1$ or 2 gives an estimated MSY from 113,000 to 118,000 MT for an optimum effort of 45,000 to 48,000 searching days. The current trend in fishing effort results in an unstable situation which explains in particular why the 1984 range is well below the fitted curves. But the estimated level of 1985 catches, much higher than the 1984 level, indicates that the stock is rapidly returning to equilibrium with fishing effort near or lower than the optimum effort.

As regards the analytical model, a complete study was made during the meeting of the Working Group on Juvenile Tropical Tunas (Brest, 1984). This study, based on certain assumptions, reached a solution for yellowfin cohort analyses. Due to this, it has been possible to calculate fishing mortality from 1972 to 1983, as well as the corresponding state of yield per recruit.

According to that analysis, carried out when fishing effort was at a peak in 1981-1982, fishing mortality was high and the corresponding state of the yield per recruit is shown in Figure 5. We can note that there were substantial gains to be expected from raising the age at first capture.

This is no longer so in 1985 since the fishing pattern and fishing effort have changed greatly. Figure 5 gives a rough estimate of the changes in fishing effort from 1981 to 1984. It can then be seen that little increase in yield per recruit can be expected by raising the age at first capture under present conditions.

As regards recruitment, three indices were presented in the 1984 SCRS Report, indicating a fluctuation without trend in recruitment for 1968-1980. There is no index avail-

able for 1981-1984. Nevertheless, the recorded decrease in fishing effort should lead to a decrease in fishing mortality, and therefore to an increase in adult biomass. All these facts seem to show that there is no particular need for concern over a collapse in recruitment at this time.

Finally, the models used predicted, as a result of the decrease in fishing effort, a rapid increase in catches and yields. The high level estimated for the 1985 catch indicates that the stock seems to have reacted in accordance with these predictions.

YFT-2.2 West Atlantic stock

As in the past, it is difficult to draw conclusions on the state of the west stock, due to a lack of data to analyze. However, the rapid increase in catches recorded there proves the availability of stock in that area. However, some sets of catch and effort data have just been submitted. Therefore, a first evaluation of this stock can be expected in the near future.

YFT-2.3 Total Atlantic stock

No new analyses have been made available since last year. Thus the conclusions made in the 1983 SCRS Report are maintained. Interpretation of these conclusions is difficult because the CPUE used came mainly from the east Atlantic fisheries and this can bias the analysis if the CPUE in the east Atlantic is not a good measure of abundance for the total stock.

YFT-3. Effects of current regulations

Juvenile yellowfin of less than 3.2 kg are caught in large numbers in the tropical east Atlantic, often in mixed schools with skipjack and small bigeye. In 1978, ICCAT adopted a regulation to reduce the catch of juvenile yellowfin in order to increase the yield per recruit of the stock. This regulation has had only minor effects on the fisheries, as has been stated in previous SCRS Reports and in general is ineffective in reducing fishing mortality on juvenile yellowfin. A considerable number of juvenile yellowfin are still being landed.

YFT-4. Recommendations

YFT-4.a Statistics

i) The present level of statistical coverage is satisfactory for the east Atlantic. It should be noted, however, that to monitor closely the current recovery of the yellowfin stock, special effort should be made to collect more detailed statistics.

ii) 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 analyzed. However, the biological data necessary for more pressing analyses are urgently needed, but are unavailable.

YFT-4.b Research

i) The present status of the yellowfin stock, particularly the increase in stock abundance as a result of the decrease in purse seine effort, should be carefully studied. For this, special yellowfin research activities for 1986 were proposed to the SCRS by the Group created in 1984 and presented to the SCRS (see Appendix 3 to Annex 10). It can be noted that the proposed research program would fulfill a recommendation proposed in 1984 regarding the exact yellowfin stock structure in the Atlantic.

ii) The Committee further reiterated the need for research on the natural mortality of yellowfin.

iii) As regards analysis of the state of the stocks using models, the Committee reiterated its recommendation concerning the urgent analysis of the state of a possible west Atlantic stock.

iv) Concerning the east Atlantic stock, further predictions of the changes in catches between gears following the decrease in purse seine effort should be made, taking into account the catch at age observed in 1984 and 1985, as well as the current trend in purse seine fishing effort.

YFT-4.c Management

Fishing effort exerted on the east Atlantic stock was too high from 1981 to 1983. A change took place in 1984 with the departure of a majority of the purse seiners. This caused fishing effort for 1984-1985 to be at a level near the optimum with the present exploitation scheme.

Although it seems that the stock is recuperating rapidly, there is a risk that effort may again reach very high levels if the purse seiners return. Nevertheless, the Committee reiterated that the scientific bases on which the present management measures were recommended are still valid. With the intensive exploitation which peaked in 1982-1983, the efficient application of such a regulation would bring significant gains in yield per recruit.

The decrease in effort mentioned above lessens, or even nullifies, the benefits of the regulation. However, the extreme mobility of the purse seine fleet can cause a very sharp rise in this effort, thus returning the stock to the situation where the regulation could have positive effects if it is correctly applied.

BET-BIGEYE TUNA

BET-1. Description of fisheries

In the Atlantic Ocean, bigeye tuna are distributed widely in the temperate and tropical waters ranging between 40°N and 40 °S. The major bigeye fishery is the longline fishery operating in almost the entire bigeye distribution area throughout the year. Seasonal

bigeye catches are made by local baitboats in waters off the Azores, Madeira, the Canary Islands and off Dakar. The tropical baitboat and purse seine fisheries incidentally take small bigeye tuna mixed with skipjack and yellowfin tuna.

Bigeye catches by gear and by country are given in Table 3. The annual catch has gradually increased and has leveled off at a high level of more than 60,000 MT in the past several years, with a peak catch of 72,900 MT in 1982 (Figure 6). The largest portion of the catch was taken by the longline fishery up to 1984. The decrease in purse seine catches in 1984 was due mainly to the transfer of part of the tropical purse seine fleet to the Indian Ocean.

BET-2. State of the stocks

The Committee assessed the state of the Atlantic bigeye population based on the hypothesis of a single Atlantic stock as was done at the 1984 SCRS, based on the fact that juveniles are only concentrated in the tropical east Atlantic.

Trends in longline CPUE, as an index of the relative abundance of the adult stock, were reviewed. Studies indicated that the CPUE has more or less stabilized for recent years at about 60 percent of the initial exploitation level (Figure 7).

The production model analysis resulted in the same conclusion as that reached at the 1984 SCRS Meeting: that the recent stock status of the Atlantic bigeye tuna has been close to or at the MSY level but has never gone beyond this level. The estimates of MSY ranged between 66,500 MT for m = 2 and 145,900 MT for m = 0 (76,100 MT for m = 1), depending on which parameter (m) of the model is chosen (Figure 8). The highest MSY with m = 0 and infinite effort is the theoretical upper limit and is unlikely to be attained. The catches in the 1980-1984 period ranged between 62,700 MT and 72,900 MT, the highest of which was slightly greater than the lowest estimate of the MSY.

The yield-per-recruit analysis at the 1984 SCRS Meeting indicated that under the present status of the bigeye fishery, a very small increase in yield per recruit could be obtained by an increase in size at first capture coupled with an increase in fishing mortality, and that a reduction of fishing mortality on small fish would benefit the fishery taking large fish.

BET-3. Effects of current regulations

The bigeye minimum size regulation of 3.2 kg, with an allowable catch of 15 percent, has been in effect since 1980. The purpose of the regulation is (1) to reduce fishing intensity on juvenile fish so as to increase the yield per recruit, and (2) to avoid the misreporting of the catch of small yellowfin tuna, on which the same size limit regulation as that for bigeye tuna has been enforced since 1973.

Sampling of yellowfin and skipjack unloaded in Puerto Rico after transshipment from the east Atlantic continued to show that such shipments include large numbers of small bigeye that are not being identified separately. Furthermore, sampling in African ports of catches from the surface fisheries in the east Atlantic shows that bigeye smaller than the minimum size are still being landed in proportions greatly in excess of the 15 percent tol-

erance by number that is permitted by the regulation, because these small bigeye tuna are caught mixed with skipjack and yellowfin tunas. This implies that the regulation has not been functioning desirably, and has been unable to decrease the fishing on young fish. Therefore, the expected increase in yield per recruit is unlikely to have been obtained, although such an increase would not have been large.

BET-4. Recommendations

BET-4.a Statistics

i) Size sampling of transshipped catches landed in Puerto Rico should be continued for west Atlantic catches and for east Atlantic catches where necessary to complement sampling in African ports. The Puerto Rican sampling should be matched where possible with sampling in the transshipment ports to investigate the extent of bias due to size sorting of the catches for different markets.

ii) Deep longline methods are developing for bigeye tuna in recent years. All such effort data should be adjusted for the inherent change in gear efficiency, so as to obtain a common measure of effective effort.

iii) Systematic sampling for age frequencies of the mixed catch of juvenile tropical tunas should be continued for the surface catch in the east Atlantic. Size sampling should be initiated in the west Atlantic.

BET-4.b Research

i) Uncertainty about the stock structure should be re-examined based on all available biological information such as maturity, examination of distribution by size, time and space, and updated tag release-recapture data.

ii) An index of abundance that incorporates information from the bigeye surface tuna fisheries should be developed.

iii) Age-structure stock analysis, such as cohort and yield-per-recruit analyses, should be carried out.

iv) The SCRS should devote special attention to bigeye tuna at its 1986 meeting. Information should be presented on the availability of currently unutilized data, such as biometric and fecundity data, etc. The existing ICCAT Task II (catch and effort as well as size) data bases for surface and longline fleets should be analyzed more extensively.

BET-4.c Management

The SCRS has no information to change the advice provided in 1984.

SKJ-SKIPJACK TUNA

SKJ-1. Description of fisheries

Skipjack is fished almost exclusively by surface gears in the east and west Atlantic. In recent years, catches from the west Atlantic have been increasing rapidly as Venezuela and Brazil developed their fisheries. Approximately 27 percent of the 132,800 MT of Atlantic skipjack originated from the west Atlantic in 1984 (Table 4, Figure 9).

In the east Atlantic, total purse seine catches remained at about 65,000 MT but FISM catches decreased from 27,500 to 10,400 MT between 1983 and 1984 due to the transfer of fishing effort to the Indian Ocean. However, Spanish catches increased from 29,100 to 45,600 MT. Baitboat catches decreased from 34,700 to 27,800 MT between 1983 and 1984, with a notable decrease from 20,500 to 17,000 MT in the Ghanaian fleet (Table 4).

In the west Atlantic, surface catches increased from 31,300 MT in 1983 to 35,500 MT in 1984, primarily due to Venezuelan catches that increased from 10,000 to 14,800 MT (Table 4). Baitboat catches from Brazil decreased from 11,700 to 7,400 MT between 1983 and 1984, but preliminary estimates indicate an increase again in 1985.

Fishing effort in the east Atlantic, as indicated roughly by carrying capacity, has been decreasing very slowly among the baitboats in recent years, and there has been a sharp decline in FISM purse seine effort, from 16.8 to 3.0 thousand MT (provisional) carrying capacity between 1983 and 1985. This was due to FISM purse seiners fishing in the Indian Ocean (Table 2).

Comparable estimates for the west Atlantic are not available, but carrying capacity estimates are provided in Table 5 for the Brazilian and Venezuelan fisheries.

SKJ-2. State of the stocks

East Atlantic skipjack, which comprise about 75 percent of the Atlantic catch, are best understood. Much of this knowledge is based on information gathered and assessments carried out in conjunction with the International Skipjack Year Program. The different CPUE series (raw, standardized, school density adjusted, etc.) show a high variability without any clear trend. Some series contradict others, depending upon how the CPUE's were calculated and the fleets involved (FISM, FISM + Spanish, class of vessel). Therefore, there is still no strong reason to believe that the skipjack population is declining under exploitation. Skipjack catches continue to show the relationship of increased catches with increased fishing effort (Figure 10). There are no similar CPUE series for the west Atlantic that are based upon extensive sampling. The fisheries there have only recently begun their expansion (Figure 9).

There is some evidence (SCRS/85/66) that in recent years FISM purse seiners have increasingly targeted their fishing effort on skipjack, whereas they previously sought only yellowfin. Such a development may be due to a variety of causes, including environmental and economic causes. Whatever the causes, this change means that a given nominal effort on skipjack now can produce an increased level of effective fishing effort. This situation should be monitored carefully, since it may indicate important changes in either or both skipjack and yellowfin stocks due to exploitation.

The condition of west Atlantic stocks is much less certain owing to the lack of indicators of abundance. As the skipjack fisheries develop there, it is increasingly important to secure adequate measures of catch and effort.

SKJ-3. Effects of current regulations

No regulations exist or are recommended for skipjack. Based on evaluations carried out by the Working Group on Juvenile Tropical Tunas, current regulations on yellowfin and bigeye do not seem to be affecting skipjack catches.

SKJ-4. Recommendations

SKJ-4.a Statistics

i) Collection of catch and effort statistics should be continued and improved, especially from the west Atlantic.

ii) Biological sampling of west Atlantic and Caribbean catches should be continued and encouraged, and sampling in Puerto Rico continued.

iii) Observer and port sampling data should be compared to detect biases in sampling.

iv) The accuracy of present tables of carrying capacity of baitboats and purse seiners in the east and west Atlantic should be checked.

SKJ-4.b Research

i) Additional research on maturity, fecundity and spawning should be developed for areas which have not yet been well studied, such as the Caribbean and the west Atlantic.

ii) Investigations on the relation of environmental factors to skipjack catch, abundance, availability and recruitment should be continued.

iii) More tagging experiments are needed to define stock structure. Evaluations of past tagging efforts and the resulting conclusions should be considered when designing new studies.

iv) Studies should be designed to investigate the behavioral interactions of skipjack schools and the fleets that fish them.

v) A comparison should be made of the relationship between catch and carrying capacity of the fishing fleet and catch and fishing effort. Fishing effort might be estimated using various combinations of different CPUE indices.

SKJ-4.c Management

In agreement with the conclusions of the Working Group on Juvenile Tropical Tunas, management measures are neither needed nor desirable for Atlantic skipjack. As in the past, the Committee noted that skipjack are under-exploited and catches can be increased. Increasing fishing effort is the only way to increase skipjack yield per recruit.

ALB-ALBACORE

ALB-1. Description of fisheries

Albacore in the Atlantic Ocean are assumed to be composed of at least two stocks separated, by convention, at 5°N Lat. A Mediterranean stock may exist. Historical catches by gear and by country are shown in Table 6.

North Atlantic albacore are taken by surface fisheries, troll and baitboat, and by longline. The surface fisheries catch mostly young fish (1-5) and the longline fishery catches mostly adults (5+ years). Total catches from the North Atlantic albacore stock in 1984 were 38,800 MT, down from 50,900 MT in 1983. Surface catches in 1984 were 19,900 MT, down from 34,300 MT in 1983, due primarily to reduced baitboat effort. Longline catches in 1984 were 18,900 MT, up from 16,600 MT in 1983. Since 1981, Spanish baitboat effort has increased considerably in the western Mediterranean Sea producing albacore catches in excess of 1,300 MT in 1984.

South Atlantic albacore are taken primarily by longline gear. Catches in 1984 totaled 12,100 MT, down slightly from 14,300 MT in 1983 and down considerably from 29,000 MT in 1982. Surface catches have been relatively constant for the last three years and were only 3,200 MT in 1984. The remainder of the catch, 8,900 MT, was taken by longline gear. However, with the decrease in the longline catch, the importance of surface catches to the total has increased.

ALB-2. State of the stocks

ALB-2.1 North stock

Considered by gear, catch (in weight) per unit of effort 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 approximately the same 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, effort and CPUE in weight (Figure 11) show a more constant trend in effort and catch 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 toward 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 1,000 hooks, the adult stock appears to have declined in abundance through the early 1970's and has remained approximately constant since then.

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 1981, 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. The low recruitment index may in part be responsible for the increase in average weight per fish in the catch described previously.

No new production model analyses were undertaken and last year's analysis was used. However, the approximate results expected are quite similar to last year's results based on qualitative data (Figure 13). Effort was standardized to baitboat CPUE and the degree of fit obtained in the model was low. The MSY values ranged from 100,000 MT to 120,000 MT for the m = 0 case (not biologically expected), 70,400 MT with m = 1, and 59,800 MT with m = 2. In all cases the effort required to produce MSY is greater than currently used.

The data used in the production model analysis cover 1967 to 1982, the period when the fishery was fully developed. The data from the early years of the fishery when, presumably, abundance was greater and CPUE should have been higher are missing. The inclusion of these data for earlier years is not possible because of effort standardization problems but could have an effect on the fitting of the model. The MSY would likely be similar but location of the cluster of recent years' data points relative to the peak of the curve could shift.

The north stock appears to be exploited below MSY, although exactly how much is uncertain (due to uncertainties in standardizing effort from the early years). The adult stock abundance appears to relatively constant since 1970. Juvenile abundance is less certain. CPUE in weight indicates abundance is increasing. However, increasing average weight per fish caught and decreasing recruitment to age 3 indicates juvenile abundance is decreasing somewhat.

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 14 shows the longline CPUE from 1967 to 1983 with the addition of 1984 CPUE data estimated based on qualitative data. 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.

No new production model was prepared in 1985 due to the lack of 1984 data. However, because of reduced catch in 1984 and according to the information on qualitative effort, the results given previously (Figure 15) are not expected to change substantially. The MSY is estimated to be approximately 24,000 MT for all values of m, at effort levels well above the current effort level. Note that this estimate of MSY is for the fishery as constituted, i.e., longline, and the addition of effort exploiting other age-classes will likely change the MSY estimates.

No reliable index of recruitment to the south stock has been developed. The absence of an intense 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 south Atlantic albacore stock appears to be exploited below the sustainable level by the adult stock. The juvenile stock is only lightly exploited. Decreases in catches in recent years appear to be related to relocation of effort away from the south Atlantic.

ALB-3. Effects of current regulations

Currently there are no management measures in force for Atlantic albacore.

ALB-4. Recommendations

ALB-4.a Statistics

i) There is a need for basic statistics from countries fishing in the Mediterranean Sea not currently reporting data to ICCAT.

ii) Effort data of surface fisheries in the south Atlantic needs to be collected and analyzed.

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 relation between recruitment and spawning potential should be studied for the north stock. Yield-per-recruit studies should be updated.

iii) Cohort analyses should be done for both north and south stocks.

iv) Production model analyses should be carried out for both north and south stocks. Effort standardization should be examined and include as long a data series as possible.

v) An index of recruitment for the south stock should be developed.

vi) The relationship between Atlantic and Mediterranean albacore should be investigated to determine if there are separate stocks. Growth, recruitment, morphometrics, etc., might be used.

vii) A relationship between oceanographic conditions (variables) and albacore abundance, availability and recruitment should be established.

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 south stock seems to have been near MSY in the recent past, depending on the model used. However, with the reduction in catches and presumably effort, the fishery is now fished well below MSY. The Committee has no specific management recommendations for the south stock.

BFT-BLUEFIN TUNA

BFT-1. Description of fisheries

There are fisheries for bluefin tuna in the North Atlantic (east and west) and in the Mediterranean. Several distinct fisheries are defined on the basis of their location, season, gear, size of fish caught and countries involved.

Table 7 shows Task I catches in weight for the east and west Atlantic and the Mediterranean Sea. The 1984 estimated catch was 22,200 MT: 12,500 MT from the Mediterranean; 7,400 MT from the east Atlantic; and 2,300 MT from the west Atlantic. In the west Atlantic, a regulation limited the 1982 catch to 1,660 MT and the 1983 and 1984 catches to 2,660 MT. In the east Atlantic, longline catches were relatively stable (600 to 1,000 MT) during 1978-1981, increased to about 2,600 MT in 1982-1983 and declined to 1,500 MT in 1984. Trap catches declined from 2,200 MT in 1969 to 20 MT in 1974, and remained relatively stable between 400 and 900 MT between 1975 and 1981. Trap catches increased to the 1969 level in 1982-1984 (2,300, 2,000 and 2,300 MT, respectively). In the Mediterranean, purse seine catches peaked in 1976 at 9,900 MT and in 1982 at 8,600 MT, then decreased to 7,300 MT in 1983-84. As in the east Atlantic, longline catches of large fish were stable between 1978 and 1981 (200 MT), they increased to 1,500 MT in 1982 and decreased to 1,000 MT in 1983 and 1984. Baitboat catches of small bluefin in the Mediterranean increased gradually to reach 1,600 MT in 1984. Table 8 presents catches in number of fish for 1960 to 1984. Figure 16 (catch in weight) and Figure 17 (catch in numbers) also show these data.

BFT-2. State of the stocks

The percentage of fish born on one side of the Atlantic but caught on the other side is estimated to be less than 10 percent. Tagging data indicate that such exchanges are variable through time. Two spawning areas, with different spawning seasons, are known to exist: Gulf of Mexico (spring) and the Mediterranean (summer). A recent study of microelements in hard parts identified two different groups of young fish in the east. This hypothesis requires further study as it could have management implications.

The stock status of the east and west Atlantic bluefin tuna stocks was assessed during the Bluefin Working Group meeting held in Miami, Florida, from September 17 to 28, 1985. Details of the techniques used, assumptions made and the results are presented in SCRS/85/11 (contained in the "Collective Volume of Scientific Papers, Vol. XXIV"). Only those results relevant to the management of these stocks are presented here.

The assessments have been conducted with the best available data and represent the unanimous agreement of the Working Group members on the parameters and data used. For the west Atlantic, the instantaneous rate of natural mortality used (M = 0.10) is different from the one on which the results presented in the 1984 SCRS Report were based. The reasons for this change are presented in Section 6.1.c of the Working Group's 1985 Report. Stock size estimates for the west Atlantic show trends that are different from those presented in the Report of the 1984 Bluefin Working Group. These are mostly due to the Working Group not using tagging results to estimate year-class size. Further details are given in Col. Vol. XXIV.

In the west Atlantic (Figure 18), estimates of ages 1 to 5 fish declined four-fold between 1970 and 1980 and are projected to increase to half the 1970 level in 1986. Estimates of ages 6 to 9 fluctuated in the early 1970's and declined five-fold between 1970 and 1982 and are predicted to increase to the 1970 level in 1986. Estimates of ages 10+ declined approximately five-fold between 1970 and 1984 and are predicted to further decline to less than one-sixth (1/6) of the 1970 level in 1986. Estimates of ages 16+ increased from 1970 to 1974, declined more than six-fold to 1984 and are predicted to continue to decline through 1986.

In the east Atlantic (Figure 19), estimates of recruitment increased considerably in 1982 (according to VPA and CPUE) and in 1983 (according to CPUE). Estimates of ages 1 to 4 increased from 1970 to 1975, declined thereafter to the 1970 level in 1979 and have increased in 1982 to the highest level observed in the series. Estimates of ages 5 to 9 declined slightly from 1970 to 1973, increased regularly until 1976, remained at the 1976 level until 1980 and declined through 1982. Estimates of ages 10+ increased from 1970 to 1974, declined for the next three years and have increased since to the highest level in the series in 1982.

The data used for the east Atlantic analysis suffer from under-reporting of catches of young fish, unreporting of catches of several important fisheries and a lack of biological sampling for these latter fisheries. The results would likely be greatly improved if these problems were solved.

BFT-3. Effects of current regulations

The ICCAT regulation limiting fishing mortality for the entire Atlantic stock went into effect in August, 1975. If that regulation was interpreted as limiting catches, its effects can be investigated by examining catch trends. Total Atlantic catches declined from 28,300 MT in 1976 to 19,200 MT in 1979 and have averaged about 22,500 MT in 1982-1984. In the west Atlantic, catches remained at approximately 6,000 MT from 1976 to 1981. A different regulation, applied after 1981 in the west Atlantic, will be discussed later. In the east Atlantic, catches 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 17,100 in 1976, declined to 7,300 MT in 1979, increased thereafter to 14,500 MT in 1982 and remained stable at approximately 12,500 MT in 1983-1984.

A regulation prohibiting the catching and landing (except for a 15 percent (in number) limit on incidental catches) of bluefin tuna less than 6.4 kg for the entire Atlantic stock went into effect in August, 1975. After the regulation, the percentage (Table 8) of individuals less than 6.4 kg was low in the west Atlantic from 1976 to 1981 (1.5 to 7.7 percent), increased in 1982 and 1983 (22.6 and 17.8 percent) as a result of lower overall catches. The percentage declined to 4.4 percent in 1984. The percentage of undersized fish is still important for the east Atlantic (24 to 51.6 percent).

A regulation limited west Atlantic catches in 1982 to 1,160 MT and 2,660 MT yearly for 1983-1985, and forbade fishing directed at the spawning stock in the Gulf of Mexico. This regulation was applied, as can be seen by the considerable decrease in the catches recorded in 1982-1984 (Table 7 and Figure 16).

This regulation has coincided with a six-fold increase in Japanese longline catches in the east Atlantic and Mediterranean (Table 7) from 1981 to 1982. It is noted, however, that Japan's catches in the east Atlantic and Mediterranean declined since 1982.

A regulation limiting the catch of bluefin tuna less than 120 cm to no more than 15 percent in weight in the west Atlantic went into effect in November, 1983. Table 9 shows that the percentage (in weight) of bluefin less than 120 cm has regularly decreased since 1970. These catches have represented less than 10 percent of the reported catches since 1979.

BFT-4. Recommendations

The Committee recommends:

BFT-4.a Statistics

i) That all countries submit estimates of the numbers caught at length by month and gear at the latest on July 1 of the year following the fishing year.

ii) That the ICCAT Secretariat implement a sampling program for Mediterranean fisheries to acquire catch estimates and length frequency samples (Italy, Yugoslavia, Tunisia, Turkey, etc.) and to obtain catch statistics and biological samples for developing fisheries such as the one in Greece.

iii) That Canada and the U.S.A. submit the data collected by their samplers aboard longliners to the ICCAT Secretariat by March 1 of the year following the fishing year.

iv) That catch numbers at length, instead of catch numbers at weight, by reported especially for Canada.

v) That catches of small fish (essentially ages 0 and 1) in the east Atlantic and Mediterranean and catches of large fish in the Mediterranean be reported. France and Spain are presently meeting that requirement.

vi) That the Secretariat insures that the data bases used for bluefin tuna assessments are updated yearly by August 1.

BFT-4.b Research

i) That the mark-recapture file prepared by the U.S.A. be transmitted to the Secretariat.

ii) That simulation studies be carried out to determine the statistical performance of least squares VPA calibration methods. Such studies should include: (1) the investigation of the interdependence of the parameters estimated, and (2) development of procedures to estimate age-specific loss rates due to causes other than recorded catches.

iii) That a small ICCAT ad hoc group be established to develop a program to validate the X-ray technique as a method for identification of bluefin stocks and the estimation of the amount of annual exchange of fish from east to west Atlantic. The group should: (1) recommend a procedure for reviewing the theory, methods and results of the completed study, and (2) develop a tagging and recovery experiment for juvenile bluefin to obtain vertebrae for micro-element analysis from a limited number of transatlantic migrants.

iv) That the hypothesis of the existence of two groups of young fish in the east Atlantic be further investigated.

v) That an attempt at constructing an index of abundance from the Mediterranean French purse seine catch and effort data be made.

vi) That sampling programs for hard parts for age determination be instituted, that age determination from such structure be validated as to the annual nature of the deposition of the rings and that an analysis of the accuracy of reading these ages be made.

vii) That the feasibility of conducting an international, purely scientific longline research vessel survey in the Gulf of Mexico to monitor the status of the spawning stock be established by correspondence between interested parties.

viii) That the computer program required to implement the technique described in document SCRS/85/35 be made available, by the author, on request.

BFT-4.c Management

Based on estimates of exchange rates between the east and west Atlantic and for practical purposes the two stocks are managed separately.

i) West Atlantic Stock

Within the limits of the data base and under the assumptions adopted by the SCRS, the surplus production of the west Atlantic bluefin stock in 1984 was 3,250 MT (reported catch 2,292 MT) and the surplus production in 1985 and 1986 will be 3,850 and 4,400 MT, respectively. The estimate for 1986 implies that a catch of 4,400 MT will permit neither a decrease nor an increase in biomass from January 1, 1986, to January 1, 1987. The SCRS noted, however, that this implies a high fishing mortality. A catch of 2,660 MT in 1986, i.e., the same level as implied by the program for scientific monitoring in 1985, would generate a fishing mortality (F = .29) in excess of F-max (F = 0.21). This would not prevent a continued decline in the numbers of fish in the spawning population (ages 10+) in 1986, since the increase in biomass would be restricted to ages 9 and younger. The increase in

total biomass would be about 10 percent above the level in 1985 which is estimated to be about 33 percent of the 1970 level.

ii) East Atlantic Stock

The SCRS advises no change in existing management measures.

BIL-BILLFISHES

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 longline fisheries of several countries. Secondary fisheries are the directed recreational fisheries of the U.S.A. and Senegal. Also, 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. The most important species in terms of landings in recent years are sailfish/spearfish, followed by blue marlin and white marlin. Sailfish and spearfish are often treated as a species group, since the longline statistics for these species are mixed. The catch statistics of blue marlin and white marlin, by countries, are given in Tables 10 and 11, respectively. Catch statistics for sailfish/spearfish are provided in Table 12.

BIL-2. State of the stocks

Although considerable effort was expended in revising and compiling the data base in preparation for the ICCAT Billfish Workshop in 1981 and afterwards, stock assessment work on billfishes is still plagued with deficiencies in the basic data and biological parameters that are needed for definitive stock assessment analysis. 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 10) 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 catch show an in-

crease to about 2,000 MT. Because significant portions of the landings are not being reported by geographical region (Table 10), it is not possible to discuss recent landings trends in the North or south Atlantic.

Japanese CPUE indices, 1962-80, were presented at the 1982 SCRS Meeting. CPUE increased slightly during 1977-80, but only to a level well below the 1965-75 average. Production model results (SCRS, 1982) indicate that some over-exploitation may have occurred during the early to mid-1970's, but fishing effort in the more recent years (1978-80) appears to have been below the level associated with maximum sustainable yield. The Committee remains unsure of the exact status of blue marlin stocks, but given the relatively low CPUE levels described above (through 1980) and the production model results, concern is expressed about any increase in effort on the stock.

BIL-2.2 White marlin

Landings from the total Atlantic (Table 11) 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 slightly in 1984 (preliminary estimate). Japanese CPUE indices have declined substantially over the period 1962-80 (SCRS, 1982). The Committee remains unsure of the exact status of white marlin but with the declining trend and low CPUE levels (through 1980) presented in previous years, concern is expressed about any increase in effort on the stock.

BIL-2.3 Sailfish

Landings from the total Atlantic (Table 12) have generally increased over the period 1974-84 with some year-to-year fluctuation. The 1983 landings (3,600 MT) and preliminary 1984 landings (3,200 MT) reflect a pronounced increase from the 1980-82 level (about 2,100 MT) due to large sailfish catches in the Ghanaian fishery (2,200 MT).

BIL-2.3.a West Atlantic stock

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 40 percent below $F_{0.1}$ (SCRS, 1983). Considering these data collectively, sailfish appear to be only moderately exploited. However, the fishing mortality and natural mortality rate estimates are nearly equal, a condition often assumed to occur at the point of maximum sustainable yield. 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.

BIL-2.3.b East Atlantic stock

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 from all countries should be reported by 5-degree area and by month. The catch of each of the billfish species should be reported separately. While the Committee noted that some progress has been made in this area, further improvement is still necessary. 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 big-eye tuna (Japan and Korea). Such differences in the deployment of longline gear may affect the catchability of billfishes (and other species). It is requested that nations employing longline gear in non-traditional ways and nations with longline observer programs analyze the catchability of traditional and deep (or shallow) longline gear using their respective data. 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.

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 of the species. Sailfish statistics (separated from spearfish statistics) should be reported for the east/west Atlantic. The historical statistics should also be segmented 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 data from the Brazilian fishery, that 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) Comprehensive data collection for the sailfish fishery off Senegal has been established in response to the Committee's recommendations in previous years. 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 preliminary findings be reported.

ii) Further data collection and 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.

iii) Stock assessment work on sailfish should continue. Improvements in the data base and better estimates of population parameters should enable more progress to be made in this area.

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. 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-SWORDFISH

SWO-1. Description of fisheries

Swordfish are distributed throughout the temperate and tropical zones of the Atlantic Ocean and Mediterranean Sea. The main gear used is longline in both directed and by-catch fisheries. Minor secondary gears include harpoon and rod and reel.

Table 13 shows the landings of swordfish by major fishing countries. The 1984 Atlantic catch reached 17.3 thousand MT, which was slightly higher than 1983.

In the Mediterranean Sea, the 1984 reported catch was 4.5 thousand MT (Table 13), a slight drop from the historic high 1983 catch (although the 1984 landings are not complete - notably missing Algeria).

SWO-2. State of the stocks

No new information was presented which would allow a choice of a particular hypothesis on swordfish stock structure. Historically, it has been treated as a single stock throughout the Atlantic and Mediterranean. However, the high catch rates first observed in new fishing areas seem to imply a lack of mixing and the limited historic and current tagging programs have not demonstrated movement among the major areas of concentration. Although the number of recaptures is limited and tag shedding and non-reporting may contribute to the apparent lack of reported movement, these results suggest that some discussion on the multi-stock hypothesis is advisable.

CPUE for the Atlantic and Mediterranean Spanish fisheries has been relatively constant since 1973. However, there has been a significant decrease in mean size in the landings resulting in 40 percent more fish now required to make up the same weight of landings in the Atlantic. The limited data available indicate the mean size of fish in these two Spanish fisheries is near or below the estimated size of 50 percent maturity for females.

Based on the multi-stock hypothesis, a first trial analytical assessment (VPA) was carried out in the northwest Atlantic on swordfish. These results (subject to the inherent uncertainties in recent year VPA estimates and other assumptions) indicate that significant increases in fishing mortality have occurred since 1978. This has resulted in a 40 percent drop in spawning stock biomass (assumed to be ages 6+). However, the number of juveniles (ages 0-2) has increased.

SWO-3. Effects of current regulations

There are currently no ICCAT regulations in effect for swordfish.

SWO-4. Recommendations

SWO-4.a Statistics

The recommendations presented in the 1983 SCRS Report have had a positive effect, as information on catch, effort and sampling has improved for some countries. However, important Task I and II statistics are still missing from some areas of the Mediterranean and the west Atlantic and difficulty exists in identifying separate landings from the east and west sides of the Atlantic. Therefore, it is recommended that:

i) The Secretariat investigate the feasibility of sub-dividing Billfish Area 94 into eastern and western portions at some suitable degree of longitude (perhaps 35°W).

ii) Swordfish catch and effort statistics be presented by 5-degree squares by month. If this is not possible, then they should be presented by ICCAT billfish sampling areas as suggested above.

iii) Due to variation in the sex ratio and the different growth rates by sex, any stock assessment model consider the sexes separately by fishing areas. Therefore, size frequencies by sex and fishing area should be collected.

iv) All countries catching swordfish (directed or by-catch) carry out adequate levels of size sampling.

v) Due to the known double reporting of swordfish catches by Canada and the U.S. between 1978 and 1984, attempts be made to estimate the correct assignment of the catches that were misrecorded. Catch data for recent years should be verified and the Secretariat notified of any changes.

SWO-4.b Research

The trial assessment presented for swordfish indicates many areas in which research should be directed. Basic biological data for all areas on maturity, sex composition, growth and mortality rates as well as stock structure are lacking or limited. Therefore, it is recommended that:

i) Both field and laboratory investigations be mounted immediately to determine the size and age of first maturity in both the east and west Atlantic.

ii) Laboratory studies continue on the growth and age of swordfish, as well as field studies on size and sex composition of the population.

iii) Studies be carried out on existing size data on a geographic area/time basis to investigate possible mean size/area relationships.

iv) Studies be carried out to evaluate the stock structure (tagging, biometrics, parasites, spawning grounds, etc.). Tagging programs are required in both the east Atlantic and Mediterranean as well as the west Atlantic, and these need to be extensive in their geographic range; thus the use of commercial vessels should be considered.

v) Catch and effort statistics be investigated to develop abundance indices that will be useful in tuning VPA.

vi) Because swordfish are likely distributed throughout the Atlantic Ocean and taken by the fisheries of many nations, joint studies be undertaken by scientists from the swordfish fishing nations. The research areas delineated above, that are thought to be most fruitful for such cooperative research, are age and growth, sexual maturity, development of CPUE indices, and stock structure determination. These should be pursued by direct inter-laboratory contact and should aim to standardize research procedures.

SWO-4.c Management

No recommendations on management are presented. However, as the spawning stock biomass (assumed to be ages 6+) in the west Atlantic is estimated to be dropping and the mean size of fish is decreasing in the landings of several fisheries in the east and west Atlantic, it is suggested that these fisheries be carefully monitored.

SBF-SOUTHERN BLUEFIN TUNA

SBF-1. Description of fisheries

Southern bluefin tuna is the species which occurs only in the oceans of the southern hemisphere. The only known spawning ground is located in the middle latitudes of the east Indian Ocean. Young southern bluefin tuna are distributed in coastal waters of southern Australia, and as they grow, they migrate circumpolarly throughout the Pacific, Indian and Atlantic Oceans.

The stock has been exploited by Australian and Japanese fishermen for more than 30 years. In recent years, the Japanese longline catch has been decreasing, while the Australian surface catch of small fish increased rapidly. New Zealand is now indicating interest in harvesting southern bluefin tuna by handline gear in its coastal waters. In 1984, catches by these countries were 23,000, 15,800 and slightly less than 100 MT for Japan, Australia and New Zealand, respectively. As far as the Atlantic is concerned, southern bluefin tuna are caught by the longline fishery mostly in the area off the southern tip of Africa. The catch has varied widely between 500 and 6,200 MT during the last decade (Table 14). Low catches in 1982-84 were due to the shift in the longline effort between oceans.

SBF-2. State of the stock

At the latest tri-lateral meeting between Japan, Australia and New Zealand held in Wellington, New Zealand in July, 1985, biologists from the three countries re-evaluated the stock status based on updated catch-effort and size data. The cohort and yield-per-recruit analyses and stock projections reconfirmed the conclusion drawn at the previous meetings. The report of the scientific meeting reiterated the importance of maintaining the spawning biomass at the present level (about 220,000 MT) which was considered necessary to maintain satisfactory recruitment.

SBF-3. Effects of current regulations

Since 1971, Japanese longline fishermen have been under voluntary measures restricting southern bluefin fishing in areas where young fish are abundant. This is meant to increase the age at first capture in order to obtain higher yield per recruit. In October, 1984, Australia implemented a management program that limits its annual catch to 14,500 MT and closes the fishery in the area off western Australia. This management program was extended to the 1985-86 fishing season. In October, 1985, Japan introduced a national quota of 23,150 MT for 1986. These measures are meant to prevent a further decline in the spawning biomass.*

*During the Commission Meeting, it was reported that New Zealand had also adopted catch regulations for its fishery.

SBF-4. Recommendations

The Committee made no recommendation for management of southern bluefin tuna in the Atlantic Ocean.

SMT-SMALL TUNAS

SMT-1. Description of fisheries

The small tunas are a complex group including more than a dozen species occupying widely varying ecological niches. Some are extremely coastal in their distribution, while others are oceanic. The fisheries are as varied as the species. There are fisheries in many parts of the Atlantic and Mediterranean. A substantial part of the catches is taken by artisanal fisheries, especially in developing countries. The small tunas are also taken in industrial fisheries, both as target species and as by-catches. Many by-catches are discarded at sea because of their relatively low value in the market. In some areas they are important targets of sport or recreational fisheries.

Reported catches of small tunas, dominated by the Atlantic bonito, king and Spanish mackerels, little tuna, and frigate tunas, made almost exclusively by surface fisheries, have tended to increase with time. In recent years they have been on the order of 100,000-120,000 MT per year, about a quarter of the total Atlantic catch of tunas and tuna-like fishes. Some of the increase has obviously been due to improved reporting; it is probable that further improvement in reporting will cause the nominal catches to increase even more.

New descriptions of Spanish fisheries in the Mediterranean and near the Strait of Gibraltar, taking about 3,000 MT of Atlantic bonito, little tuna and frigate tuna per year, have become available. Landings in Ivory Coast of by-catches by industrial purse seine fleets of small tunas can be as high as 4,000 MT per year. Industrial fleet landings in Senegal are probably a bit less, but artisanal fisheries for little tuna are presently over 4,000 MT per year.

Table 15 shows the best available current data on catches of small tunas. The data for 1984 are obviously very incomplete.

SMT-2. State of the stocks

It is not possible to arrive at any conclusions on the status of the stocks on the basis of the available data, although it appears probable that some stocks are under-exploited.

SMT-3. Effects of current regulations

There are currently no ICCAT recommendations in effect on small tunas. It is possible that the minimum size regulations now in force for yellowfin and bigeye tunas could have some effects on small tuna catches, since several species occur in mixed schools with yellowfin and bigeye.

SMT-4. Recommendations

SMT-4.a Statistics

The data on small tunas in the ICCAT data base continue to be far from satisfactory. The importance of several species of small tunas as sources of food in developing countries makes adequate coverage especially important. As mentioned in the description of fisheries above, it is almost certain that landing and catch statistics are not complete. There are no fishing effort data nor sampling of sizes in the catch for most species, and some of the data that are collected do not find their way into the ICCAT data base. The Committee is pleased to note, however, that many countries, Cape Verde, Ivory Coast, Senegal and Spain among them, are increasing their efforts to collect and report catch, catch and effort, and size data. The Secretariat has been able to clarify that the large Mexican catches of wahoo reported for several years in fact are mainly *Scomberomorus*.

The Committee recommends that:

i) Member countries make special efforts to see that they report their catches of small tunas.

ii) Member countries collect fishing effort and size data and submit them to the ICCAT data base. Special efforts should be devoted to these activities in countries where these species are important.

iii) The Secretariat make the necessary efforts to secure the required data from non-member countries.

iv) Appropriate emphasis be directed to collecting data from artisanal fisheries and from catches and discards by industrial fisheries fishing primarily for other species.

v) Species composition of the catch be shown where possible, instead of grouping all species as "small tunas".

vi) That the "species table" (Table 15) prepared by the Secretariat for small tunas be expanded to show catches by principal countries.

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 small tuna fisheries.

ii) Studies aimed at distinguishing among different stocks be continued.

iii) Studies on biological parameters be carried out, especially in cases where there is presently no information, e.g., wahoo.

iv) Studies of geographic distribution of species and of ecological relations through 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 areas be initiated, and continued in cases where they have been initiated.

vi) That the development of new fisheries be carefully monitored.

SMT-4.c Management

The Committee has no recommendations for management of small tunas at this time.

MLT-MULTI-SPECIES

Most of the tuna and billfish fisheries of the Atlantic Ocean are multi-species fisheries but with each fishery targeting exploitation on a particular species. By changing fishing procedures, the fisheries are able to alter the target species but usually without eliminating incidental catches of non-target species. Understanding the fishing procedures of each fishery and identifying procedures that are more species selective than others continue to receive high priority by the Committee. Through gathering of detailed fishery statistics and biological information on the species involved together with observations of fishing procedures, the Committee continued in 1985 to build a scientific data base to investigate the biological interaction of tuna and billfish species and for developing optimum harvesting strategies for maximizing yields from the resource.

The Committee reviewed two documents (SCRS/85/21 and SCRS/85/82) that contained information on the multi-species composition of the catch of fisheries and three more (SCRS/85/61, SCRS/85/66 and SCRS/85/80) that described different fishing strategies of vessels. Document SCRS/85/21 noted the substantial by-catch of bigeye, swordfish and albacore taken by the Japanese longline fishery for bluefin tuna around Madeira and off Portugal. Document SCRS/85/82 reported that mixed schools containing as many as five species of tuna are encountered by the purse seine fishery for yellowfin tuna in the Azores.

The shift in target species of the FISM purse seine fleet from yellowfin tuna to skipjack tuna is described in document SCRS/85/66. The shift occurred recently and is believed to be related to changes in fishing strategy of this fleet. The shift implies that the catchability coefficient for both species caught by this fleet has recently changed.

Documents SCRS/85/61 and SCRS/85/38 described the Spanish longline fishing for swordfish in the east Atlantic and Mediterranean Sea, respectively. The fisheries target on swordfish and take significant amounts of bluefin tuna and sharks in the Mediterranean Sea but in the east Atlantic, only significant amounts of swordfish and sharks. Document SCRS/85/61 also pointed out that part of the fleet switches to albacore troll fishing in the summer.

The Committee also reviewed the catches of different fisheries and prepared Table 16 that catalogues fisheries by target species and non-target species.

Item 9. REVIEW OF THE PROGRESS OF THE SKIPJACK PUBLICATION

The Committee noted that the publication of the Report of the Skipjack Year Program was further delayed due to various technical reasons. Almost all the page setting has been completed and the sections on the "Index" and "Literature Cited" have been completed. The publication is now expected to become available in early 1986. The Committee expressed hope that there would be no further delay.

The policy for distribution of the skipjack publication was discussed. Recognizing the need to make the publication available as widely as possible yet without having soaring costs, the following policy was approved:

a) A marginal price should be decided upon and printed on the cover.

b) Each member country is entitled to receive a maximum of ten complimentary copies.

c) Each Skipjack Conference participant will receive one complimentary copy.

d) The library of each laboratory dealing with tuna research will receive one complimentary copy.

e) Senior authors only will receive 25 reprints.

The Secretariat was requested to ask each member country correspondent to submit a formal and final statement as to how many complimentary copies (up to a maximum of ten) the country wishes to receive and whether they wish all copies sent to a specific person or to have them mailed to specified recipients. At the same time, if the country wishes to pay for additional copies, that can also be indicated. This procedure will assist the Secretariat in estimating the number of copies to be printed.

Item 10. REPORT OF THE PLANNING COMMITTEE FOR THE YELLOWFIN YEAR PROGRAM

Dr. A. Fonteneau (France) reported the results of his group's study. He had been asked at the 1984 SCRS Meeting to create and coordinate a group to draw up a program to study yellowfin stock recovery after the reduction of fishing effort in the tropical east Atlantic in the last two years. He reported that a group consisting of several experts in various fields was formed and a basic plan was developed through correspondence.

This group met two days prior to the SCRS Meeting and finalized the plan. Planned activities consist of increased attention to the collection of catch-effort and size data, putting scientific observers on board commercial fishing boats, tagging yellowfin, hard part analysis, and identification of spawning areas. Particular emphasis is given to the observer and tagging programs. Both programs are for the east and west sides of the Atlantic Ocean. Tagging is proposed on an opportunistic basis by scientific observers as well as by two chartered vessels, one on each side of the Ocean.

Dr. Fonteneau drew the attention of the Committee to the urgency of taking action on the program due to the rapid changes expected in the stock conditions after the reduction in effort and to the fact that the movement of the fleet is unpredictable.

The Committee discussed how much of the proposed work could be achieved if the ICCAT funding is not available and what levels of national contributions in terms of man-, vessel-, and computer-days, etc. could be expected. The tagging activities, which were identified as the most important part of the work, cannot be carried out without ICCAT funding. It was also pointed out that such a large-scale program covering a large area can only be achieved by international cooperation and coordination through an international organization such as ICCAT.

The group met again after this discussion and introduced some modifications to the Report. The revised Report is attached as Appendix 3 to Annex 10.

Item 11. 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. N. Bartoo (U.S.A.). The Committee reviewed the Report together with the various recommendations contained therein.

A working group, which was formed at an earlier session of the Committee meeting to study the necessity of purchasing a computer, reported on its study. The group considered the requirement under two scenarios: that the Secretariat continue only with data management and the Secretariat would also supply computer support to working groups and the SCRS. The difference between hardware requirements for the two scenarios was found to be very slight.

The group agreed, in general, with the information in COM-SCRS/85/12. It emphasized that the Secretariat needed its own system in order to have on-line capability to avoid the processing delays currently being experienced.

A comparison was also presented by the group of three models of computers but it was recommended that the Secretariat make the final decision after performing comparative tests of these models, and in consultation with the SCRS Chairman and the Convener of the Sub-Committee on Statistics on various other items including financial conditions.

The group's Report was adopted and attached as Appendix 6 to Annex 10.

The Report of the Sub-Committee assigned various statistical tasks to the Secretariat but made no overall recommendations. A working group was set up to re-evaluate the decisions taken in 1983 concerning the biostatistical work load as well as the nature of the work to be done. The group's conclusions were reported by the Convener, Mr. J. J. Maguire. This Report was adopted by the SCRS and is attached as Appendix 9 to Annex 10.

Item 12. REVIEW OF EDITORIAL AND PUBLICATION POLICY

The group formed earlier in the meeting and headed by Dr. F. X. Bard submitted a report of its studies on the ICCAT publication policy. The group's conclusions were studied carefully by the Committee. In general, the group found some solutions for the three tasks assigned ed to the group, i.e., a reduction in the amount of working papers, upgrading the quality of papers, and elimination of repetition of documents.

a) Collective Volume of Scientific Papers

The Committee agreed that the scientific papers submitted to the SCRS are simply working papers and that their results are often only tentative. It was proposed, and the Committee concurred, that a note to that effect be put clearly on the volume. It was also agreed that authors could designate their papers as "not to be cited without reference to the author" but that this restriction would not apply to the collective papers as a whole.

The Committee also agreed with the proposal to drop Report "A" from the Collective Volume series. It was agreed that the final version of Report "A" will be distributed to the meeting attendants when Report "B" is being circulated for final approval.

Regarding the suggestion of upgrading the quality of the Collective Volume, a guide for authors (not only for typists) should be developed. A draft of such a guide should be prepared by the Secretariat by the next SCRS meeting for the Committe'es consideration.

Reports of working groups can be published in the same manner as in the past, i.e., three–language text, tables and figures and original-language scientific papers used at the meetting. Final editing might be done jointly among the rapporteurs, group chairmen and the Secretariat.

b) Data Record

The Committee agreed that the Statistical Series should be incorporated into the Data Record. There was considerable discussion as to whether or not the Data Record should include some type of summarized hard copy of the recently acquired data or if just data catalogues would be sufficient. Recognizing that the users would first like to check the data in hard copy form to see whether or not they want to request the magnetic copies, that the hard copy is extensively used by those who have no computer facilities and by scientists of non-member countries, and that tape users also need to verify the data with hard copies, the Secretariat was requested to study a format in which the summarized data can be published (for example catch and effort by 1 x 1 area by year) and present examples at the next SCRS meeting.

c) Higher quality publication series

The working group was unable to agree on whether or not there should be a new series that would include papers for peer review and upgrading. The Committee noted that the introduction of such a series would produce many practical problems.

d) Distribution of documents

No changes from the present policy were proposed for the distribution of the Statistical Bulletin and Data Record. However, for the Collective Volume of Scientific Papers, a reduction of the mailing list was proposed, particularly considering the tentative nature of the documents included in the series. Charging a minor price for the volume was considered as one way to discourage people from asking for unnecessary copies. However, this may cause more of a problem for the Secretariat in handling the accounting. In this respect, a subscription system might be considered for this and other Commissions publications.

Finally, the following criteria for distribution of the Collective Volume were proposed and accepted on a trial basis:

- All scientists who are directly involved in ICCAT tuna research will receive a copy.
- Libraries of the laboratories which are involved in tuna research will receive a copy.
- Commission meeting attendants (non-SCRS) who so wish will receive a copy.
- Copies will be available on request at the Secretariat.
- The mailing list will be revised every year according to the above criteria.

The Committee recommended that the Secretariat revise its mailing list according to these criteria and report to the Committee at its next meeting on the reduction of the mailing list and additional copies requested during the year.

e) Population Dynamics Training Course (La Coruña, 1976)

Only a limited number of copies were made as a temporary measure, with the understanding that the instructors of the course would provide an edited version. As the edited version never became available, the number of copies made did not meet the demand and the supply is now depleted. A proposal was made to make reprints of the volume. The Committee asked that the Secretariat continue efforts to arrange finalization of the document, but that pending this, an appropriate number of the preliminary version should be re-run.

After a lengthy discussion, the Group's Report was revised and adopted (Appendix 5 to Annex 10).

Item 13. REVIEW OF SCRS RESEARCH PROGRAMS AND CONSIDERATION OF WORKING PROCEDURES

Three items were proposed during the SCRS meeting which require extra funding by the Commission. They are the acquisition of a new computer system for the Secretariat, the Yellowfin Year Program, and further analyses of micro-element studies of bluefin tuna hard parts.

a) Acquisition of a new computer system

This matter was fully discussed under Agenda item 11.

b) Yellowfin Year Program

Details on this subject can be found under Agenda item 10.

c) Micro-element study of tuna hard parts

A proposal was made that ICCAT draw up a contract with IATTC to continue the life history studies using data already collected, but not analyzed, during the use of the X-ray technique to analyze micro-elements of bluefin tuna hard parts. The proposal is attached as Appendix 7 to Annex 10. After some discussion on the proposal, a group – with Dr. B. Brown (U.S.A.) as Convener – was formed to study the way to verify the technique and to consider the validity of the proposal.

The group reported back to the Committee that IATTC has begun procedures to verify the technique. A plan to verify the results by collecting hard parts recovered from fish from new and existing tagging experiments was proposed. Completion of the analyses of existing samples and data as proposed was also considered to be appropriate. The group's Report is attached as Appendix 8 to Annex 10.

The Committee considered the new tagging plan to be very interesting. It was found that to carry out the plan in 1986 will require some funding by the Commission. If the plan is carried out in 1987, there is a good possibility that some national resources might become available.

Concerning the completion of the analysis of existing samples and data through a contract with IATTC, the analyses could be carried out in two parts, one addressing the question of multiple oceanic crossings by individual fish and the other investigating the possible existence of two groups of young fish in the Mediterranean. It was accepted by the Committee that there would probably not be any major reduction in the cost of the analysis if only one part was undertaken.

d) Discussion of priorities

The Committee reviewed the relative priorities for the three projects and agreed that the acquisition of an "in-house" computer to replace the INFONET system was of the greatest importance to the future work of the SCRS and of the Secretariat in carrying out its data handling functions. The two other projects were both considered to be worthy of support as being programs that would generate information of substantial significance to SCRS's abilities to understand the stocks involved. Discussion included emphasis on the need to implement the Yellowfin Year Program as soon as possible in order to maximize the value of the results, particularly in view of the uncertainties as to when large numbers

of seiners might resume fishing in the east Atlantic rather than in the Indian Ocean. It was accepted that the Chairman of the SCRS would establish a core group of team leaders to coordinate implementation of the program of work once this was endorsed by the Commission.

e) Future SCRS organization

When reviewing the recommendations made concerning bigeye stock evaluation, the Committee considered that it would be appropriate to devote a half to one day to an in-depth look at bigeye research next year. This session may be combined with the bigeye rapporteurs group meeting and include a critical review of all the data available for bigeye and a review of the bigeye studies in other oceans as well as assessment studies. Mr. S. Kume (Japan) was nominated to coordinate this activity.

The reorganization of the SCRS meeting, including the possibility of meeting separately from the Commission, has been discussed for some years. The Committee decided to continue the study by reassigning a Working Group on SCRS Organization. The Group would be asked not only to study and recommend a future form of meeting organization but also to consider the question of symposia, including topics.

Item 14. COOPERATION WITH OTHER ORGANIZATIONS

The Committee studied the pertinent portion of the 1985 Administrative Report (COM/85/7). The Sub-Committee on Statistics reported on ICCAT's cooperation with other organizations, such as tuna data comparison among ICCAT, FAO and other members of the CWP, proposals for a CWP-Tuna and the resultant meeting scheduled for Colombo, Sri Lanka, etc. The Committee expressed its satisfaction on the international cooperation supported by ICCAT.

The proposed World Tuna Conference was reported still to be in the planning stage. The Secretariat was asked to maintain contact with other tuna organizations and any SCRS members who become involved in any planning activity were asked to inform the Secretariat on the development of the plan on a periodic basis.

Item 15. RECOMMENDATIONS

The SCRS wishes to draw the Commission's attention to three important programs which require special Commission funding. The recommendations concerning these programs are summarized in item 13.d.

The SCRS recommendation concerning statistics, research and management of tuna species are found in Section 4 of the respective species sections and in the Report of the Sub-Committee on Statistics (Appendix 4 to Annex 10).

A specific recommendation was mentioned under this agenda item concerning national reports. The Committee recognized that the fishing patterns and effort distribution

between species, gear and area are very much affected by non-biological factors such as fish market price, economic factors of fishing operations, or regulatory measures taken internationally or nationally. Since stock analysis is largely based on catch and effort data, an understanding of these non-biological elements is also very important. The Committee recommended that the national report submitted every year should contain a chapter on any national regulations and/or change in economic situations which might have some impact on fishing pattern and hence on stock assessment work.

The FAO representative informed the Committee that his organization has a department which gathers a great amount of economic data including the market price of fish, etc., and that a summary of the information concerning tuna could be made available to ICCAT. The Committee recommended that the Secretariat communicate with the proper department of FAO to obtain an annual summary of trends in process for tuna and tuna products.

Item 16. OTHER MATTERS

The Committee noted that the ICCAT collection of literature concerning tuna is poor, particularly with respect to the years since the creation of ICCAT. It was recommended that the ICCAT Secretariat expand its selection, especially with respect to research on Atlantic tunas. This might require additional space and the employment of a part-time professional librarian. Some participants expressed a desire for a more extensive collection which would include material not widely distributed such as theses and informal reports. Such expansion would have much greater implications for space and personnel requirements, but these might be reduced by extensive use of microfiche and computer systems. On the other hand, many library systems and information centers exist which provide such services. However, there are many theses and working papers which have never been included in such existing inventories.

Considering that the Secretariat has rather limited human and financial resources for many of the assignments already assigned to it, the Committee decided not to begin a new ambitious library at this time. However, the Secretariat was asked to contact national scientists, libraries and universities to determine the availability of inventories of tuna documents at their libraries. The FAO representative informed the Committee that the FAO information service can provide inventories of literature concerning tuna research, except for those issued by ICCAT itself.

Item 17. ELECTION OF THE CHAIRMAN

Dr. E. Kwei (Ghana) was asked to preside over the session to elect a new SCRS Chairman. After he commended the excellent performance by the present Chairman, Mr. J. S. Beckett (Canada), and stressed the importance of the SCRS work in the Commission, he sought nominations for a new Chairman. South Africa proposed that Mr. Beckett be re-elected, since he demonstrated excellent leadership, and because the scientific work needs some continuity.

Mr. Beckett accepted the nomination on the condition that he would serve just one more year as the SCRS Chairman, so as not to break the tradition that the SCRS Chairman does not serve a third full two-year term. The Committee understood his position. All the other delegates present expressed support of this nomination and Mr. Beckett was elected unanimously for another year as SCRS Chairman.

Item 18. ADOPTION OF REPORT

The Report was adopted with some changes.

Item 19. ADJOURNMENT

The 1985 SCRS Meeting was adjourned.

Table 1. Annual nominal catch (in 1,000 MT) of Atlantic yellowfin (as of April 1, 1986)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*
TOTAL	*93.4*	*94.6*	*106.7*	*124.6*	*123.0*	*128.7*	*130.8*	*125.3*	*125.6*	*151.8*	*164.0*	*164.3*	*117.4*	
East Atlantic	78.0	79.7	92.2	108.1	109.2	115.3	115.7	111.7	112.4	134.8	134.3	118.6	75.1	84.4
–Surface	60.0	59.2	72.8	92.6	96.5	99.7	104.5	105.0	99.9	126.9	124.4	112.5	66.4	76.7
Baitboat	13.1	14.7	19.7	9.6	12.8	10.9	9.0	13.7	7.6	9.8	13.2	11.3	12.0	8.2
Angola	.6	.6	.8	.1	1.0	1.9	2.0	.8	.5	.7	1.4	.7	.2	.2
FIS	7.4	5.5	6.3	2.9	3.7	3.4	2.8	2.2	2.1	2.9	3.0	2.7	3.4	3.1
Ghana	.0	.1	.3	.7	.8	.6	.3	1.2	1.7	2.5	5.6	5.0	3.9*	3.0
Japan	3.5	6.5	7.1	1.1	4.9	2.6	1.4	1.0	.5	1.7	1.2	1.0	.1	
Korea-Panama	.4	.8	2.8	3.5	2.0	2.1	1.7	4.1	1.4	1.0	.7	.2	.1	
Spain	.7	.8	2.0	1.0	.2	.3	.2	.1	.1	.1	.4	.7	2.5	1.0
Others	.5	.4	.4	.4	.1	.1	.5	4.4	1.2	.7	.8	1.1	1.8	.2
Purse seine	46.9	44.5	53.1	83.0	83.6	88.3	94.6	89.9	91.8	111.7	107.9	97.1	52.0	68.5
FISMP	23.8	26.2	32.2	44.8	47.9	46.5	52.5	46.4	50.3	54.0	45.0	39.8	5.3	10.0
Japan	2.5	1.2	.8	.1	0.	0.	0.	0.	0.	0.	.8	1.2	1.5	1.5
Spain	8.6	13.3	14.0	23.7	33.2	35.3	33.4	39.9	38.7	51.3	53.8	46.4	39.5	51.0
U.S.A.	12.0	3.0	5.6	14.0	1.7	6.4	8.1	2.9	1.6	1.5	.6	0.	0.	0.
Others	.1	.8	.4	.4	.8	.2	.6	.7	1.2	5.0	7.7	9.7	5.7	6.0
Other gears	.0	.0	.0	.0	.0	.4	.9	1.4	.6	5.3**	3.2**	4.1**	2.4**	
Cape Verde	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.6	2.7	3.6	2.0	
Others	.0	.0	.0	.0	.0	.4	.9	1.4	.6	.7	.5	.5	.4	
–Longline	18.0	19.2	16.9	13.6	12.8	15.6	11.3	6.8	12.5	7.9	9.9	6.1	8.7	7.7
China (Taiwan)	3.5	1.5	1.0	1.3	.6	.2	.2	.2	.1	.4	.2	.4	.1	
Cuba	3.2	4.5	3.0	1.7	1.8	2.9	1.9	2.6	4.9	2.5	2.1	1.6	1.2	
Japan	2.3	1.3	.7	1.7	.3	.1	.3	.3	1.7	1.2	2.8	.9	2.9	
Korea-Panama	7.8	11.9	12.2	8.8	8.5	10.7	8.4	3.1	5.6	3.5	4.7	3.1	3.9	
Others	1.1	.0	0.	0.	1.6	1.8	.5	.6	.2	.3	.1	.2	.6	

Table 1. (cont.)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*
–Unclassified gears	0.	1.2	2.5	1.9	0.	0.	0.	0.	0.	0.	0.	0.	0.	
West Atlantic	15.3	14.9	14.5	16.5	13.8	13.4	15.1	13.6	13.1	17.0	29.7	45.7	42.4	
–Surface	3.4	2.3	1.6	2.0	.7	1.4	4.7	3.6	5.6	4.8	15.1	29.4	28.1	
Venezuela	0.	0.	.1	.1	0.	0.	0.	1.8	4.4	3.5	13.9	25.3	21.3	
Others.	3.4	2.3	1.5	1.9	.7	1.4	4.7	1.8	1.2	1.3	1.1	4.1	6.8	
–Longline	11.6	12.4	12.6	14.2	12.6	11.4	9.5	9.0	6.6	11.3	9.8	6.7	8.0	
China (Taiwan). . . .	1.2	1.2	1.3	1.1	1.1	.1	.2	.8	.5	.4	.4	.1	.5	
Cuba.	.4	0.	.4	.6	1.2	.9	.7	.2	.7	2.0	1.5	.8	2.5	
Japan	4.2	2.5	2.8	2.4	3.1	1.4	1.6	1.7	1.1	3.0	3.3	1.2	1.0	
Korea-Panama.	3.3	6.5	6.5	8.9	5.9	7.1	5.0	4.4	2.7	3.6	2.9	2.0	1.2	
Others.	2.6	2.2	1.5	1.2	1.4	1.8	2.1	1.9	1.5	2.4	1.8	2.6	2.7	
–Unclassified gears	.3	.3	.3	.4	.5	.6	.8	1.0	.9	.9	4.8	9.6	6.3	
Unclassified region.	.1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
–Surface	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
–Longline	.1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
–Unclassified gears	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	

*Figure changed by subtracting bigeye estimation of catches.

**Total "Other gears" includes landings of Cape Verde handline fishery since 1981 only.

NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 2. Estimated carrying capacity (thousand MT) of yellowfin and skipjack surface fisheries in the eastern Atlantic Ocean.

	1971	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985**
—BB															
FISM	2.8	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	1.6	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	7.2
España (Canarias) .	.4	.6	1.0	1.9	1.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	0.6
Angola		.3					.5	.5	.5	.4	.5	.4	.4	.4	0.4
Cap Vert										.2	.2	1.0	1.0	1.0	1.0
Portugal.	.5	.5	.5	.4	.6	.3	.3	.3	.6	.6	.5	.3	.3	.3	.3
TOTAL BB	5.3	7.3	7.6	13.0	13.2	9.7	13.7	15.5	14.7	12.8	11.8	11.7	11.5	10.7	10.6
—PS															
FISM	7.2	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
España	3.6	5.6	7.5	9.1	14.0	17.2	20.4	24.3	25.2	27.9	27.6	31.5	36.8	34.0	25.4
U.S.A..	3.8	11.9	2.9	5.5	10.4	1.7	4.2	10.5	3.2	2.2	1.6	1.3	0.	0.	0.0
Japan	2.0	1.9	1.9	.6	.2							.4	.4	.4	0.6
U.S.S.R.	.1	.1	.1	.1	.1	.1	.1	.2	1.0	3.0	3.9	4.9	4.9	4.9	4.9
Others**	.2	.9	.2	.2	.4	.2	.2	.2	.7	2.9	4.9	10.8	10.2	6.4	2.0
TOTAL PS.	16.9	29.6	25.	30.	42.3	36.7	39.5	52.8	46.6	53.2	54.8	65.2	69.1	50.5	35.7
TOTAL BB & PS. .	22.2	36.9	32.6	43.	45.5	46.4	53.2	68.3	61.3	66.	66.6	78.9	80.6	61.2	46.3

*Provisional.

**Ghana, México, Congo, Gran Cayman, Portugal, Venezuela.

Source: SCRS/83/27 (1984 and 1985 added).

Table 3. Annual nominal catch (in 1,000 MT) of Atlantic bigeye (as of April 1, 1986)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
TOTAL	*46.4*	*56.4*	*63.6*	*60.7*	*44.6*	*54.1*	*51.7*	*45.1*	*62.7*	*67.1*	*73.0*	*62.2*	*64.6*
—Surface	13.9	18.5	24.5	19.9	17.2	25.0	23.4	17.9	21.4	25.7	21.2	28.7	22.9
Baitboat	9.3	13.6	17.9	14.6	9.9	12.8	14.6	9.5	12.1	9.7	6.9	9.7	11.0
FIS	1.1	1.2	1.0	1.3	1.4	2.6	3.6	2.0	2.4	2.2	1.8	2.1	2.1
Ghana	0.	.0	.1	.1	.1	.2	.1	.2	.3	.5	.4	.3	1.1
Japan	.9	1.7	1.9	.1	.9	1.0	.6	.2	.4	1.0	.6	.0	.0
Korea-Panama	.1	.2	.7	.4	.4	.8	.7	.8	1.3	.6	.4	0.	.0
Portugal	4.0	5.9	10.9	6.8	2.9	4.5	5.4	3.3	3.5	2.6	1.8	3.8	3.8
Spain	3.1	4.4	3.2	5.7	4.2	3.6	3.9	3.0	4.0	2.4	1.5	2.5	2.8
Others	.1	.1	.1	.1	.1	.0	.5	.1	.2	.3	.3	1.1	1.1
Purse seine	4.7	4.9	6.6	5.3	6.9	11.5	8.6	8.0	8.7	15.2	14.0	18.8	11.8
FISMP	2.8	3.2	4.2	3.5	5.1	6.4	5.3	5.3	3.7	6.0	5.4	6.4	2.6
Japan	.7	.3	.2	.0	0.	0.	0.	0.	0.	0.	.0	.0	.0
Spain	.9	1.3	1.3	1.6	1.7	4.8	3.0	2.4	4.4	7.6	7.5	9.8	7.7
U.S.A.	.2	.1	.9	.1	.0	.3	.2	.2	.2	.1	.3	0.	.0
Others	0.	0.	0.	0.	.1	0.	.1	.0	.4	1.5	.7	2.5	1.4
Other gears	0.	0.	0.	0.	.4	.7	.2	.5	.6	.8	.3	.2	.2
—Longline	32.5	37.9	39.1	40.8	27.4	29.1	28.3	27.2	41.4	41.4	51.8	33.5	41.7
China (Taiwan)	5.0	3.8	3.1	4.0	3.3	3.0	2.6	2.2	2.3	1.7	1.9	1.4	.8
Cuba	2.0	2.6	2.4	1.9	1.3	1.8	2.3	2.3	1.4	.7	.5	.4	.4
Japan	18.1	20.0	20.9	17.4	7.3	9.1	9.3	12.0	20.5	21.0	32.9	15.1	24.3
Korea-Panama	5.8	8.5	9.2	12.1	8.7	8.8	11.2	7.8	13.5	14.1	13.5	12.1	10.9
U.S.S.R.	1.6	3.0	3.4	3.7	4.9	4.1	2.1	2.0	2.6	1.7	.6	.4	1.2
Others	0.	.1	.2	1.7	1.9	2.4	.8	.9	1.1	2.2	2.3	4.0	4.0
—Unclassified gears	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	.0	.0	.1

NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 4. Annual nominal catch (in 1,000 MT) of Atlantic skipjack (as of April 1, 1986)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
TOTAL	*75.9*	*78.3*	*117.2*	*60.5*	*74.7*	*110.0*	*106.1*	*88.3*	*108.8*	*129.0*	*155.6*	*139.2*	*135.6*
Surface – East Atlantic	74.3	75.1	113.2	56.4	70.9	106.6	98.9	81.7	96.0	106.0	119.9	102.1	95.3
–Purse seine	48.7	49.8	74.2	35.4	32.5	55.9	56.7	35.6	54.0	64.6	72.3	65.1	64.4
FISM	13.6	7.9	22.6	10.5	14.9	28.4	22.5	15.6	22.0	25.3	27.6	27.5	9.8
Ghana	0.	.2	0.	.2	.1	0.	0.	0.	.3	2.7	3.9	2.8	5.1
Japan	3.4	1.5	.9	.1	0.	0.	0.	0.	0.	0.	1.4	1.4	1.4
Portugal	0.	0.	0.	0.	0.	0.	.2	.1	.2	.1	.8	.1	.1
Spain	19.5	17.8	30.6	16.9	15.6	21.5	24.5	17.4	24.2	31.3	34.7	29.1	45.6
U.S.A.	12.2	21.2	20.0	7.4	1.8	5.9	6.8	2.1	2.6	2.8	.1	0.	0.
Others	.1	1.2	.1	.3	.2	.1	2.7	.4	4.6	2.4	3.9	4.1	2.4
–Baitboat	25.3	25.1	38.9	16.4	28.7	42.5	41.1	44.6	38.1	38.9	44.5	34.7	29.5
Angola	1.5	1.3	3.4	.6	1.5	3.8	3.2	3.6	3.5	2.3	2.2	.3	.0
Cape Verde	1.5	1.4	1.3	1.2	.8	.7	1.3	1.0	2.1	1.6	1.6	1.2	1.0
FIS	3.7	3.2	4.4	1.8	2.1	2.7	3.3	3.3	3.1	2.6	4.4	2.6	3.8
Ghana	0.	.1	.7	1.3	2.1	3.5	2.6	4.0	4.7	4.9	14.3	20.5	17.8
Japan	10.1	13.0	18.7	3.7	15.0	16.8	14.6	14.7	12.3	12.9	8.5	4.6	.4
Korea-Panama	.7	1.1	3.1	6.3	4.4	7.6	11.1	13.8	8.5	7.7	5.4	3.2	.8
Portugal	3.7	2.2	1.9	.6	2.1	4.4	4.4	3.0	1.7	2.7	4.8	1.0	3.8
Spain	4.1	2.6	5.4	.8	.6	.7	.6	1.3	2.2	4.2	3.4	1.3	1.9
Others	.0	.1	.1	.3	.0	2.2	0.	0.	.0	.1	.0	.0	.0
–Other gears	.3	.2	.1	4.6	9.7	8.2	1.0	1.5	3.9	2.5	3.1	2.3	1.3
Surface – West Atlantic	1.4	2.8	3.3	3.4	3.7	3.2	6.6	6.2	12.7	22.7	32.2	31.3	35.6
–Purse seine	1.2	.4	.1	.4	.7	.6	3.5	1.5	3.1	4.7	9.7	11.1	18.7
Brazil	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	.2	.3	.4
U.S.A.	.1	0.	0.	.2	.5	.3	1.6	.7	1.0	2.6	.0	.6	.8
Venezuela	0.	0.	0.	0.	0.	0.	0.	0.	1.9	1.9	9.5	10.0	14.8
Others	1.0	.4	.1	.2	.2	.3	1.8	.8	.2	.2	0.	.2	2.6

Table 4. (cont.)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
–Baitboat	0.	1.9	3.0	2.8	2.8	2.4	2.8	4.4	9.4	18.0	22.4	20.1	16.8
Brazil	0.	0.	0.	0.	0.	0.	0.	1.8	6.1	13.9	18.2	15.6	13.1
Cuba.	0.	1.5	1.8	2.3	2.8	2.4	1.8	2.0	2.3	1.1	1.1	1.7	1.2
Venezuela	0.	0.	.0	.1	0.	0.	0.	0.	0.	3.0	3.1	2.7	2.4
Others.	0.	.4	1.1	.4	0.	0.	1.0	.5	1.0	0.	0.	0.	0.
–Other gears	.2	.5	.3	.2	.2	.2	.3	.3	.3	.1	.1	.1	.1
Surface – Uncl. region . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LL & TRAWL – All Atl..	.2	.1	.2	.2	.0	.1	.1	.0	.0	.1	.0	.6	.0
Unclassified gears	.1	.4	.5	.5	.2	.1	.5	.4	.1	.2	3.5	5.1	4.7

NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 5. Estimates of carrying capacity of Brazilian and Venezuelan purse seiners and baitboats (in MT)

	Type	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
1. Brazil	BB	140	1200	2000	3400	2000	1900
Brazil-based (foreign flag)	BB			250	300	550	500
	PS				600	1200	1200
2. Venezuela	BB	1000	1000	1200	1500	1500	1500
	PS		1000	1000	8800	10000	11500
Venezuela-based (foreign flag)	PS					7200	7200

Table 6. Annual nominal catch (in 1,000 MT) of Atlantic albacore (as of April 1, 1986)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
TOTAL	*83.4*	*75.7*	*72.5*	*59.4*	*77.2*	*75.1*	*72.2*	*73.3*	*61.2*	*59.2*	*72.4*	*66.5*	*54.9*
North Atlantic	49.4	47.0	52.3	41.4	57.3	52.9	48.5	50.3	38.2	34.1	42.1	50.9	39.5
–Surface	34.7	28.8	37.6	28.7	34.3	32.0	34.3	38.1	28.7	24.3	28.9	34.3	19.9
Baitboat	8.2	10.1	16.7	19.2	20.4	15.6	11.7	15.9	16.2	13.4	15.9	21.1	8.3
France	.5	1.1	.6	.7	1.1	.6	.4	.2	.4	.4	.2	.2	.0
Spain	7.3	8.2	14.9	17.6	18.7	14.9	11.3	15.6	15.7	12.6	15.3	19.0	7.4
Others	.4	.9	1.2	.9	.6	.1	.1	.1	.1	.4	.4	2.0	.9
Trolling	26.5	18.7	21.0	9.5	13.9	16.5	22.6	22.1	12.6	10.8	12.8	12.8	11.0
France	8.7	5.8	7.9	5.0	5.7	6.2	8.4	7.8	3.1	2.5	2.7	2.2	2.8
Spain	17.8	12.9	13.1	4.5	8.2	10.3	14.1	14.2	9.5	8.3	10.1	10.6	8.2
Others	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Other gears	0.	0.	0.	0.	0.	0.	0.	.1	.0	.1	.2	.4	.6
–Longline	14.7	18.1	14.6	12.7	23.0	20.9	14.2	12.2	9.4	9.8	13.2	16.6	19.5
China (Taiwan)	4.4	9.5	9.5	8.1	14.8	13.7	9.3	7.0	7.1	6.6	10.5	14.3	14.9
Japan	1.3	1.5	2.1	1.3	1.3	.8	.5	1.2	1.0	1.7	.8	1.2	.6
Korea-Panama	8.2	7.2	3.0	3.1	6.6	6.1	3.8	3.4	1.0	1.1	1.8	.8	3.5
Others	.8	0.	0.	.2	.2	.2	.5	.6	.3	.4	.1	.3	.5
South Atlantic	33.3	28.2	19.7	17.5	19.2	21.4	23.0	22.5	22.5	23.6	29.0	14.3	13.1
–Surface	.1	.1	.1	.2	.1	.4	.3	.7	1.9	3.3	3.7	2.5	3.2
–Longline	33.2	28.1	19.6	17.4	19.2	21.0	22.8	21.8	20.6	20.3	25.3	11.8	9.9
China (Taiwan)	25.0	22.2	16.7	13.4	14.6	16.1	20.5	20.3	18.7	18.2	22.8	9.5	7.9
Japan	2.1	.3	.1	.3	.1	.1	.1	.1	.3	.6	.6	.2	.2
Korea-Panama	5.8	5.6	2.6	3.5	4.1	4.1	1.7	1.0	.9	.8	.8	.6	.3
Others	.3	.1	.2	.2	.3	.6	.5	.4	.7	.8	1.1	1.6	1.5

Mediterranean	.7	.5	.5	.5	.6	.6	.6	.5	.5	1.5	1.3	1.2	2.2
France - PS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	.1
Spain - BB	0.	0.	0.	0.	0.	0.	0.	0.	0.	.9	.5	.5	1.3
Others - SURF, LL	.7	.5	.5	.5	.6	.6	.6	.5	.5	.6	.7	.7	.7
Unclassified region	0.	.0	0.	.0	.1	.2	.1	.0	.0	.0	.0	0.	.0
–Surface	0.	.0	0.	.0	0.	.0	.1	.0	.0	.0	.0	0.	.0
–Longline	0.	0.	0.	0.	.1	.2	.0	0.	0.	0.	0.	0.	0.
Unclassified gears	.0	0.	.0	0.	0.	0.	.0	0.	.0	0.	.0	.1	.2

NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 7. Annual nominal catch (in 1,000 MT) of Atlantic bluefin tuna (as of April 1, 1986)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
TOTAL	*15.3*	*14.6*	*23.7*	*26.2*	*28.2*	*25.5*	*20.4*	*18.5*	*18.9*	*19.1*	*24.6*	*25.0*	*25.0*
West Atlantic	3.9	4.0	5.5	5.1	5.9	6.7	5.8	6.4	5.9	5.9	1.5	2.7	2.4
Small fish	1.7	1.5	3.3	2.2	1.4	1.4	1.2	1.1	.8	.9	.2	.4	.4
–Purse seine	1.6	1.5	.9	2.1	1.4	1.4	1.2	1.0	.8	.9	.2	.4	.4
Canada	.3	.6	.1	.3	.3	.3	.2	0.	0.	.1	0.	0.	0.
U.S.A.	1.3	.8	.8	1.8	1.1	1.1	.9	1.0	.8	.8	.2	.4	.4
–Rod & Reel	.1	.0	2.4	.1	.0	.1	.1	.1	0.	0.	0.	0.	0.
U.S.A.	.1	.0	2.4	.1	.0	.1	.1	.1	0.	0.	0.	0.	0.
Large fish	2.2	2.3	2.1	2.8	4.4	5.3	4.5	5.1	5.0	4.8	1.2	2.2	1.9
–Purse seine	.4	.2	.1	.3	.2	.2	.1	.4	0.	0.	0.	0.	0.
U.S.A.	.4	.2	.1	.3	.2	.2	.1	.4	0.	0.	0.	0.	0.
–Rod & Reel	1.0	.5	.6	.2	.6	.6	.4	.4	.5	.5	.3	.5	.4
Canada	.2	.2	.4	.2	.3	.3	.2	.2	.3	.3	0.	.1	.0
U.S.A.	.8	.2	.1	0.	.2	.3	.2	.2	.3	.2	.3	.4	.4
–Longline	.3	1.1	.9	1.5	3.1	3.8	3.2	3.7	4.0	3.9	.3	.8	.8
Japan	.3	1.1	.9	1.5	2.9	3.7	3.1	3.6	3.9	3.8	.3	.7	.7
Others	.0	.0	.0	.0	.2	.1	.1	.1	.0	.1	.1	.1	.1
–Other gears	.5	.5	.5	.8	.6	.8	.8	.7	.5	.4	.5	.9	.7
Canada	.0	.1	.3	.1	.2	.4	.2	.0	.1	.0	.3	.4	.3
U.S.A.	.5	.4	.3	.7	.4	.4	.6	.6	.5	.4	.2	.5	.4
–Uncl. gears	.0	.1	.2	.1	.1	.0	.1	.1	.1	.2	.1	.1	.1

East Atlantic	5.5	4.7	6.1	10.0	5.2	7.0	5.8	4.8	4.1	3.3	6.7	8.0	7.4
Small fish.	3.4	2.7	2.2	4.3	1.3	2.3	2.3	1.6	1.6	1.1	1.5	2.9	3.1
–Baitboat	2.9	2.2	1.6	1.7	.9	1.6	2.3	1.4	1.5	1.0	.9	2.7	2.9
France.	.7	.5	.5	.7	.3	.6	.7	.3	.3	.2	.2	.4	.6
Spain	2.1	1.7	1.1	1.0	.7	1.0	1.6	1.1	1.2	.9	.7	2.3	2.4
–Purse seine.	.5	.5	.6	2.6	.3	.7	.0	.2	.2	.1	.6	.3	.2
Morocco	.5	.5	.6	2.6	.3	.7	.0	.2	.2	.1	.6	.3	.2
–Uncl. gears.	.1	.0	.0	.0	.0	.0	.0	.0	0.	.0	0.	.0	0.
Large fish.	2.0	1.9	3.9	5.6	3.9	4.7	3.5	3.2	2.4	2.2	5.2	5.1	4.3
–Purse seine.	.4	.4	.9	1.0	.5	.8	.2	.1	.3	.2	.1	.0	.2
Norway	.4	.4	.9	1.0	.5	.8	.2	.1	.3	.2	.1	.0	.2
–Baitboat	.9	.9	.7	1.3	.9	1.3	1.6	.8	.4	.5	.1	.4	.0
Portugal.	0.	0.	.2	.3	.0	.0	.1	.0	.0	.0	.0	.1	.0
Spain	.9	.9	.5	1.0	.8	1.3	1.5	.8	.4	.5	.0	.3	.0
–Trap	.4	.5	.0	.4	.5	.6	.5	.6	.7	.9	2.3	2.0	2.3
Morocco	.1	.0	.0	0.	0.	.2	0.	0.	.0	.1	.4	.1	0.
Spain	.3	.5	.0	.4	.5	.3	.5	.6	.7	.8	1.9	1.9	2.3
–Longline	.3	.1	2.2	2.9	2.0	1.8	.7	.7	1.0	.6	2.7	2.6	1.5
Spain	0.	0.	0.	.0	0.	0.	0.	.1	0.	.0	.1	.0	.0
Japan	.2	.0	2.2	2.9	2.0	1.6	.6	.6	.9	.5	2.6	2.6	1.5
Others.	.0	.0	.0	.0	.1	.2	.2	.0	.1	.1	.0	.0	.0
–Other gears	0.	.0	0.	0.	0.	.3	.5	1.0	.0	.1	.0	.1	.2

Table 7. (cont.)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Mediterranean	5.8	6.0	12.1	11.1	17.1	11.8	8.8	7.3	8.9	9.9	16.4	14.4	15.1
Small fish	3.2	3.2	5.1	4.0	10.0	5.6	5.4	3.3	4.1	5.9	8.7	7.4	7.2
—Purse seine	3.1	3.1	5.0	3.9	9.9	5.4	5.2	3.1	4.0	5.7	8.6	6.8	5.3
France	1.1	1.4	1.8	1.6	3.8	3.2	1.6	1.5	1.7	2.3	4.8	3.6	3.6
Italy	1.8	1.5	2.9	2.1	5.5	1.3	2.6	.8	1.8	3.0	3.3	2.0	.9
Morocco	.0	0.	.0	.0	.0	.0	0.	.0	0.	.0	0.	0.	0.
Yugoslavia	.2	.2	.3	.2	.6	.9	1.0	.8	.6	.4	.5	1.2	.8
—Other gears	.1	.1	.1	.1	.1	.2	.2	.1	.0	.2	.2	.5	2.0
Italy	.1	.1	.1	.1	.1	.1	.1	.1	0.	.1	.1	0.	0.
Spain	0.	0.	0.	.0	0.	.1	.1	.0	.0	.1	.1	.5	2.0
Large fish	2.6	2.8	7.0	7.1	7.1	6.2	3.5	4.1	4.9	4.0	7.7	7.0	7.9
—Purse seine	1.0	1.2	3.1	4.2	4.1	4.2	2.1	2.9	3.4	1.7	2.2	2.6	2.3
Italy	1.0	1.2	3.1	4.2	4.1	4.2	2.1	2.9	3.4	1.7	2.2	2.6	2.3
—Trap	1.3	1.0	1.4	1.5	1.5	1.2	1.0	.7	.7	.6	.6	.7	1.3
Italy	.8	.4	.7	.7	.7	.7	.2	.2	.2	.2	.2	.3	.3
Libya	.3	.4	.5	.6	.8	.3	.7	.4	.4	.3	.3	.3	.3
Morocco	.0	.0	.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Spain	.1	.1	.0	.0	.0	.0	.0	0.	0.	.0	.1	.0	.6
Tunisia	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
—Longline	.2	.5	2.4	1.4	1.2	.6	.2	.2	.2	.3	1.5	.9	1.1
Spain	.1	.3	.2	.1	.3	.1	.1	.1	.1	.2	.5	.2	.1
Japan	.1	.2	2.2	1.3	1.0	.5	.1	.1	.1	.1	1.0	.7	1.0
Others	0.	0.	0.	.0	0.	.0	0.	0.	0.	0.	0.	.0	0.
—Other gears	.1	.1	.1	.1	.3	.3	.2	.3	.6	1.4	3.3	2.8	3.2

Note: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 8. Estimated bluefin tuna catches in numbers (,000), by size categories

	EAST ATLANTIC			WEST ATLANTIC				
Year	*TOTAL*	*< 6.4 kg*	*Percent < 6.4 kg*	*TOTAL*	*< 6.4 kg*	*Percent < 6.4 kg*	*< 120 cm*	*Percent < 120 cm*
1960	953	645	67.7	15	0	3.3	2	12.6
1961	1212	861	71.0	23	1	5.6	6	24.0
1962	963	683	70.9	177	7	4.2	66	37.0
1963	1993	1801	90.4	294	34	11.6	138	46.7
1964	870	613	70.5	236	21	8.8	98	41.5
1965	473	268	56.7	294	66	22.6	200	67.9
1966	1331	990	74.4	302	173	57.3	263	87.1
1967	1571	1279	81.4	178	16	9.0	150	84.5
1968	1066	870	81.6	74	5	6.9	60	81.6
1969	525	247	47.1	83	9	11.1	70	84.3
1970	352	176	50.0	327	68	20.9	301	92.0
1971	407	201	49.5	313	78	24.9	286	91.2
1972	462	148	32.1	192	47	24.7	178	92.7
1973	439	237	53.9	127	6	4.6	110	86.3
1974	644	321	49.8	123	57	46.1	100	81.0
1975	1288	836	64.9	225	44	19.7	205	91.2
1976	776	186	24.0	118	5	4.5	99	83.4
1977	922	475	51.6	87	1	1.5	45	51.2
1978	754	323	42.9	69	5	7.7	39	56.3
1979	362	127	35.2	66	3	4.0	31	47.3
1980	494	165	33.4	66	3	4.6	34	52.0
1981	655	171	26.1	67	5	7.1	35	52.7
1982	1240	461	37.2	16	4	22.6	9	57.3
1983				22	4	17.8	10	45.1
1984				21	1	4.4	10	49.4

Table 9. Estimated bluefin tuna catch (in MT) in the west Atlantic, by size categories. (Estimates were made from catch-at-length data.)

Year	*Total est. wt.*	*Est. wt. < 120 cm*	*% wt. < 120 cm*
1970	6337	3430	54.1
1971	6804	3331	49.0
1972	4427	1869	42.2
1973	4039	1365	33.8
1974	5691	863	15.2
1975	5591	1867	33.4
1976	6359	1614	25.4
1977	6359	791	12.4
1978	6079	670	11.0
1979	5918	540	9.1
1980	6683	593	8.9
1981	6764	605	8.9
1982	1636	106	6.5
1983	2785	121	4.3

Table 10. Annual nominal catch (in MT) of blue marlin (as of April 1, 1986)

Country	*Gear*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
North Atlantic total		1731	1924	1243	1171	848	775	934	1081	1487	954	1086
Benin	GILL	0	0	0	0	0	0	0	5	7	0	8
Benin	HS	0	0	0	0	0	0	0	1	1	0	1
China (Taiwan)	LLFB	183	105	169	64	81	51	160	98	100	106	74
Cuba	LL	516	594	250	220	97	156	162	178	318	273	214
Grenada	UNCL	0	0	0	**	**	**	++	**	29	2	3
Japan	LLHB	267	551	260	118	54	68	193	332	637	192	351
Korea	LLFB	385	304	174	307	185	67	45	70	18	25	137
Panama	LLFB	62	44	47	87	42	6	0	0	0	0	0
Portugal	BB	0	0	0	0	0	0	0	0	1	2	1
Spain	LLHB	0	0	0	0	0	0	0	0	0	0	3
U.S.A.	SPOR	234	241	265	295	295	295	295	295	295	187	187*
U.S.S.R.	LLMB	1	3	0	1	1	0	0	0	0	0	0
Venezuela	LL	83	82	78	79	93	132	79	102	81	167	107
South Atlantic total		1101	1106	948	915	524	499	551	430	832	496	945
Brazil	LLHB	16	12	22	0	12	12	12	0	1	1	11
Brazil	SURF	0	0	11	52	2	13	7	20	20	3	1
Brazil	SPOR	0	0	0	0	0	0	0	0	0	0	1
Brazil-Japan	LLFB	0	0	0	136	29	4	8	5	15	15	20
Brazil-Korea	LLFB	0	0	12	35	0	0	0	0	0	0	0
China (Taiwan)	LLFB	369	422	240	107	177	139	129	104	150	39	50
Cuba	LL	170	195	159	100	113	180	187	108	118	123	159
Ivory Coast	SURF	0	0	0	0	0	0	0	0	0	0	**
Japan	LLHB	17	57	4	17	15	66	115	136	495	248	482
Korea	LLFB	449	354	392	356	140	78	92	56	33	67	221
Panama	LLFB	72	51	107	103	32	7	0	0	0	0	0
South Africa	LLHB	0	0	0	0	0	0	1	0	0	0	0
U.S.S.R.	LLMB	8	15	1	9	4	0	0	1	0	0	0

Table 10. (cont.)

Country	*Gear*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Unclassified region total		0	0	0	0	0	0	0	213	281	145	50
France	PS	0	0	0	0	0	0	0	150	180	100	50
Spain	PS	0	0	0	0	0	0	0	63	101	45	0
Whole Atlantic total		2832	3030	2191	2086	1372	1274	1485	1724	2600	1595	2081

*Estimate made by rapporteur based on 1983 catch estimate.
**Likely catch of an unspecified amount.
++Catch less than 0.5 MT.

NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 11. Annual nominal catch (in MT) of white marlin (as of April 1, 1986)

Country	*Gear*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
North Atlantic total		1211	1084	1047	499	426	479	505	778	652	1377	703
China (Taiwan)	LLFB	248	84	142	44	79	62	105	174	130	203	52
Cuba	LL	256	294	68	67	43	68	70	189	205	728	241
Japan	LLHB	381	404	540	80	27	42	99	118	84	27	52
Korea	LLFB	90	71	64	71	33	16	12	48	12	28	18
Panama	LLFB	14	10	17	20	8	1	0	0	0	0	0
Spain	LLHB	0	0	0	0	0	0	0	0	0	0	9
U.S.A.	LL	0	0	0	0	0	0	0	0	0	20	39
U.S.A.	TROL	0	0	0	0	0	0	0	0	0	0	1
U.S.A.	SPOR	108	107	109	109	109	109	109	109	109	141	141*
U.S.A.	HAND	0	0	0	0	0	0	0	0	0	0	2
U.S.S.R.	LLMB	0	1	0	0	0	0	0	0	0	0	0
Venezuela	LL	114	113	107	108	127	181	110	140	112	230	148
South Atlantic total		536	488	765	478	511	533	450	352	439	295	396
Argentina	LL	++	2	2	2	0	0	0	0	0	0	0
Brazil	LLHB	36	31	31	12	20	17	32	31	23	41	52
Brazil	SURF	0	0	25	3	2	4	3	++	++	++	++
Brazil	SPOR	0	0	0	0	0	0	0	0	0	0	++
Brazil-Japan	LLFB	0	0	0	91	143	111	26	5	59	25	8
Brazil-Korea	LLFB	0	0	10	23	0	0	0	0	0	0	0
China (Taiwan)	LLFB	279	255	377	119	197	155	145	136	220	87	66

Table 11. (cont.)

Country	*Gear*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Cuba	LL	48	55	38	57	127	205	212	116	45	112	153
Japan	LLHB	9	14	3	26	14	15	7	25	27	17	24
Korea	LLFB	139	109	220	111	5	24	25	37	60	13	39
Panama	LLFB	22	16	59	31	1	2	0	0	0	0	0
Uruguay	LLHB	0	0	0	0	0	0	0	1	5	0	54
U.S.S.R.	LLMB	3	6	0	3	2	0	0	1	0	0	0
Whole Atlantic total		1747	1572	1812	977	937	1012	955	1130	1091	1672	1099

*Estimate made by rapporteur based on 1983 catch estimate.
**Likely catch of an unspecified amount.
++Catch less than 0.5 MT.
NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 12. Annual nominal catch (in MT) of sailfish/spearfish (as of April 1, 1986)

Country	*Gear*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
East Atlantic total		124	165	193	816	1729	2351	1517	1052	876	2824	2393
Benin	GILL	0	0	0	0	0	0	0	34	45	0	50
Benin	HS	0	0	0	0	0	0	0	2	3	0	3
Cape Verde	LL	0	0	0	0	0	0	0	0	3	0	0
Cuba	LL	0	0	0	0	0	0	0	0	158	200	115
Ghana	SURF	0	0	0	0	0	0	1191	449	16	2161	2067
Ghana	BBF	8	22	11	0	0	0	0	0	0	0	0
Ghana	GILL	0	0	0	638	1574	2246	0	0	0	0	0
Ivory Coast	SURF	0	0	0	0	0	0	0	0	0	0	**
Korea	BBF	0	0	14	0	0	0	0	0	0	0	0
Senegal	PS	0	0	0	0	0	0	0	0	32	0	0
Senegal	TROL	0	0	0	0	0	0	0	0	0	0	93
Senegal	SURF	74	75	91	72	71	28	264	442	540	412	20
Senegal	SPOR	33	61	76	93	79	77	62	88	69	49	41
Senegal	TRAW	0	0	0	0	0	0	0	0	0	2	0
Spain	LLHB	0	0	0	0	0	0	0	0	10	0	4
U.S.S.R.	LLMB	9	7	1	13	5	0	0	37	0	0	0
West Atlantic total		435	426	529	646	652	642	624	564	769	597	777
Brazil	LLHB	82	88	114	96	98	42	81	46	61	42	86
Brazil	SURF	0	0	62	119	90	84	87	55	53	8	4
Brazil	SPOR	0	0	0	0	0	0	0	0	0	0	37
Brazil-Japan	LLFB	0	0	0	0	41	26	12	++	7	7	1
Brazil-Korea	LLFB	0	0	10	41	0	0	0	0	0	0	0
Cuba	LL	0	0	0	0	0	0	0	0	181	28	169
Dominican Rep.	SURF	0	0	0	0	0	0	0	0	22	22	22*
Grenada	UNCL	0	0	0	**	**	40	30	34	30	16	25
Neth. Antilles	UNCL	28	28	28	28	51	51	51	51	51	51	51*
U.S.A.	SPOR	248	254	261	308	308	308	308	308	308	308	308*
Venezuela	LL	77	56	54	54	64	91	55	70	56	115	74

Table 12. (cont.)

Country	*Gear*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Unclassified region total		775	603	784	409	231	293	325	458	361	184	225
China (Taiwan)	LLFB	248	66	270	64	52	37	49	86	140	108	51
Cuba	LL	229	262	185	156	120	191	198	213	0	0	0
Japan	LLHB	137	150	137	47	20	39	55	94	173	69	97
Korea	LLFB	139	109	151	111	32	24	23	65	48	7	77
Panama	LLFB	22	16	41	31	7	2	0	0	0	0	0
Whole Atlantic total		1334	1194	1506	1871	2612	3286	2466	2074	2006	3605	3395

*Estimate made by rapporteur based on 1983 catch estimate.
**Likely catch of an unspecified amount.
++Catch less than 0.5 MT.
NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 13. Annual nominal catch (in 1,000 MT) of Atlantic swordfish (as of April 1, 1986)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
TOTAL	*12.6*	*13.2*	*13.4*	*13.6*	*13.0*	*13.4*	*18.6*	*18.3*	*20.9*	*17.0*	*21.8*	*22.8*	*25.9*
Atlantic	7.1	8.8	8.8	9.7	8.8	8.5	13.1	13.2	15.5	11.3	16.5	16.9	19.9
Brazil	.1	.1	.3	.3	.4	.4	.3	.4	1.5	.6	1.0	.8	.5
Canada	0.	0.	0.	.0	.0	.1	2.3	3.0	1.9	.6	.6	1.1	.5
China (Taiwan)	.7	1.1	.8	.9	.9	.7	.6	1.3	.6	.5	.6	.4	.3
Cuba	.1	.5	1.1	.5	.6	.7	.6	.4	.6	.4	.7	1.2	1.4
Japan	1.8	1.0	1.4.	1.5	.8	.8	.9	1.0	2.1	2.2	3.7	1.9	3.8
Korea	.4	1.0	.7	.5	1.1	1.2	1.3	.6	.7	.4	.7	.5	.4
Panama	.0	.4	.1	.1	.3	.1	.2	.1	0.	0.	0.	0.	0.
Spain	3.2	3.8	2.9	3.7.	2.8	3.3	3.6	2.6	3.8	4.0	4.6	7.1	6.3
U.S.A.	.2	.4	1.1	1.7	1.4	.9	3.0	3.4	3.6	2.1	3.7	2.1	3.8
Uruguay	0.	0.	0.	0.	0.	0.	0.	0.	0.	.1	.7	1.5	2.5
U.S.S.R.	.2	.2	.1	.3	.2	.1	.2	.1	.2	.0	.1	.0	.2
Others	.2	.2	.1	.1	.2	.2	.1	.4	.5	.2	.3	.3	.3
Mediterranean	5.5	4.4	4.6	3.9	4.2	4.9	5.5	5.1	5.4	5.7	5.3	5.9	6.1
Algeria	0.	.1	.2	.5	.4	.4	.3	.5	.7	.8	.9	.9	1.0
Italy	3.7	2.8	3.3	3.0	3.3	3.3	4.0	3.5	3.7	3.4	2.6	2.7	2.9
Malta	.2	.2	.2	.2	.2	.2	.1	.1	.2	.2	.2	.1	.1
Morocco	.2	.2	.2	.1	.2	.1	.2	0.	0.	0.	0.	.0	.0
Spain	1.3	1.1	.7	.1	.1	.7	.7	.8	.8	1.1	.9	1.3	1.2
Others	.1	.1	.0	.0	.1	.2	.1	.2	.1	.2	.7	.8	.8

Note: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 14. Atlantic and world southern bluefin catches, by gear, area and country (in MT) (as of April 1, 1986)

	1974	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Total Atlantic	*2,664*	*637*	*745*	*3,168*	*4,680*	*6,203*	*2,823*	*2,569*	*1,138*	*514*	*1,639*
By gear											
Longline	2,662	637	745	3,168	4,680	6,203	2,810	2,563	1,138	514	1,639
Baitboat	1	0	0	0	0	0	13	6	0	0	0
Sport	1	0	0	0	0	0	0	0	0	0	0
By country											
China-Taiwan	104	1	53	0	29	11	22	57	3	9	3
Japan	2,558	636	692	3,168	4,651	6,192	2,788	2,506	1,135	505	1,636
South Africa	2	0	0	0	0	0	13	6		0	0
World (all oceans)											
Longline	33,924	24,118	33,714	29,595	22,974	27,715	33,364	28,056	20,809	24,735	22,974
Surface	13,206	8,050	7,535	13,906	11,784	10,955	13,647	16,647	21,501	17,807	15,920
Total	47,130	32,168	41,249	43,501	34,758	38,670	47,011	44,703	42,310	42,542	38,894

Source for "World" section: Report of the Fourth Tripartite Scientific Meeting on Southern Bluefin Tuna, Wellington, July 1985, and Statistical Bulletin, 1984 (Prov.).
NOTE: This table was updated after the SCRS Report was written, hence there could be slight discrepancies between figures shown in the table and the text.

Table 15. Nominal reported catches (in 1,000 MT) of Atlantic small tunas (as of April 1, 1986)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Blackfin tuna (*T. atlanticus*)													
Total.	1.9	.9	1.1	.8	1.0	1.2	1.3	1.1	1.1	1.8	1.8	1.6	1.7
Mediterranean. . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic.	1.9	.9	1.1	.8	1.0	1.2	1.3	1.1	1.1	1.8	1.8	1.6	1.7
Atlantic little tuna (*E. alletteratus*)													
Total.	2.9	2.4	5.1	4.2	3.9	6.2	16.6	13.1	17.7	13.4	12.8	23.0	16.2
Mediterranean. . .	.7	.8	.9	1.0	1.5	1.5	1.5	1.3	1.0	.2	1.0	.1	.2
Atlantic.	2.2	1.5	4.2	3.1	2.4	4.7	15.1	11.8	16.7	13.2	11.9	22.8	15.9
Atlantic bonito (*S. sarda*)													
Total.	25.0	12.3	21.4	15.6	16.0	20.7	17.1	20.0	31.4	42.9	44.2	42.6	20.9
Mediterranean. . .	16.2	6.3	7.7	6.0	6.5	8.7	9.2	13.5	18.9	32.8	31.2	35.6	14.7
Atlantic.	8.8	6.1	13.7	9.6	9.5	12.0	7.9	6.5	12.5	10.0	13.0	7.0	6.2
Frigate tuna (*A. thazard*)													
Total.	13.4	10.1	13.9	10.2	9.4	19.2	7.2	11.3	14.7	9.4	12.9	13.6	17.5
Mediterranean. . .	3.3	3.5	4.3	2.4	2.9	2.6	3.0	3.2	3.5	2.9	3.3	3.7	4.0
Atlantic.	10.2	6.6	9.6	7.9	6.5	16.6	4.2	8.1	11.2	6.5	9.5	9.9	13.6
King mackerel (*S. cavalia*)													
Total.	7.4	9.7	13.6	9.0	8.3	7.7	6.4	7.4	7.4	8.5	10.7	8.5	6.4
Mediterranean. . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic.	7.4	9.7	13.6	9.0	8.3	7.7	6.4	7.4	7.4	8.5	10.7	8.5	6.4
Spotted Spanish mackerel (*S. maculatus*)													
Total.	16.8	20.0	21.0	18.1	14.6	15.4	15.0	14.6	18.1	15.0	16.4	14.2	13.1
Mediterranean. . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic.	16.8	20.0	21.0	18.1	14.6	15.4	15.0	14.6	18.1	15.0	16.4	14.2	13.1

Table 15. (cont.)

	1972	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Cero (*S. regalis*)													
Total.	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Mediterranean. . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic.	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
West African Spanish mackerel (*S. tritor*)													
Total.	2.1	1.6	4.7	1.1	1.9	2.6	6.7	4.2	4.9	2.6	5.0	5.2	4.3
Mediterranean. . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic.	2.1	1.6	4.7	1.1	1.9	2.6	6.7	4.2	4.9	2.6	5.0	5.2	4.3
Scomberomorus Unclassified (*Scomberomorus spp.*)													
Total.	1.0	1.2	1.0	1.3	1.0	1.0	1.0	.9	.8	1.0	1.1	1.0	1.5
Mediterranean. . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic.	1.0	1.2	1.0	1.3	1.0	1.0	1.0	.9	.8	1.0	1.1	1.0	1.5
Wahoo (*A. solandri*)													
Total.	.3	.2	.3	.2	.3	.3	.4	.5	.5	2.8	2.0	2.1	1.9
Mediterranean. . .	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Atlantic.	.3	.2	.3	.2	.3	.3	.4	.5	.5	2.8	2.0	2.1	1.9
Others													
Total.	16.5	8.1	8.4	13.2	10.9	12.8	9.8	8.8	16.2	14.4	12.3	10.0	11.5
Mediterranean. . .	.5	.5	.4	.8	.5	.6	.6	.3	2.0	1.5	1.6	1.3	1.4
Atlantic.	15.9	7.6	7.9	12.4	10.4	12.2	9.2	8.5	14.3	12.9	10.7	8.7	10.1
TOTAL.	87.3	66.6	90.6	73.9	67.3	87.3	81.6	81.8	112.9	112.0	119.2	121.8	95.2
Mediterranean. . .	20.7	11.0	13.4	10.2	11.5	13.4	14.3	18.3	25.4	37.4	37.1	40.8	20.3
Atlantic.	66.6	55.6	77.2	63.7	55.8	73.9	67.3	63.6	87.5	74.5	82.2	81.0	74.9

Table 16. Species interaction in some Atlantic fisheries

Target Species	*Significant Secondary Species*	*Location*	*Season*	*Gear/Country*	*Special Fishing Procedures*
East Atlantic					
YFT	BET, BFT, ALB, SKJ	Azores	Jun.-Aug.	PS/Portugal	
BET	SKJ, ALB	Azores	May-Oct.	BB/Portugal	
SKJ	YFT, BET	Gulf of Guinea	Jan.-Dec.	BB/Ghana	
SKJ	YFT, BET	Gulf of Guinea	Jan.-Dec.	PS/FISM	
YFT	SKJ, BET	Gulf of Guinea	Jan.-Dec.	PS/Spain	
BET	BFT, SWO	Madeira	Mar.-Jun.	LL/Japan	
BFT	BET, SWO	Portugal	Mar.-Jun.	LL/Japan	
YFT	BET, SKJ	Senegal	May-Nov.	BB/FISM	
West Atlantic					
SWO	BFT	Gulf of Mexico, U.S.A.	Feb.-May	LL/U.S.A.	Night set
YFT	WHM, BUM[1]	Gulf of Mexico, U.S.A.	Jan.-Aug.	LL/U.S.A.	
BET	YFT, WHM[1]	NW, U.S.A.	Aug.-Nov.	LL/U.S.A.	
BET	BFT, ALB	NW, Canada, U.S.A.	Oct.-Feb.	LL/Japan	
Tropical Atlantic					
BET	YFT, BIL	20°N-10°S	Jan.-Dec.	LL/Japan, Korea	Deep set
YFT	BET, BIL	20°N-10°S	Jan.-Dec.	LL/Korea	
ALB	YFT, BET, BIL	20°N-10°S	Jan.-Dec.	LL/Taiwan	
Mediterranean					
SWO	BFT[1]	Spain	Jan.-Dec.	LL/Spain	Night set

1 Significant catches of sharks are made in these longline fisheries but are not listed because shark stocks are not monitored by ICCAT.

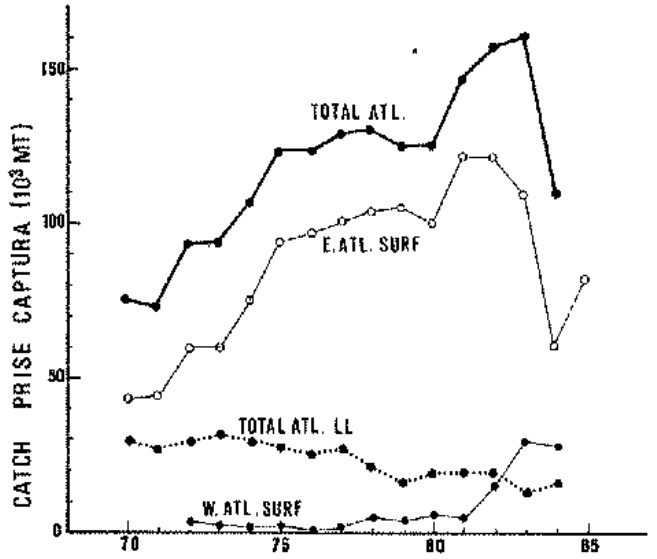

Fig. 1. Yellowfin catch in the total Atlantic, by surface in the east and west Atlantic, and total Atlantic longline gears (1985 is estimated).

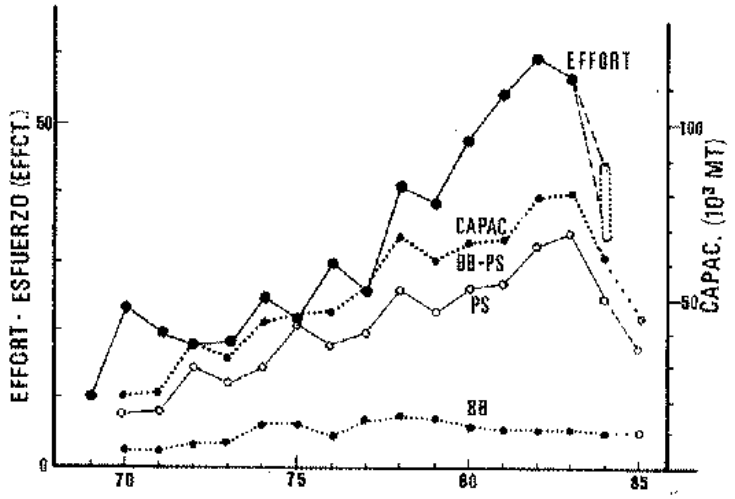

Fig. 2. Comparison of carrying capacity (1,000 MT) of surface fisheries and effective fishing effort (in 1,000 days at sea) for yellowfin in the east Atlantic. (The range for effective effort in 1984 and carrying capacity for 1985 is estimated.
(Source: SCRS/85/75.)

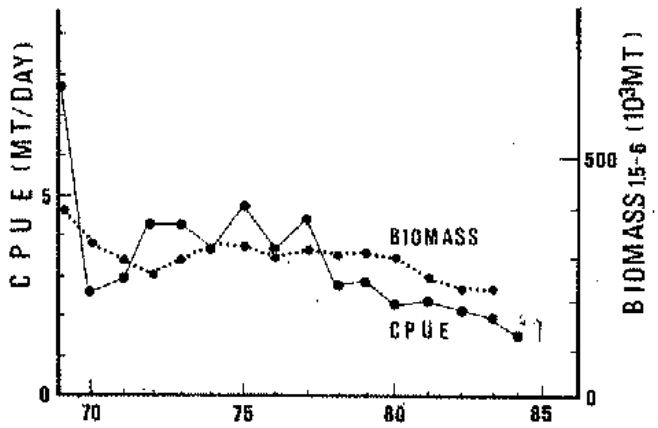

Fig. 3. Development of two abundance indices—CPUE (MT/day) and biomass of age 1.5 to 6 fish estimates (in MT)—of east Atlantic yellowfin.
(Sources: JTT/84/12-Rev. and SCRS/85/75).

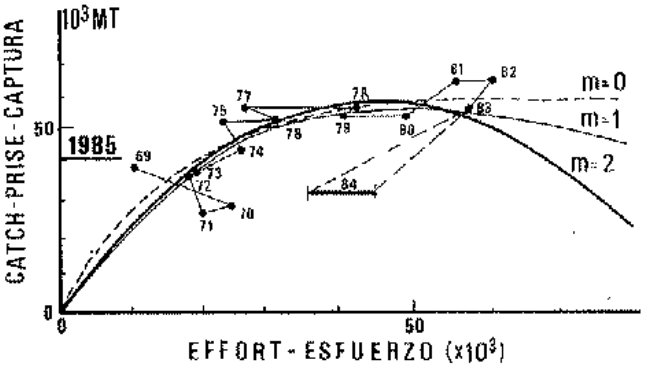

Fig.4. Production model for eastern Atlantic yellowfin. Estimated level of 1985 catch is indicated on the y axis. The range of possible values of 1984 effort is indicated by a horizontal bar.

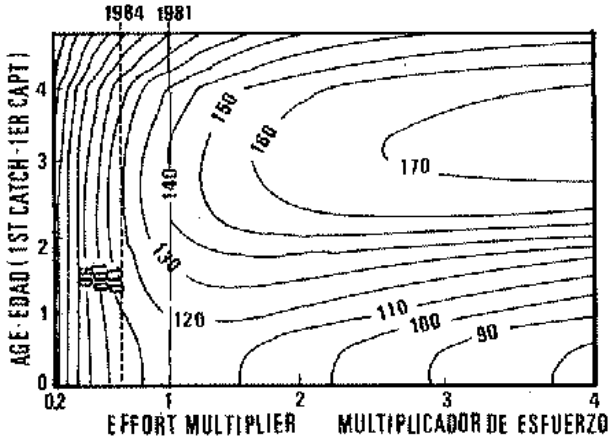

Fig.5. Production isopleths calculated by using the Ricker model: production estimated for the east Atlantic yellowfin fisheries, under 1981 fishing mortality level. A rough indication of the fishing effort for 1984 is provided for comparison. (Source: JTT/84/12-Rev.)

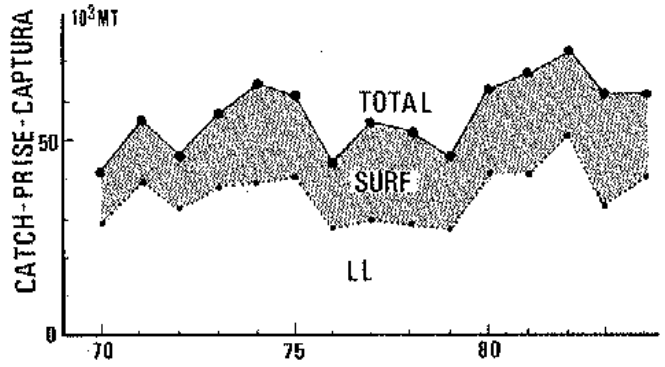

Fig. 6. Catch trends of Atlantic bigeye tuna by surface and longline fishery, 1970-84.

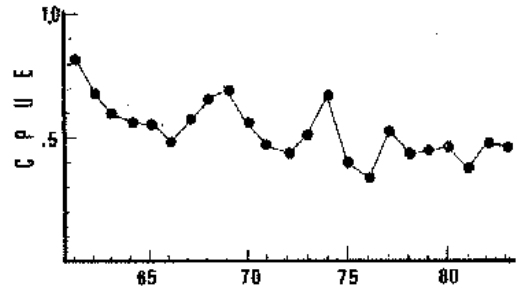

Fig. 7. Annual change in CPUE (No. of fish per 100 hooks) of the Japanese longline fishery in the total Atlantic, 1961-83. Deep longline efforts for 1980-83 were adjusted in terms of effective effort.

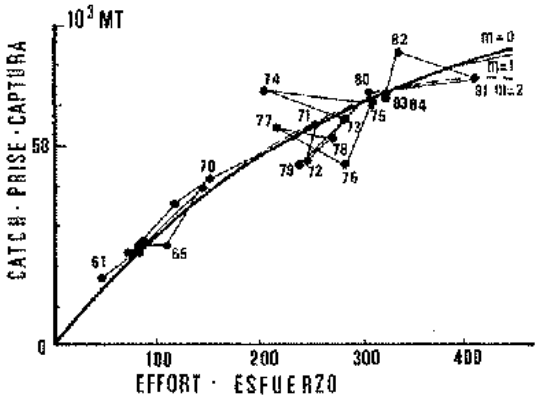

Fig. 8. Yield curves obtained from the production model analysis for bigeye tuna in the total Atlantic, 1961-84.

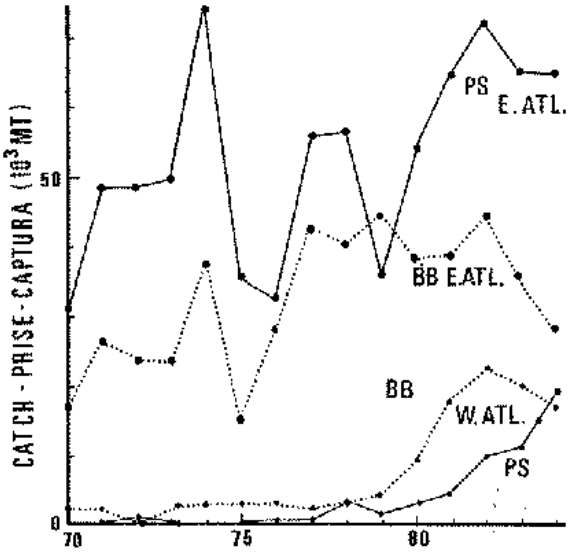

Fig. 9 Atlantic skipjack catches by purse seiners (PS) and baitboats (BB) by year.

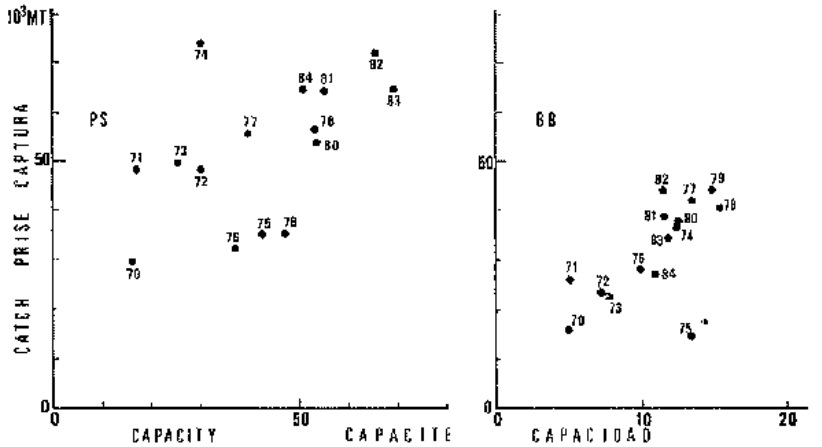

Fig. 10. Relationship of skipjack catch to fishing effort (carrying capacity) in the east Atlantic. (*Many baitboats curtailed fishing in 1975.)

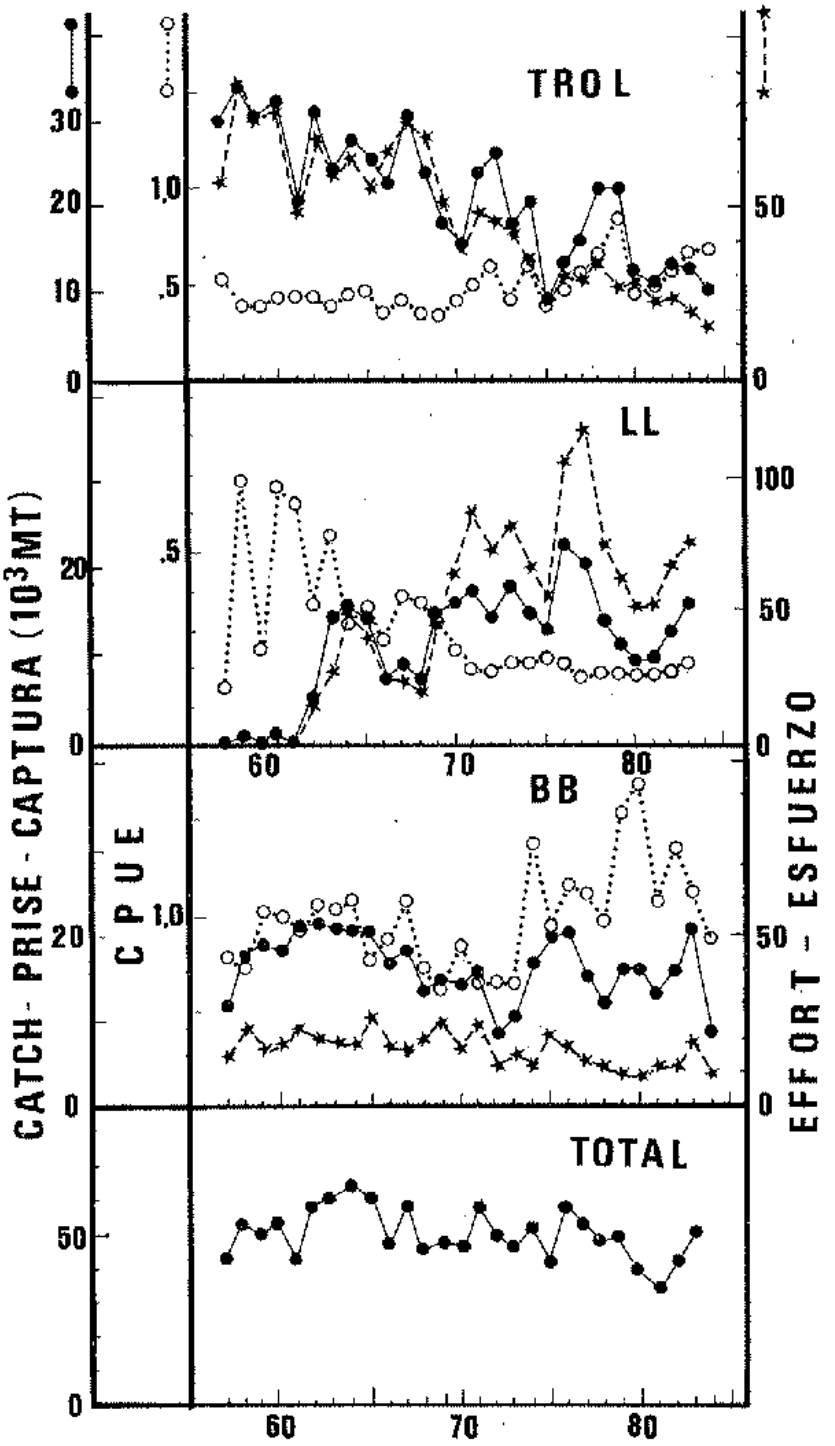

Fig. 11. Catch (in 1,000 MT), effort (in fishing days or 1,000 hooks), and CPUE of north-east Atlantic albacore fisheries, by gear.

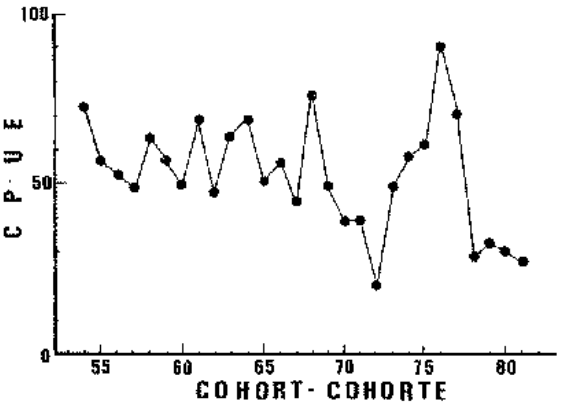

Fig. 12. CPUE (No. of fish per nominal fishing day) of age 3 albacore in the northeast Atlantic fisheries (BB and TROL). The 1980 cohort is based only on the Spanish surface fishery.

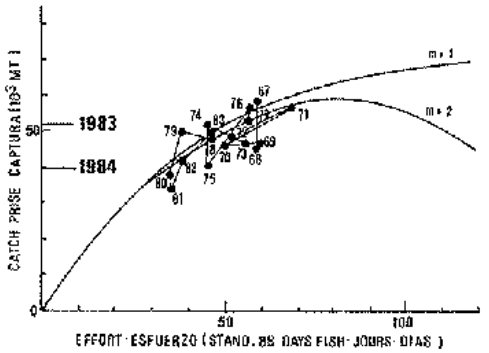

Fig. 13. Results of fitting the production model to the North Atlantic albacore stock. The 1983 and 1984 catch levels are indicated for reference.

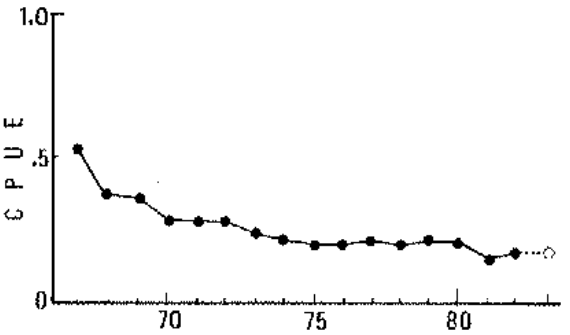

Fig. 14. Longline CPUE of south Atlantic albacore.

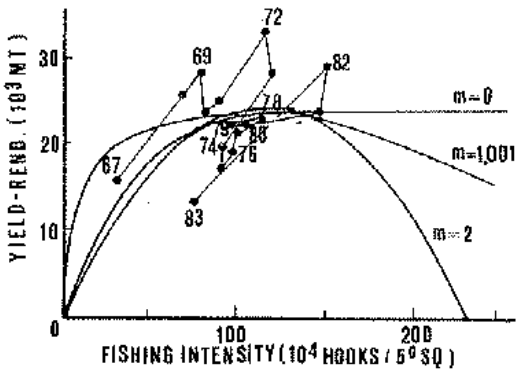

Fig. 15. Results of fitting the production model to the south Atlantic albacore population. Fishing intensity is expressed in 10^4 hooks per 5^o square. (The 1984 catch level is indicated for reference.)

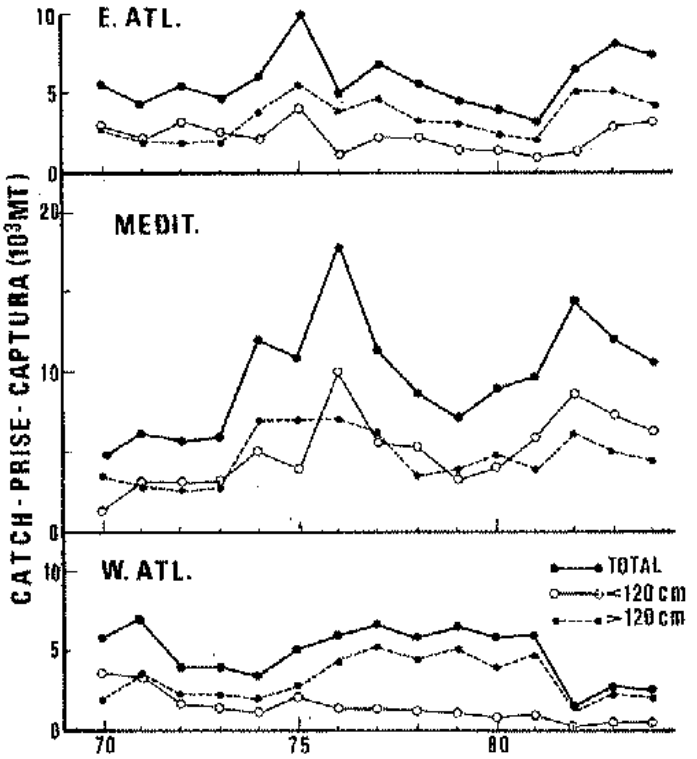

Fig. 16. Catches (in weight) of bluefin tuna, small and large fish, for the west Atlantic, east Atlantic and Mediterranean Sea. Data for 1984 are incomplete.

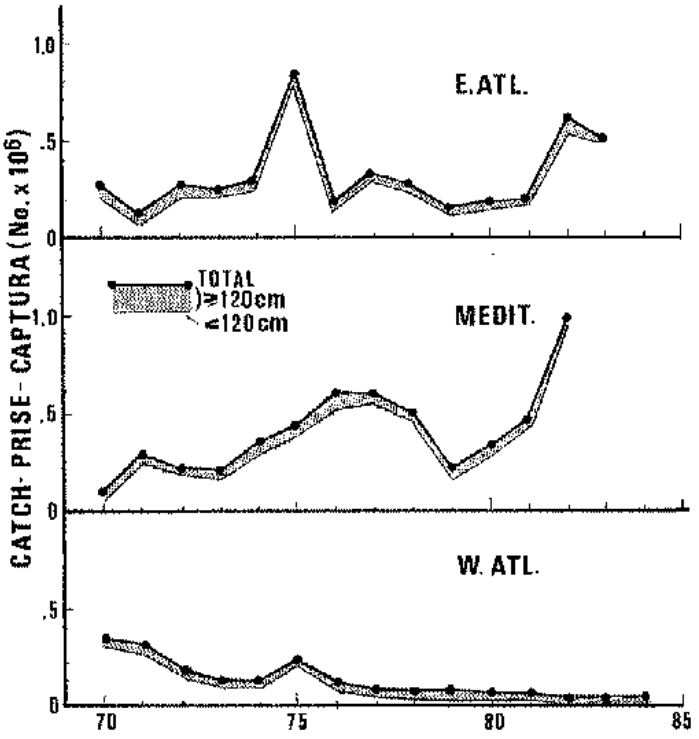

Fig. 17. Catches (in number of of fish) of bluefin tuna for small fish (less than 120 cm) and total for the east Atlantic (excluding Mediterranean), Mediterranean and west Atlantic. (Data for 1984 are incomplete.

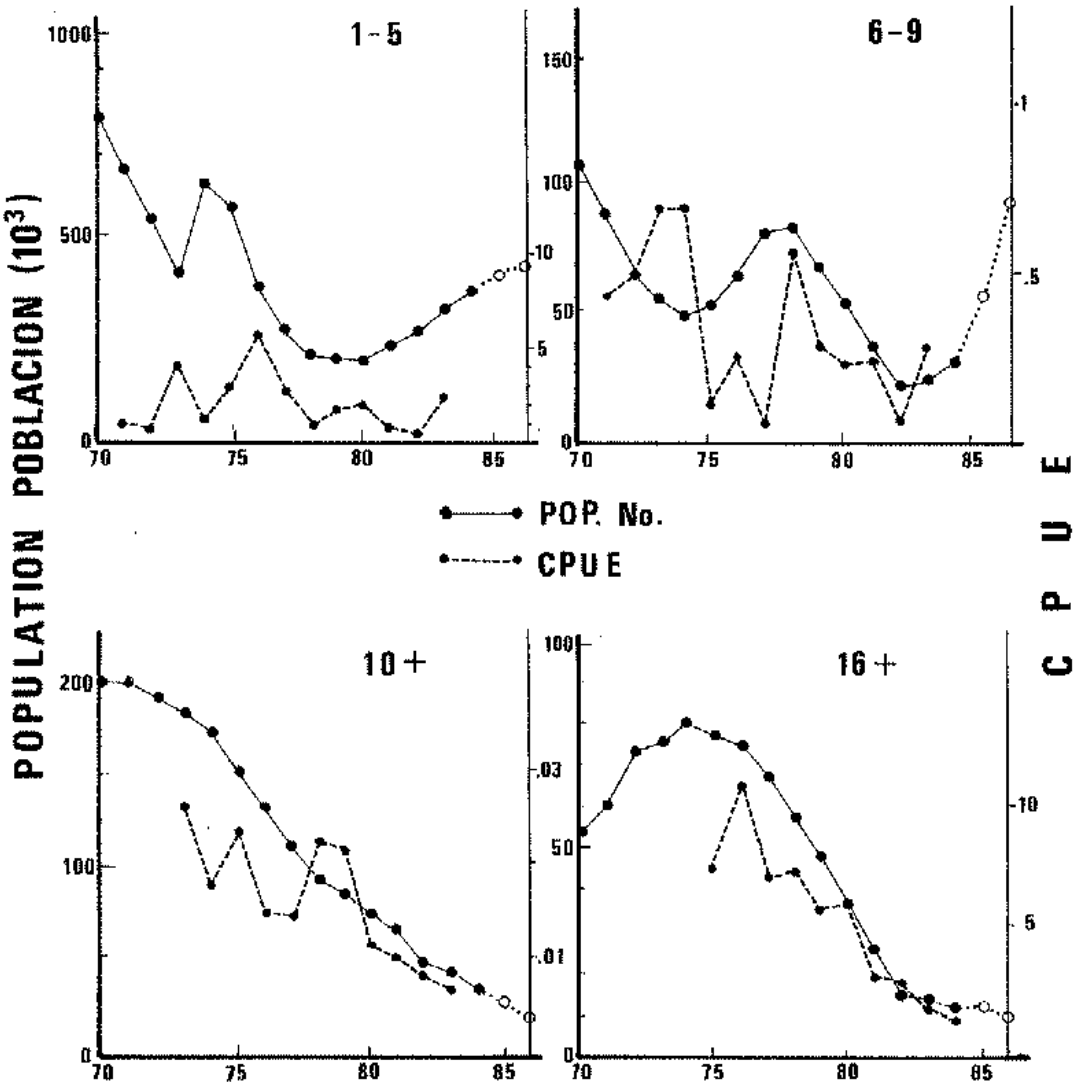

Fig. 18. Trends in population numbers of west Atlantic bluefin tuna from SPA and CPUE. (Projections of population sizes after 1984 are without catch and age information and are shown by the dotted line.

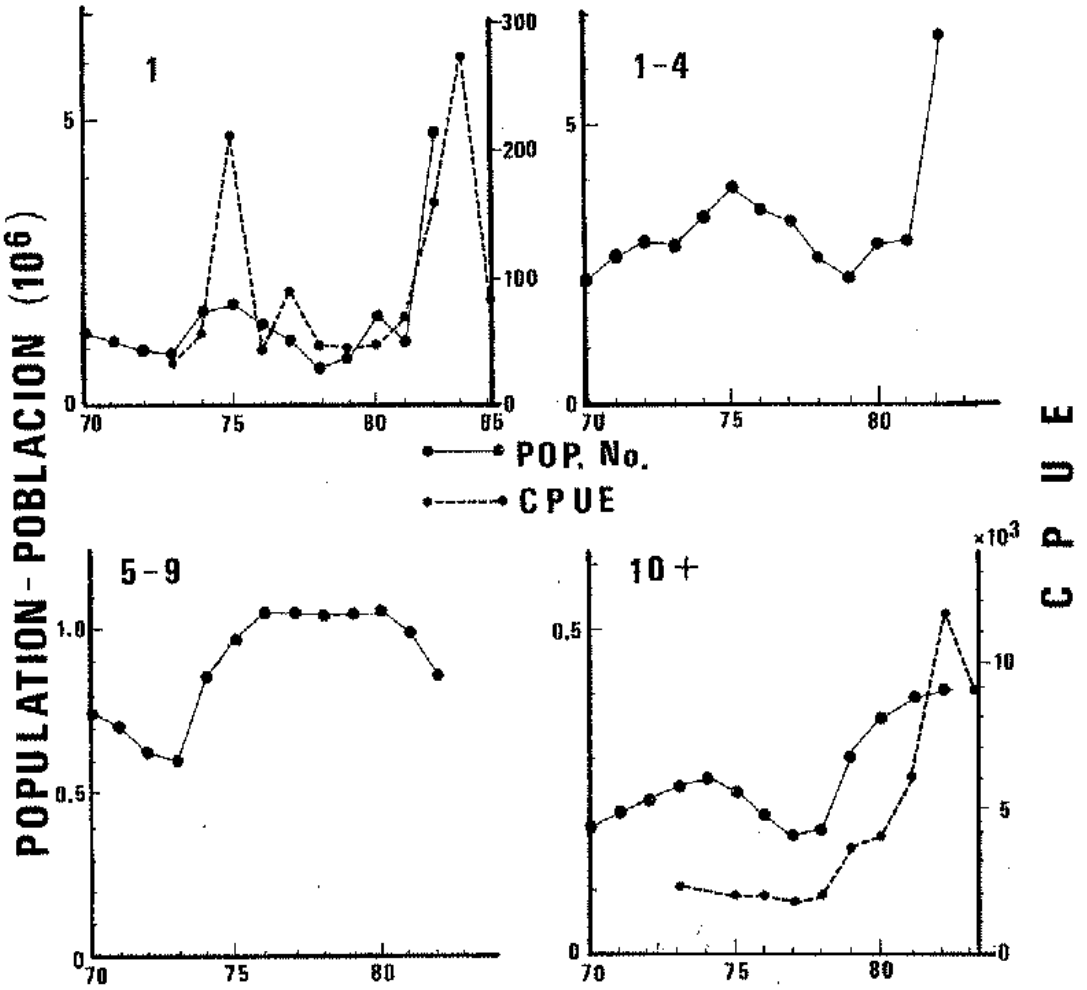

Fig. 19. Trends in population numbers of east Atlantic bluefin tuna from SPA and CPUE.

Appendix 1 to Annex 10

1985 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. Review of the Report of the Working Group on Bluefin Tuna
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
   BIL-Billfishes and SWO-Swordfish
   SBF-Southern Bluefin
   SMT-Small Tunas
   MLT-Multi-species: Tropical and Temperate

9. Review of the progress of the skipjack publication
10. Report of the Planning Committee for the Yellowfin Year Program
11. 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) Considerations for the future of the Secretariat computer system
    f) Exchange of computer programs
    g) ICCAT/FAO data comparison
    h) Consideration of new Statistical Bulletin for 1970-79
    i) Review of the ICCAT Port Inspection Form
    j) Others

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 the Chairman
18. Adoption of Report
19. Adjournment

Appendix 2 to Annex 10

List of SCRS Documents

SCRS/85/

1 1985 SCRS Agenda

2 1985 SCRS Annotated Agenda

3 1985 SCRS Schedule

4 1985 Agenda of the Sub-Committee on Statistics

5 Organization of the 1985 SCRS Meeting

6 1985 Document Policy

7 Report of the Planning Committee for the Yellowfin Year Program

8 Statistical Bulletin for 1970-1979

9 A proposal for exchange of computer programs between laboratories - P. M. Miyake

10 Secretariat Report on Statistics and Coordination of Reserch

11 Report of the Meeting of the Working Group on Bluefin Tuna (Miami, U.S.A., September 18-28, 1985)

12 Comparative study on the acquisition of a new computer system - P. M. Miyake, P. Kebe

13 Comparison of ICCAT and FAO tuna data bases - P. M. Miyake

14 Proposal for inter-regional agencies meeting for improvement of world tuna statistics - P. M. Miyake

15 Probable underestimates and misreporting of Atlantic small tuna catches, with suggestions for improvement - J. P. Wise

16 Analysis of levels of sampling for catch and effort by species and country in the ICCAT Task II data base, 1976-83 - J. P. Wise

17 Whither the ICCAT "Article IV" publications? History, projections to the year 2000, and some recommendations for management - J. P. Wise

18 Review of levels of sampling in Atlantic fisheries for tunas and tuna-like fishes - J. P. Wise

19 Number not used.

20 Updating of bluefin tuna catch-by-size data base - P. M. Miyake, D. DaRodda

21 Bluefin fishery in the Portuguese Exclusive Economic Zone - M. Azevedo, M. Carmo Gomes

22 Situación de la pesca del atún rojo (*Thunnus thynnus*, L.) juvenil del atlántico este - J. L. Cort

23 Catch and effort in the Canadian inshore bluefin tuna fishery - D. Clay

24 Catch-at-age and estimates of growth of Canadian bluefin tuna - D. Clay, T. Hurlbut

25 Bluefin tuna statistics (inshore and offshore) within Canada's fishing zone (1981-1984) - D. Clay, A. Sinclair

26 Review of the monitoring system of bluefin tuna in the western Atlantic T. Yonemori

27 Comments on the recent assessment work of Atlantic bluefin tuna - T. Nagai

28 CPUE analysis of the Atlantic bluefin tuna up to 1983 - Z. Suzuki

29 Stock abundance of the Atlantic bluefin tuna in the Gulf of Mexico - T. Matsumoto, M. Honma, T. Nagai, Y. Ishizuka, I. Warashina

30 Fishing conditions of the Japanese longliners in the western Atlantic during 1982-1985 - T. Nagai

31 Bilan de la campagne thonière au large des côtes francaises de Méditerranée en 1984 - B. Liorzou

32 Distribution and abundance of bluefin tuna (*Thunnus thynnus*) larvae in the Gulf of Mexico in 1982 and 1983 with estimates of the biomass and population size of the spawning stock for 1977, 1978, and 1981-1983. - M. F. McGowan, W. J. Richards

33 An analysis of recaptures of tagged bluefin with respect to the mixing assumption - S. C. Turner

34 Evaluation of hydro-acoustics as a means to assess spawning stocks of bluefin tuna in the Gulf of Mexico - D. S. Freeze, T. M. Vanselous

35 A method of analyzing catches and abundance indices from a fishery - M. L. Parrack

36 Chemical variability and stock variation in northern Atlantic bluefin tuna - J. R. Calaprice

37 La pesquería española de atún blanco en el Mediterráneo. Año 1984 - J. A. Camiñas, E. Alot, A. Ramos

38 Análisis de la CPUE del pez espada (*Xiphias gladius*) del area bill-95 en el año 1984 - J. A. Camiñas, E. Alot, A. Ramos

39 Las pesquerías españolas de pequeños túnidos en el Mediterráneo - J. A. Camiñas, A. Ramos, E. Alot

40 Campaña de marcado de atunes en el Golfo de Vizcaya en 1985 - J. L. Cort

41 Data on reproduction of Atlantic little tuna in the tropical West African waters - G. P. Rudomiotkina

42 Premières pêches palangrières de surface à l'espadon (*Xiphias gladius*) au Sénégal (1983-1984): prises, rendements et structure en taille des captures A. Caverivière, P. Cayré

43 Commentaires sur les migrations de l'albacore (*Thunnus albacares*) en Atlantique Est - F. X. Bard, P. Cayré

44 Résultats des campagnes de marquage de thonidés tropicaux menées par la Côte d'Ivoire (1983-1984) - F. X. Bard, J. B. Amon Kothias

45 Données sur les germons (*Thunnus alalunga*) pêchés à la senne dans l'Atlantique Tropical Est - F. X. Bard, J. B. Amon Kothias

46 Analyse des débarquements des thonidés mineurs et poissons porte-épée en Côte d'Ivoire en 1984-1985 - J. B. Amon Kothias

47 Note sur l'échantillonnage plurispécifique des thons tropicaux au port d'Abidjan - F. X. Bard, Ph. Vendeville

48 Rapport sur la pêche et la recherche thonière au Sénégal en 1984-1985 - P. Cayré

49 Japanese tuna fishery and research in the Atlantic, 1984-85 - S. Kume

50 Production model analysis on Atlantic bigeye tuna - S. Kume

51 National Report of the United States - NMFS

52 National Report of Canada - D. Clay

53 Ghana Tuna National Report, 1984 - M. A. Mensah

54 Campaña de marcado "Listado 8509" en aguas de Canarias - A. Santos Guerra, C. García-Ramos

55 Relación talla/peso de la melva (*Auxis thazard*) para el Atlántico y Mediterráneo - A. Ramos, E. Alot, J. A. Camiñas

56 Les ressources thonières des Petites Antilles - J. Marcille

57 Comparison between the indices of stomach fullness of living and distressed specimens of bigeye tuna - V. Z. Gaikov, Yu. P. Fedoseev

58 Studies of frigate tuna (*Auxis thazard*, Lacepede) age and growth in the eastern part of the equatorial Atlantic - M. E. Grudtsev, L. I. Korolevich

59 The influence of temperature and biotic factors on vertical distribution of big-eye tuna (*Thunnus obesus*) in the Atlantic Ocean - V. Z. Gaikov, Yu. P. Fedoseev

60 On the analysis of the population structure of skipjack (*Katsuwonus pelamis* L.) from the eastern part of the tropical Atlantic Ocean - N. V. Titova

61 Análisis de la pesquería española de pez espada (*Xiphias gladius*) del Atlántico, 1984 - A. González-Garcés

62 National Report of the Republic of Korea

63 Length composition of bigeye tuna caught by Madeiran baitboat fishery, 1979-1984 - L. Gouveia

64 Informe sobre la pesca e investigación española de túnidos en 1984 y 1985 - A. González-Garcés

65 Análisis de la situación de la población de atún blanco (*Thunnus alalunga*) del Atlántico norte, 1984 - A. González-Garcés, J. Mejuto

66 Note sur les indices d'abondance de l'albacore calculés a partir des p.u.e. des flottilles FISM et espagnole - A. Fonteneau

67 Analysis on *Tetrapturus albidus* Poey (1861), caught off south and southeast of Brazil (1971-1984) - C. A. Arfelli, A. Ferreira de Amorim, J. C. Galhardo-Amado

68 Interpretation of longline hook rates - D. Au

69 Significance of changes in catch and fishing effort in the eastern Atlantic yellowfin tuna fishery - D. Au

70 Sizes and species composition of Atlantic tuna imports landed in Puerto Rico, 1984 - A. Coan, A. Weinfield, E. Holzapfel

71 An assessment of the status of stocks of swordfish in the northwest Atlantic Ocean - R. Conser, P. L. Phares, J. J. Hoey, M. I. Farber

72 Estimación de la edad y crecimiento del patudo (*Thunnus obesus*, Lowe, 1939) capturado en las Islas Canarias - A. Delgado de Molina, J. C. Santana

73 Statistiques de la pêcherie thonière FISM durant la période 1969 à 1984 P. Cayré, A. Fonteneau, T. Diouf

74 Variabilité des rendements en albacore (*Thunnus albacares*) et listao (*Katsuwonus pelamis*), en relation avec les anomalies interannuelles de la température de surface - P. Cayré, C. Roy

75 Analyse de l'état du stock d'albacore atlantique au 30 septembre 1985 - T. Diouf

76 Collecte et traitement des données statistiques concernant la thonine au Sénégal: étude de la pêcherie artisanale de traîne de Yoff et extension des résultats à l'ensemble des pêcheries sénégalaises - T. Diouf

77 Les petits thonidés pêchés par la flottille espagnole de 1980 à 1983 - T. Diouf, J. C. Rey

78 Marquage de petits thonidés au Sénégal en 1985 - T. Diouf

79 Analyse de l'exploitation de quelques concentrations d'albacore par les senneurs durant la période 1980-1983, dans l'Atlantique est - A. Fonteneau

80 Aspects of fishing effort of Korean tuna longline fishery exerted to the Atlantic yellowfin and bigeye tuna - J. U. Lee

81 Captures de jeunes albacores (*Thunnus albacares*) aux Açores - J. Pereira

82 Composition spécifique des bancs de thonidés pêchés à la senne, aux Açores - J. Pereira

83 Report on statistics and scientific research of Atlantic tunas conducted by the U.S.S.R. in 1984-1985 - Yu. A. Vialov, V. V. Ovchinnikov

84 Résumé de la situation de la pêche aux thonidés Republique du Cap Vert, 1985 - H. Santa Rita Vieira

Appendix 3 to Annex 10

SCRS/85/7 (Revised)

Report of the Planning Committee for the Yellowfin Year Program

The Planning Committee for the Yellowfin Year Program met on November 2-4, 1985, at the Hotel de Mar Sol, Palma de Mallorca, under the chairmanship of Dr. A. Fonteneau. The participants were Messrs. A. Fonteneau, F. X. Bard, P. Soisson, P. Kleiber, S. Kume, A. González-Garcés, J. Ariz, J. Pereira, P. Cayré, T. Diouf, J. P. Wise, and P. M. Miyake. Dr. P. Kleiber served as rapporteur.

1. Introduction

Assessments of the status of yellowfin stocks in the Atlantic have been regularly reported to ICCAT for many years. These assessments have been primarily based on analyses of catch and effort data. In the east Atlantic during the last decade, effort has increased considerably with little or no increase in catch. Production model analysis shows that effort levels from 1980 to 1983 were at or above the level of maximum sustained yield (Figure 1). On the basis of similar analyses and more detailed analyses of catch at size, ICCAT recommended that a minimum size limit be imposed in order to maintain yield from the fishery which appeared to be close to the maximum sustainable yield level.

Starting in 1983, overall effort in the east Atlantic declined markedly due to the movement of purse seiners (primarily FIS) from the eastern tropical Atlantic to the Indian Ocean (Figure 1). The catch also declined markedly and it appears that the system is in a state of disequilibrium. If effort is maintained at the current level, the system should approach equilibrium again; that is, the abundance should increase and so should the catch. The rate at which equilibrium is approached can help measure some imprecisely known parameters of yellowfin population dynamics.

To take advantage of this unique opportunity, a committee was formed at the 1984 SCRS Meeting to make a proposal for appropriate research activities. This is the report of that committee. The goal of our proposed research is to deepen our understanding of yellowfin population dynamics and thereby improve our ability to make wise recommendations for management of this important resource.

Besides the unique opportunity offered to understand how the stock reacts to the spectacular drop in effort now being observed, the Program would better define the serious problems that are still poorly resolved, such as:

- To determine the real usefullness of having a size-limit regulation for Atlantic yellowfin.
- To determine if there is one or more yellowfin stocks in the Atlantic.
- To better estimate the catch potential in the west Atlantic which is presently unknown.

2. Planned activities

2.1 Catch and effort data

It is important that detailed and reliable data on catch at size and effort continue be collected. These are the only pertinent data that have been collected consistently prior to the decline in effort. They are therefore among the few types of data that will allow direct before-and-after comparisons to be made. Collection of detailed catch and effort data is also important in relation to the proposed tagging activity which will be discussed below. Without such data the full benefit of tagging cannot be realized.

The quality of catch-at-size and effort data for Atlantic yellowfin has been improving steadily for the east Atlantic and is currently very good. The complex job of maintaining these high standards of detail, reliability and timeliness is properly the function of the Sub-Committee on Statistics. However, we wish to emphasize that such high quality should continue. In addition, special attention should be given to the fact that the composition of the overall fleet has changed now that FIS purse seiners are no longer the major component. Therefore, previous sampling priorities may need to be adjusted to emphasize fleets that were previously of less importance. Some attention should also be given to improving the collection of data from the growing fleets in the west Atlantic. Finally, the longline data should not be neglected because the catch of large yellowfin by this fleet could very well rise in response to the decline in surface fishing effort.

2.2 Observers

As mentioned above, the overall fleet has changed dramatically in size and composition. We suspect that the new situation may have engendered a change in predominant target species, size and searching patterns. As a result some aspects of the processing of raw catch and effort data may need to be recalibrated as well as the relationship between CPUE and abundance. We therefore propose that an observer program be conducted.

An observer program would be useful in other ways as well. For the tagging program, it is important to investigate the efficiency of the tag recovery process. To help in this, observers can be used to plant tagged fish (post mortem tagging) in the holds of fishing vessels. School sighting data by observers might be directly related to abundance using

the transect theory which has been used for porpoise surveys. Super-concentrations of yellowfin have been found to occur; and, during certain times of the year, they are fished intensively enough to undergo short-term (2-4 weeks) depletion. Detailed observation of such events could lead to more reliable estimates of the size of these super-concentrations and therefore in combination with survey data to an estimate of abundance. Finally, the observers could help improve port sampling by providing ground truth for size and species composition of fish in holds that will later be sampled in ports.

The observer program would be aided by the experience of the observer program conducted during the International Skipjack Year Program. The data forms and computer programs should all be used again. Doing so will facilitate comparing observer data before and after the decline in effort.

Observer activities should cover all the important fleets so as to give good geographic coverage and good coverage of the yellowfin size range. All seasons of the year should also be covered, perhaps with emphasis on the first quarter when super-concentrations are more likely to be found.

2.3 Tagging

An increase in yellowfin abundance in the eastern tropical Atlantic could occur in two ways: growth of young fish and immigration from other areas. Tagging can help to investigate both these processes.

Growth has already been investigated from previous tagging of around 10,000 yellowfin. A hypothesis has been put forward that decreased growth for some sizes of yellowfin might occur in the recovered population due to increased competition for food. The new tag recovery results should be compared with the old results to see if such a difference is revealed even though the likelihood of detecting it is small. If no difference is noted, the new data would be an important confirmation of earlier results which showed a peculiar (and controversial to known biology) two-phase growth curve and also showed indications of different growth curves for males and females. Some tagged fish should be injected with tetracycline to aid in the analysis of growth using otoliths and possibly vertebrae as discussed below.

Because the earlier tagging program was not directed towards yellowfin, the distribution of releases was not satisfactory for investigation of yellowfin movement. This new tagging program should concentrate on this aspect. We have identified six areas where yellowfin should be tagged: four in the eastern tropical Atlantic, the Azores and Venezuela. These areas have been selected according to general distribution maps of small yellowfin (Figure 2) and medium yellowfin (Figure 3), as these two categories are the target for tagging. Information on movement will not only help in interpreting local stock recovery in the eastern tropical Atlantic but will also help in resolving the perennial question of one vs. multiple stocks.

An additional benefit of tagging is the possibility of estimating abundance by some variant of the traditional tag-distribution analysis. The tagging of yellowfin during the Skipjack Program was unfortunately not suitable for this purpose. Therefore, we will not have a good point of comparison from the time previous to the decline of effort. However, ef-

fort is likely to build up again, in which case it will be very useful to establish an estimate now during a time of diminished effort.

Much of the necessary material used during the Skipjack Program is still available, including field manuals, recording sheets, posters, tagging needles, computer programs, etc. Many of the fishing industry personnel who were trained to deal with tag recoveries are still in place. ICCAT also has approximately 30,000 tags in stock which coincidentally is a good target number of tags to use. The number of tagged fish would be fewer because a significant number should be double tagged.

We identified four tagging modalities: (1) opportunistic tagging by observers on pole-and-line vessels during normal commercial fishing; (2) chartering a pole-and-line vessel to use exclusively for tagging; (3) use of the research vessel "Nizery", which could be made available by ORSTOM; and (4) tagging by hooks lost on tunas from Cape Verde. All have different advantages, disadvantages, and costs.

Opportunistic tagging would provide extensive coverage of strata where pole-and-line vessels operate and none elsewhere. For most of these vessels, yellowfin are an incidental catch. The greatest part of the cost of this type of operation is payment for fish, which at \$3-\$4 per fish can add up to a surprisingly large figure (Table 2). The actual price per fish needs to be negotiated. Chartering a pole-and-line vessel allows us to target on yellowfin tuna and on strata of interest to us. Chartering appears to be the only possible alternative in the west Atlantic. Coverage in time must be brief because of the high cost of chartering (about \$100,000 per month). Use of the "Nizery" would also allow targeting on yellowfin and on particular strata. Its efficiency at catching fish is less than a commercial pole-and-line vessel but its cost would only be the price of fuel (about \$16,000 per month).

We recommend that the first three modalities be used in order to cover all sizes of yellowfin (except the very large) and to cover all the areas recommended above. Details of proposed times, areas, and costs of tagging are given in Tables 1 and 2, and Figure 4.

Knowledge on the migrations of large yellowfin is of great importance to the Atlantic fisheries. The usual and most direct method to acquire this knowledge, which is tagging with dart tags, cannot be performed on such big fish which are difficult to catch and to handle for traditional tagging purposes. Therefore, a fourth type of tag with an original design should be tried on an experimental basis during the Program, although the expected results are only hypothetical.

This tagging is based on observations of catches made in the Azores of large yellowfin which have grown during a seemingly long period with a hook in their mouth. The current project is to manufacture hooks with "ICCAT" and an identification number written on them. These hooks could be distributed, at no cost, to the artisanal fishermen catching large yellowfin with hooks.

The tagging would then be based on the fact that a certain number of lines break during fishing operations (especially hand lines); the large yellowfin thus freed involuntarily at a certain geographic point with an ICCAT hook in their mouths could then be recaptured and identified, which would provide information on their migration.

The artisanal fishery of the Cape Verde Islands would be an ideal site to start this project. Other fisheries, such as the fisheries of the Canary Islands, Madeira and Azores,

could also serve as a base for this project in second place. The ICCAT hooks will have to be identical to those of the fishery which will use them.

The operation could be carried out at a low cost (approximately $10,000) and could provide very interesting information on the migrations of large yellowfin.

2.4 Hard part analysis

A technique for micro-chemical analysis of tuna vertebrae has recently been developed (SCRS/85/36). It has been shown to be useful for bluefin for studying the exchange of fish between geographic areas and for studying the history of the growth for individuals. This information would be useful for yellowfin studies for the same reasons outlined above for tagging. However, the technique has never been tried for yellowfin or any other tropical species. The use of this technique would therefore be speculative, particularly the history of growth aspect. Nonetheless, we recommend that samples be taken for three reasons: (1) The cost of sampling is negligible. (Funds for the high cost of analysis would have to be sought from a university that is interested in carrying out the research); (2) The likelihood of success with exchange rates is considered favorable; and (3) The benefit is very high if the history of growth aspect is successful (or perhaps some other historical trace, such as episodes of spawning). Some of the yellowfin at large now are carrying in their hard parts a chemical record of the time previous to the decline in effort.

2.5 Identification of spawning areas

Previous efforts to identify spawning grounds were very limited in area and missed some of the zones presently exploited which are theorized to be aggregations for the purpose of spawning. To check on this and perhaps to identify other spawning areas, we recommend that samples be taken for measurements of gonad index both in strata with super-concentrations and in other strata. Gonad samples should also be examined for fecundity to compare with a previous fecundity investigation in the inner part of the Gulf of Guinea done during 1985.

3. Possible alternatives to the present project

If ICCAT is not in a position to finance the present project, especially at the most interesting level of tagging, the Program would lose most of its importance, since the small isolated laboratories working in the study area have, in general, only modest funds and could not meet the high costs of tagging. Also, these research centers are, in general, under strict administrative regulations which often prohibit this type of project (for example, paying the fishermen for the fish they return to sea).

Under the hypothesis that only a part of the funds foreseen in the actual budget could be available, it would still be possible to reduce the tagging objectives, considering the allowed budget, and still maintain the importance of the Program. These adjustments in the

Program could be decided, if the case arises, by the scientists responsible for the Program (a meeting is planned for early 1986).

Under the unfavorable hypothesis in which no financing would be granted by ICCAT, only the improvement in statistics and a reduced observer program could be put into operation, measuring the changes in catch-per-unit-of-effort by size of fish for various fleets and areas. It would still be difficult to understand how the stock is reacting, and the international scientific community would only receive marginal benefit from the unique circumstances which are offered in the Atlantic.

4. Logistics

We recommend that this Yellowfin Year Program commence as soon as possible during the first quarter of 1986. The tagging and observers activities should continue through the first quarter of 1987. Collection of tag returns, analysis of data and presentation of results would extend for some time after that (see Section 6, "Calendar of events"). The two important activities that we have indicated, observers and tagging, should be conducted by two activity teams composed of scientists based in the appropriate areas. The activity team for observers would also deal with hard part and gonad sampling. A third activity team should conduct the data processing and analysis. The SCRS should appoint team members and team leaders. Procedures for supplying tagging materials and handling tag recoveries should be the same as for the International Skipjack Year Program. The Secretariat would administer ICCAT funds used in the Yellowfin Year Program and in consultation with the tagging team would conduct negotiations for vessel charter. In liaison with the data analysis team, the Secretariat would also serve as a data clearing house and assist where needed in data processing.

The man-hours and materials presently foreseen on the national level of the ICCAT member countries to carry out the Program are important and are given for information only (Table 3). These means are not counted in the Program budget because they are not charged to the Program. The procedure would be the same as was used with the International Skipjack Year Program for which national investments were not counted in the ICCAT budget, although they were very important.

5. Budget

	Normal ICCAT budget
Tags & tagging materials	$ 5,000
Payment of observers	48,500
Payment for tagged fish	48,000
Fuel for "Nizery"	80,000
Charter of Venezuelan BB	100,000
Charter of Ghanaian BB	10,000
Publication	10,000
Travel	5,000
Meetings	

Workshops	7,000
Training of technician	5,000
Reward costs	24,000
ICCAT hooks	10,000
Contingency	10,000
TOTAL	$ 362,500

6. Calendar of events

November, 1985	SCRS appoints activity teams
January, 1986	Start of Program
Jan. or Feb., 1986	Meeting of team leaders
March, 1987	End of observing and tagging
March, 1988	Bulk of tag returns received
July, 1988	Workshop
November, 1989	Special SCRS session

Table 1. Time-area strata where best probabilities of fishing medium or small yellowfin exist

Quarter	*Cap Lopez*	*Ghana Ivory Coast*	*Liberia*	*Senegal*	*Azores*	*Venezuela*
1	S	S				
2	S, M	S		M		
3	S, M	S, M		M	M	M
4		S, M	S, M			
Tagging Project	NZ OGBB ECBB	NZ OGBB ECBB	NZ ECBB	OSBB	AZBB	WCBB

S = Small yellowfin.
M = Medium yellowfin.
NZ = "Nizery".
OGBB = Opportunistic Ghanaian BB.
ECBB = Eastern chartered BB.
OSBB = Opportunistic Senegalese BB.
AZBB = Azorian BB.
WCBB = Western chartered BB.

Table 2. Estimation of expected taggings and related costs (US$)

Tagging Project	*Size of YFT targeted*	*Number expected*	*Duration*	*Time*	*Cost of operation*
Nizery	Medium	6,000 (TTC)	3 months 6 trips	February, 1986 February, 1987	48,000
Opportunistic Ghanaian BB	Small Some medium	12,000 (TTC?)	9 months 6 trips	April, 1986 March, 1987	36,000*
Western chartered BB	Medium	5,000 (TTC)	1 month 1 trip	mid-1986	> 80,000**
Eastern chartered BB	Medium and small	15,000 (TTC)	1 month 1 trip	Second half 1986	≥ 100,000**
Opportunistic Senegalese BB	Medium	2,000	2 months 5 trips	mid-1986	10,000*
Azores BB	Medium	500	2 months	mid-1986	2,500
Cape Verde	Large	1,000	12 months	1985-1986	10,000

Small = 1.5-4 kg.
Medium = 4-15 kg.
Large = over 20 kg.
TTC = Tetracyclene use. In such cases, 20 percent of tagged fish to be injected.
*Costs proportional to number of fish tagged.
**Costs still uncertain. To be discussed.

Table 3. National means currently foreseen to put the Yellowfin Year Program into operation in 1986-87 (in months). (Estimates given for information only)

Country	*No. of Months Researchers*	*No. of Months Technicians*	*Observers*	*Facilities*
Cape Verde	6	12	---	---
Ivory Coast	18	24	6	---
Spain	18	12	6	Data processing.
France	12	---	3	Three months research vessel (without fuel).
Ghana	6	12	3	---
Senegal	24	24	3	Gathering and processing of data.
U.S.A.	6	---	---	Data processing.
Venezuela	24	12	3	---
Portugal	6	6	2	---
Total	150	102	24	
Estimated cost	$300,000	$50,000	$200,000	

TOTAL COST = $550,000

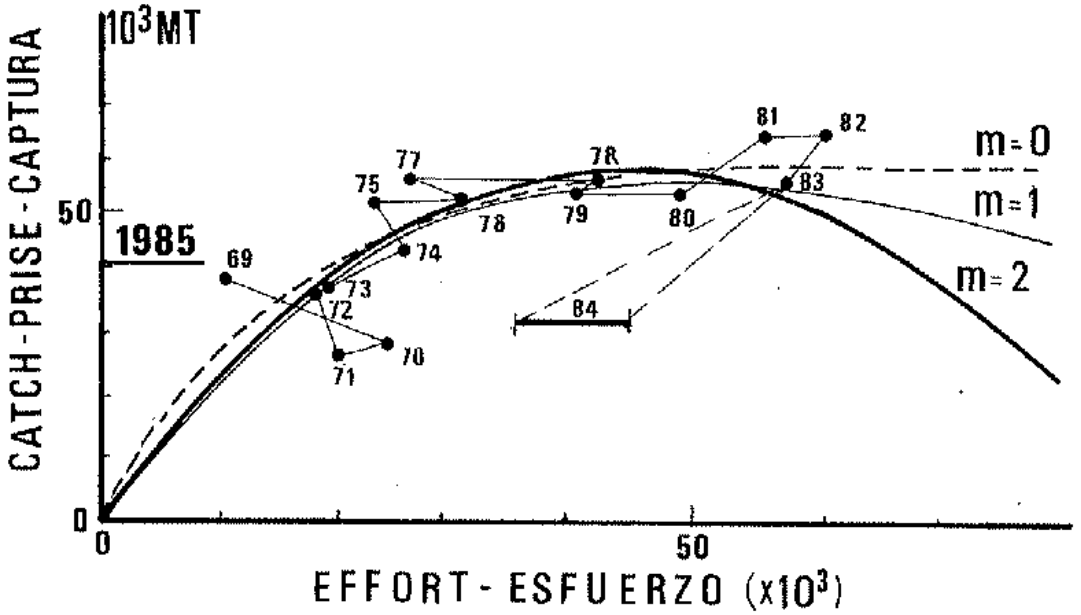

Fig. 1 Production model for east Atlantic yellowfin. (84) SCRS provisional estimates, 1984 CPUE being estimated equal to 1983 CPUE.

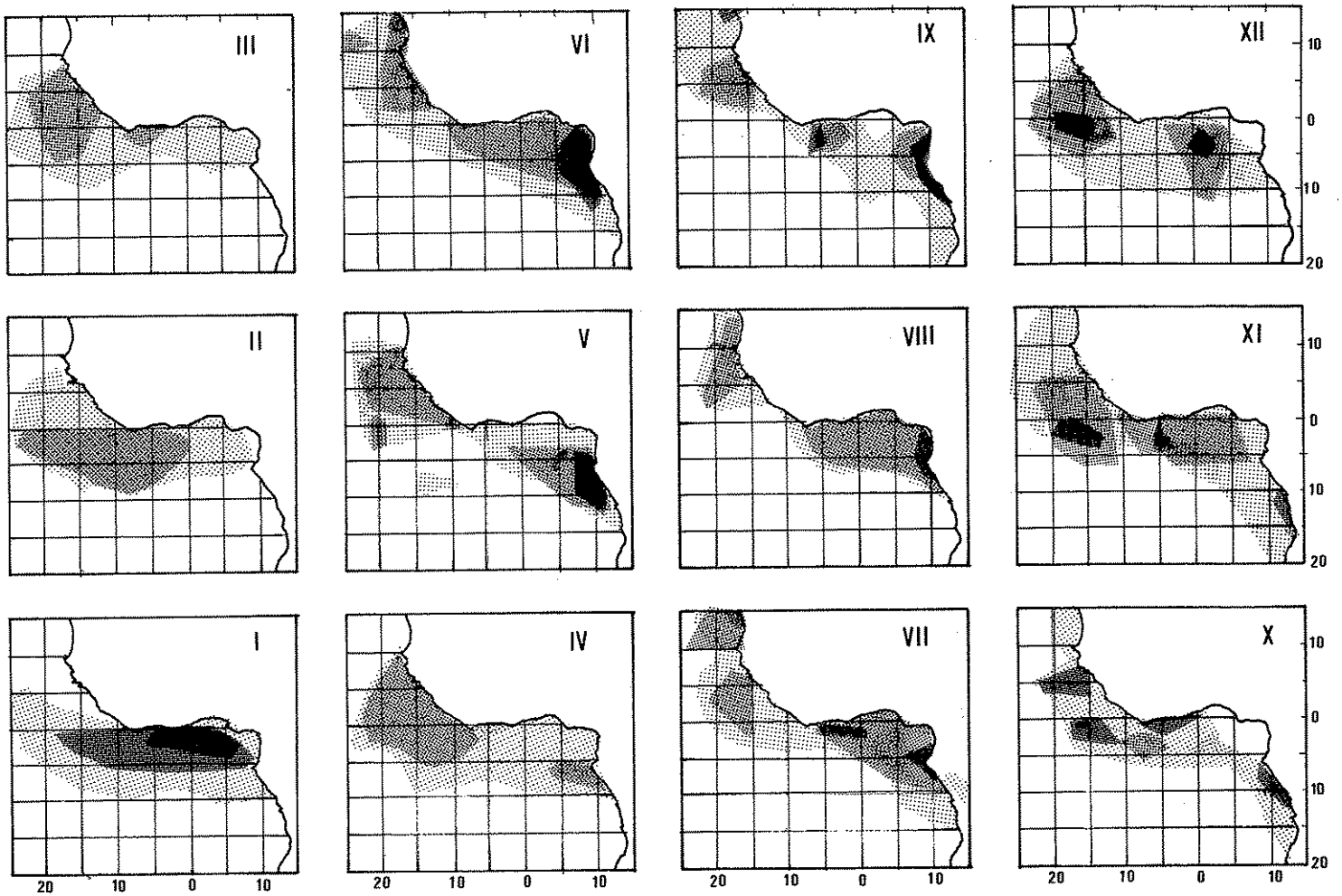

Fig. 2 Distribution of monthly catches of juvenile yellowfin, from tagging conducted from 1979 to 1983 by FISM and Spanish purse seiners. Roman numerals in the figure represent the months of the year.

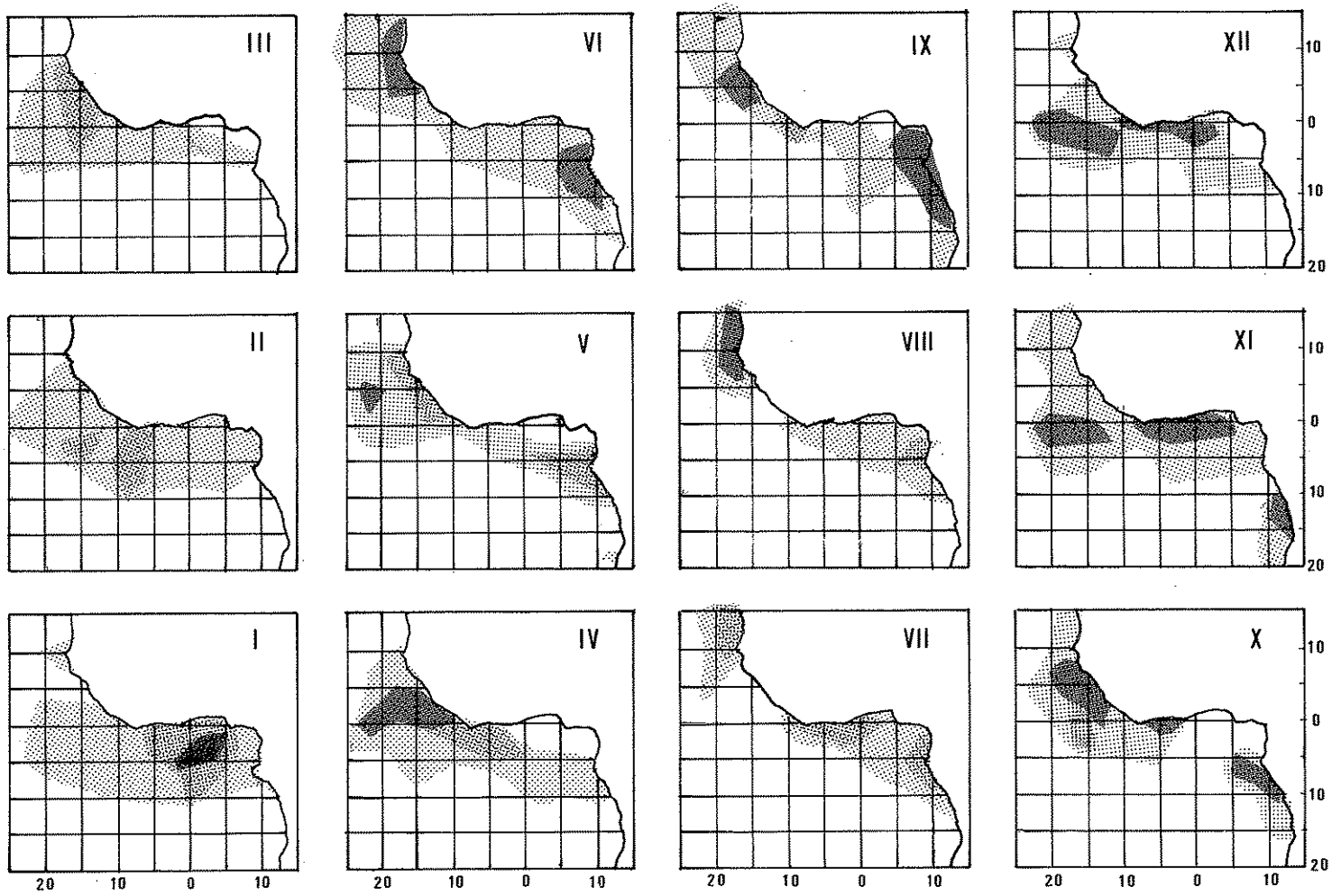

Fig. 3 Distribution of monthly catches of adult yellowfin, from tagging conducted from 1979 to 1983 by FISM and Spanish purse seiners. Roman numerals in the figure represent the months of the year.

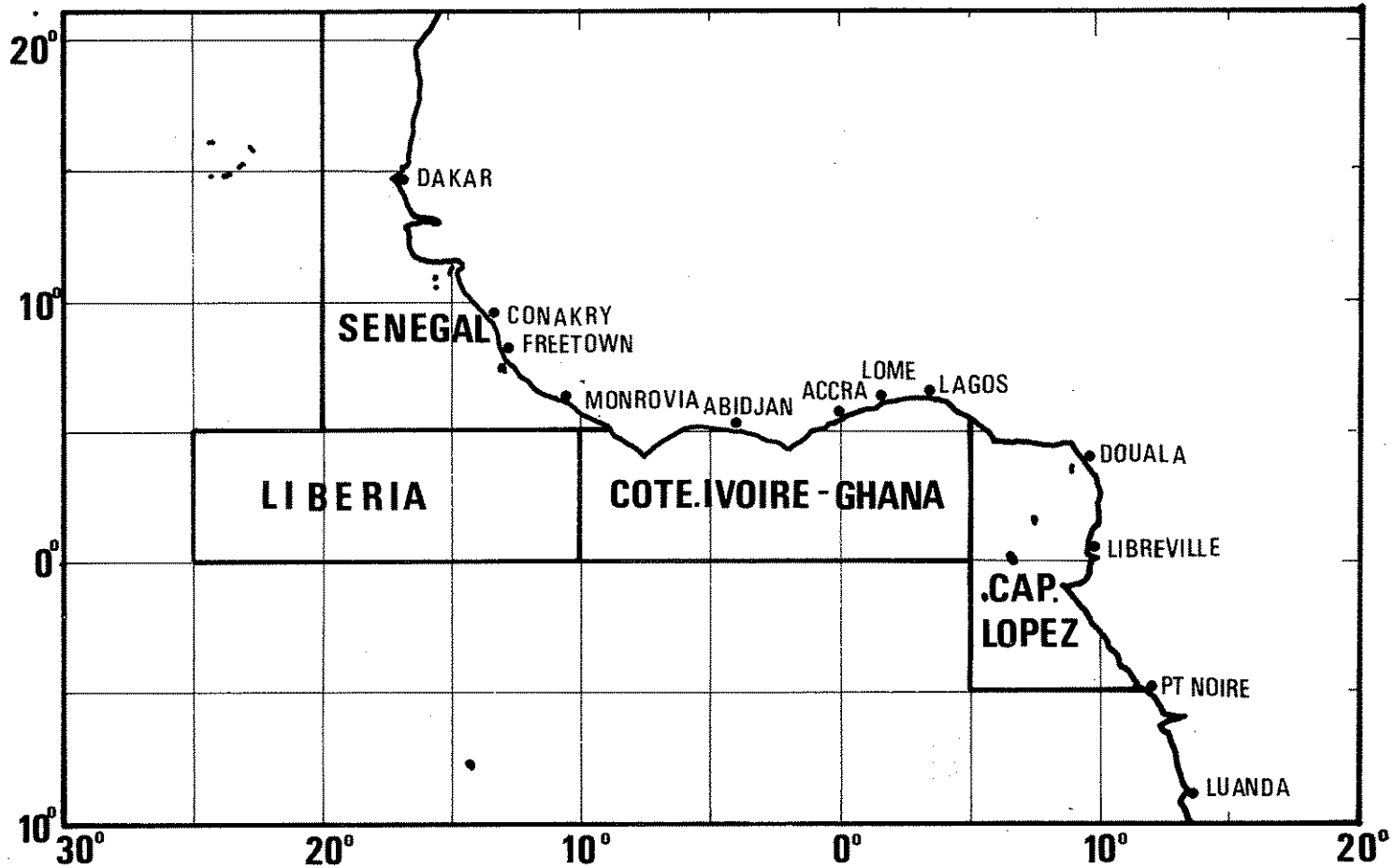

Fig. 4 General areas identified for tagging small and medium yellowfin.

Appendix 4 to Annex 10

Report of the Sub-Committee on Statistics

1. Opening of the meeting

The meeting was held in Palma de Mallorca (Spain), at the Hotel de Mar Sol, on November 9, 1985. Dr. N. Bartoo (U.S.A.) served as Convener.

2. Adoption of Agenda and arrangements for the meeting

The Agenda was adopted without change and is attached as Addendum 1 to Appendix 4 to annex 10 to. 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 (SCRS/85/10) 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 very slow this year and reached the point where the provisional issue of the Statistical Bulletin covering 1984 data could not be made in advance of the SCRS meeting.

The Convener stressed the importance of having the data available in time for the current stock assessments each year and each national scientist as well as the Secretariat was instructed to insure that this deadline is met.

The observer from the EEC reiterated his statement of the first day of the SCRS Meeting regarding the great interest the EEC has in ICCAT activities. He emphasized the fact that the EEC is as concerned as ICCAT about the quality of fisheries statistics, especially statistics from the Mediterranean. With this in mind, he informed the Sub-Committee that the EEC is ready to cooperate with ICCAT; it is beginning to take steps to see that its member countries regularly provide the ICCAT Secretariat with reliable statistics on their tuna fisheries.

Table 1 shows the availability of 1984 data at the time of this meeting.

4. Examination of ICCAT statistics

This subject was discussed thoroughly at the 1984 meeting and no special changes were reported at this time on the statistical procedures used by national offices.

Results of the various recommendations concerning the improvement of statistics made during the 1984 SCRS meeting were reviewed by the SCRS for each species. In general, appraisal of the results appear in Section 8 of the SCRS Report, and if further action has to be taken, it is recommended there. Many, although not all, recommendations made regarding the yellowfin, skipjack, bigeye, albacore, bluefin and swordfish were fulfilled. Problems still exist for small tunas, bluefin for the east Mediterranean countries, and billfishes.

The Committee reiterated all the recommendations made in item 8 of the SCRS Report.

5. Examination of progress made by the Secretariat

5.1 Data processing done in 1985

The Sub-Committee noted that special programs of data processing, such as updating the bluefin data file for the use by the Working Group on Bluefin Tuna, data processing of the Venezuelan fleet, etc., have been given some priority at the Secretariat over routine work. Due to the Secretariat's efforts to economize on the cost of computer work, as well as to the increasing amount of data processing, some of the routine work is considerably behind schedule. In particular, requests for copies of the data base made by various national scientists have not been met on time.

The Sub-Committee stressed the importance of routine data updating and keeping the data base in good working order and urged the Secretariat to correct this situation as soon as possible.

5.2 ICCAT/FAO data comparison

Document SCRS/85/13 described the comparative study made by ICCAT and FAO between data bases of two organizations and pointed out the many of the statistics do not match. The Committee noted that the discrepancies are largely due to a difference in policy, i.e., the ICCAT data base contains the best scientific estimates, while the FAO base depends mostly on official data submitted by the national statistical offices.

The Sub-Committee was also informed that adjusting the FAO data base to the ICCAT data base would create new discrepancies between FAO data and the data of other international regional agencies (e.g., EUROSTAT, ICES, NAFO, etc.). The agencies which have less interest and/or experience in tuna statistics than ICCAT may have difficulty in adopting the ICCAT series due to the difference in the area breakdown and registration of catches between different flags, etc.

The Sub-Committee encouraged the Secretariat to take the lead in improving the tuna statistics of other agencies and to assist those agencies that wish to use the ICCAT base in adjusting it to their format within the mandate and funds given to the Secretariat. At the same time, a mechanism to maintain consistency between the data bases of various organizations for current statistics should also be considered.

It was pointed out that the Commissioners are often unaware of the SCRS policy of adopting the scientists' best estimates as the base. As a result, some confusion has been noticed domestically. While the national scientists would try to inform their Commissioners about the difference between the so-called official statistics and the ICCAT statistical base (scientists' best estimates), the Secretariat was also asked to remind the Commissioners of the differences.

5.3 Unconventional fleet statistics

The Sub-Committee noted that most problems arising from the unreported catches by fleets flying flags of convenience or joint-ventures have now been resolved through the efforts of the national scientists in the field or the Secretariat. However, since tuna fishing fleets are quite mobile in terms of location and flag country, constant monitoring of all the fleets was suggested.

Some longline activity was reported in the Caribbean Sea and the Sub-Committee inquired if the catches by these boats have been reported. The Secretariat noted that it has catch and effort data for the longline vessels based in St. Maarten, Dutch Antilles, and those based at Carúpano, Venezuela. It was suggested that the records be reviewed as to whether or not the reported fishing area and time overlap with the area where those longliners were sighted.

5.4 Port sampling program

The Sub-Committee noted that the Secretariat port sampling from the longliners transshipping catches at Atlantic ports is continuing with more emphasis on size sampling and less effort on abstracting logbooks. Sampling from Cuban boats at Las Palmas was still problematic, since the boat captains have not been very cooperative. The Sub-Committee recommended that the Secretariat port sampling scheme be continued in the future and that the Secretariat secure the cooperation of the Cuban fleets so that sampling can be done from that segment as well.

The Sub-Committee expressed its satisfaction with the report that a logbook was developed by the Secretariat for the Tema-based fleet which unloads its catches both in Tema and Abidjan. The logbooks were printed by the Secretariat and distributed to all the boats by scientists in Abidjan and Tema. Copies are being collected and the CRO, Abidjan, offered to process them through an agreement made locally.

Biological sampling from the Tema-based fleet unloading in Abidjan has been started by Ivorian scientists as agreed at the 1984 SCRS meeting. Considerable samples have been taken. The Secretariat is willing to assume this responsibility on a contract basis with

the Ivorian scientists. The cost is estimated at US$10 per sample or about US$2000 per year. Again, the CRO, Abidjan, offered to process the logbook and biological data at the Center at no cost. The Sub-Committee felt that the arrangement is satisfactory and recommended that the raw data as well as the processed data be provided to the Secretariat for both the logbook information and biological samples.

The Sub-Committee noted with satisfaction that good progress was made in getting catch and effort data from the Venezuela-based fishery. They are now available for all gears, for 1983 and 1984, with a good coverage rate. The Sub-Committee urged that efforts be continued and suggested some improvements in the logbook format (e.g., using a different format for surface and longline gears).

The Secretariat reported that a sampling expert, on loan from the U.S. NMFS to ICCAT, was sent to Venezuela to start biological sampling at Venezuelan ports. A sampling scheme was established and sampling began. However, there are some internal difficulties in continuing it at present. The Sub-Committee, in reiterating the importance of the sampling from the Venezuelan catches, urged the Venezuelan Government to solve the problems and resume biological sampling initiated in early 1985. The report of the sampling expert sent to Venezuela will be made available in the very near future after some editorial revision.

France has one scientist stationed in Venezuela to help develop a tuna research program and offered his collaboration with sampling and collection of statistics.

The Sub-Committee noted that sampling from transshipments at Puerto Rico was continued by the U.S. The Sub-Committee recommended that this effort be continued in the future, if possible.

5.5 Secretariat data management policy

and

5.6 Data dissemination and publication

These two items were discussed together. A very brief explanation was given on data management and publication policy. Since the matter is highly related to the publication policy being discussed by a small group set up by the SCRS, no further discussion took place at this time.

5.7 Biostatistical assignments

Document SCRS/85/15 presented the problems relating to and some guesses on possible unreported small tuna catches by various Atlantic nations. Since the problems were discussed under item 8, no further discussion took place.

Document SCRS/85/16 presented follow-up work on the study of the adequacy of sampling and CPUE data and data coverage for various tunas in the Atlantic.

Document SCRS/85/18 presented the results of a literature survey to find appropriate sample sizes and stratification procedures for Atlantic tuna fisheries through use of

the Aquatic Sciences and Fisheries Information System. The results showed very little work has been done in this field other than those made in conjunction with ICCAT. Several criteria and guidelines published for sampling by the Secretariat have been reviewed and sampling data were evaluated as to whether or not they met this standard.

The Sub-Committee noted that future studies on sampling strategy should be based on sampling theories and relate to the level of sampling and stratification. Difficulties in setting up a good stratification model for complicated multi-species, multi-gear fisheries were pointed out, while it was recognized that a good model will reduce the sample size and increase the accuracy of estimates.

5.8 Other matters

No other matters were discussed.

6. Consideration on the future of the Secretariat computer system

The Sub-Committee noted that the COM-SCRS/85/12 proposed a new computer system for ICCAT. Recognizing that an ad hoc group was established to study the proposal by SCRS, the Sub-Committee decided not to study the matter at this time. However, the Sub-Committee recommended to the SCRS that the choice of a computer system which is adequate for statistical use is essential to clear up problems in data processing and catch up on the backlog of data management work by the Secretariat.

7. Future plans to improve statistics, and recommendations to the SCRS

7.1 Exchange of computer programs

Document SCRS/85/9 proposed a system to assist in the exchange of computer programs written for stock assessment purposes among various laboratories. According to the plan, each laboratory should provide the Secretariat with a list of programs. These lists will be assembled and distributed by the Secretariat to all the scientists concerned. The Secretariat will act as a clearing house for exchanging the programs. The Sub-Committee fully supported the project and recommended that the SCRS endorse the proposal and that the Secretariat immediately communicate with various laboratories to carry out the project.

7.2 Coordinating Working Party for Tuna Statistics

Document SCRS/85/14 presented the background and the proposal made by the Assistant Executive Secretary to world tuna scientists concerning inter-agency cooperation in the collection of tuna statistics. The Sub-Committee noted with satisfaction that the proposal had been well accepted by various agencies as well as by countries and that a meeting had been organized by FAO in December at Colombo, Sri Lanka, to discuss the inter--

regional problems and collaboration between organizations working in different oceans. Active participation by the principal fishing countries, e.g., Spain, etc., as well as representatives by organizations, e.g., EEC, is recommended.

The Sub-Committee fully endorsed the proposal and requested the ICCAT Assistant Executive Secretary to report on ICCAT's experience in this field at the meeting. Recognizing that, among international organizations, ICCAT has the best tuna statistics, the Sub-Committee felt that the Commission should take the initiative in cooperating with other agencies to improve tuna statistics. Feedback of the meeting conclusions is also expected. The Secretariat should also attend the IOFC meeting before the statistics meeting and report on the results.

7.3 Consideration of Statistical Bulletin to cover 1970-79

Document SCRS/85/8 proposed that a tentative historical series of the Statistical Bulletin covering 1970-1979 be edited and issued for the convenience of scientists who use series of tuna statistics. Some discussion followed as to whether to issue such a volume or to expand the time coverage of the present Statistical Bulletin from 11 years to 20 years. Recognizing that the latter would significantly increase the cost, the Sub-Committee decided that the issuance of a new volume covering 1970-79 would be best. The national offices are asked to review critically the statistics of their countries presented in this document and to let the Secretariat know of any proposals of changes before the volume is finalized and issued. The inside cover of the volume should contain the same cautionary note regarding possible changes in the data as that contained in the regular Statistical Bulletin.

7.4 Review of the ICCAT Port Inspection Form

The Sub-Committee has been assigned by the Commission through the SCRS to review, from a biological and statistical point of view, the new Port Inspection Form being proposed for use by port inspectors. The Form attached to COM/85/16 was examined by the Sub-Committee. Some difficulties in using a simple form in sampling catches unloaded at a port for regulation purposes were recognized. The biological information requested on the form is adequate for the Infractions Committee if it is correctly filled out. However, notations should be made of full catch weight even if only a partial load is landed. Some semantics problems may arise in interpretation of the form.

7.5 Others

a) Reorganization of statistical work at the Secretariat

The Sub-Committee noted that quite a few statistical processing assignments have been given to the Secretariat, such as:

- Creating an edit program so the staff can verify data that has been questioned.
- Processing basic data with the new computer system.
- Tracking all the data submitted and recovering missing and delayed data.
- Collecting various data from non-member countries.
- Preparing working data files for scientific meetings.
- Converting data and program files from the INFONET to a new system.
- Reducing the large backlog of routine data processing.

The Sub-Committee recognized that such tasks would require considerable computer-oriented effort and recommended that the Secretariat take internal measures in order to meet the increased work load, and only if absolutely necessary, a temporary contract could be made with outside experts.

b) New length-weight relation for yellowfin

At the last meeting of the Working Group on Juvenile Tropical Tunas (Brest, 1984), a new equation for a length-weight relationship for yellowfin was proposed but was erroneously cited (Caveriviere, 1976). The correct equation is:

$$W = 2.153 \times 10^{-5} \times FL^{2.976}$$

This equation is very close to what was actually recorded by the Working Group on Juvenile Tropical Tunas, and supersedes that equation. The Sub-Committee recommended that the SCRS approve the new one.

c) Format for reporting data availability

The complexity of the table attached every year to the Secretariat Report on Statistics and Coordination of Research was discussed (now Table 1 of this Report of the Sub-Committee on Statistics). The Sub-Committee decided that the table should be simplified and only show the date when the data were received, as well as any remarks to record inadequacy of data, if any.

8. Other matters

The subject of Secretariat assistance in transmitting funds for sampling programs was considered by the Sub-Committee. The "Instituto Español de Oceanografía" (IEO) has had an agreement with the "Centre de Recherches Océanografiques" (CRO) of Abidjan, Ivory Coast, and the "Centre de Recherches Océanografiques" (CRODT) of Dakar, Senegal, to take biological samples and logbooks from the Spanish fleet unloading at Abidjan and

Dakar. Due to bureaucratic difficulties, transmission of funds from the IEO to the CRO and the CRODT became a serious problem.

The Sub-Committee, recognizing the importance of securing samples from the Spanish tropical fleet without delay, urged the Secretariat to seek a solution to the problem of forwarding funds by the IEO to the CRO and to the CRODT through the Secretariat.

9. Adoption of Report

The Report was adopted with some changes.

10. Adjournment

The meeting was adjourned.

Table 1. Progress in the collection of 1984 statistics (as of November 9, 1985)

Species, Gear and Country	TASK I Date Rec'd 1984	TASK I Date Rec'd 1985	No. of boats	TASK II CATCH & EFFORT Date Rec'd 1984	TASK II CATCH & EFFORT Date Rec'd 1985	BIOLOGICAL (SIZE) Date Rec'd 1984	BIOLOGICAL (SIZE) Date Rec'd 1985	Remarks
YFT, BET, SKJ Surface Fleet								
BB								
Angola	Mar 26	Apr 19	X	Aug 14	Jul 16	Aug 14	Aug 12	
Brazil	Aug 29	Aug 30	X	Aug 29	Aug 30	Aug 29	Aug 30	
Brazil-based (leased):								
Japan	Aug 29	Aug 30	X	Aug 29	Aug 30	Aug 29	Aug 30	Partly in ICCAT Area.
Cape Verde	Jun 7	Nov 9	X	Jun 7		Jun 14	Aug 26	1983 data for SIZE.
Cuba	Aug 23	Jun 26	X			Jul 9	Apr 18	SKJ (& BLF).
FIS	Mar 27	Oct 14		May 30	Jul 31			
		Nov 5	X					
Ghana	Feb	Sep		Mar 28	Sep	Feb		Partial raw data for C/E.
Ghana-based:								
(Japan-ICCAT,								
Korea-Panama)	Feb			Mar 28		Feb		
Japan	Jun 22	Sep 26	X	Jul 2	Feb 7			
Korea	Aug 6	Aug 28	X	Jul 13	Jul 30	Jul 13	Jul 31	
Panama	Aug							
Portugal								
(Madeira)	Aug 21		X	Aug 21				Data Jan-Jun 1984.
	Nov 6		X					Data Jul-Sep 1984.
		Mar 6	X		Mar 6			Data Oct-Dec 1984.
							Mar 24	1979-84 data*.
(Azores)	Aug 2	Oct 9		Aug 2			Nov 6	1983 data for C/E.

Table 1. (Cont.)

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*		
	1984	*1985*		*1984*	*1985*	*1984*	*1985*	
South Africa	May 4	Aug 23	X	May 4	Aug 23			
Spain		Oct 10	X					
(Can. Is.)	May 8	Aug 12		Mar 9		Mar 9		
(Peninsula)	May 8	Aug 12						
Venezuela	Jun 11	Apr	X	Jun 4	Apr			1983 & 1984 data.
VEN-FOR		Apr	X		Apr			1983 & 1984 data.
PS								
Brazil-based (leased):								
Spain	Aug 29	Aug 30	X	Aug 29	Aug 30	Aug 29	Aug 30	
Cuba	Aug 23	Jun 26	X					
FIS	Apr 4	Oct 14		May 30	Jul 31			
		Nov 5	X					
Ghana	Feb	Sep		Mar 28	Sep			Partial raw data for C/E.
Japan	Feb 28	Sep 26	X	Feb 28	Feb 7			1983-84 data for C/E.
Morocco		May						1983 & 84 - J. C. Rey.
Portugal								
(Peninsula)	Jul 16	Aug 2						
(Azores)		Oct 9				Jun 14	Nov 6	
South Africa	May 4	Aug 23	X	May 4	Aug 23			
Spain	May 8	Aug 1		Jul	Aug 1	Jul	Aug 1	
U.S.A.	Jul 16	Jul 18	X		Jul 18	Jul	Jul 18	
U.S.S.R.	Jun 27	May 22		Jun 27	Aug 5	Aug 16	Sep 11	C/E YFT & SKJ only.
Venezuela	Jun 11	Apr	X	Jun 4	Apr			
VEN-FOR		Apr	X		Apr			
NEI		Feb 14	X					

UNCL & Others								
Angola	Mar 26	Mar 20						
Benin	Jan 26	Mar 18	X	Jan 26	Mar 18			
Brazil	Aug 29	Aug 30						
Cape Verde	Jun 7	Nov 9	X	Jun 7				Also rec'd data for 1981-83.
Ghana		Feb 1						1983 Artisanal.
Morocco		May						1983 & 84 - J. C. Rey.
Portugal	Jul 16	Aug 2						
St. Helena		Nov 5						
South Africa	May 4	Aug 23	X	May 4	Aug 23			
Spain								
(Peninsula)	May 8	Aug 12						
U.S.A.	Jul 16	Jul 18	X		Apr 9	Jul	Apr 9	1983-84 data (C/E, SIZE 84 preliminary).
U.S.S.R.	Jun 27	May 22		Jun 27	Aug 5		Sep 11	
Venezuela	Jun 11	Apr	X	Jun 4	Apr			1983 & 84 data.
VEN-FOR		Apr	X		Apr			1983 & 84 data.
Albacore Surface Fleet								
BB								
Brazil	Aug 29	Aug 30	X	Aug 29	Aug 30			
Brazil-based (leased):								
Japan	Aug 29	Aug 30	X	Aug 29	Aug 30			
Cape Verde	Jun 7			Jun 7				
France	Oct 30	Oct 11	X					
Portugal								
(Azores)	Jun 14	Oct 9		Jun 14	Apr 18	Jun 14	Nov 6	1983 data C/E.
(Madeira)	Aug 21		X	Aug 21				Data Jan-Jun 1984.
	Nov 6		X	Nov 6				Data Jul-Sep 1984.
		Mar 6	X		Mar 6			Data Oct-Dec 1984.
							Mar 24	1979-84 data*.
South Africa	May 4	Aug 23	X	May 4	Aug 23			

Table 1. (Cont.)

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*		
	1984	*1985*		*1984*	*1985*	*1984*	*1985*	
Spain								
(Can. Is.)	May 8	Aug 1		Mar 9		Mar 9		
		Oct 10	X					
(Biscay)	May 8	Aug 12		Jun 1	Aug 12	Jun 1	Aug 12	1975-84 (C/E & SIZE).
		Oct 10	X					
(Medi.)	May 8	Aug 1				Jun 1	Aug 19	
		Oct 10	X					
Venezuela	Jun 11	Apr	X	Jun 4	Apr			1983-84 data.
VEN-FOR		Apr	X		Apr			1983-84 data.
PS								
FIS	Apr 4	May 6						
France		Oct 11	X					
South Africa		Aug 23	X		Aug 23			
Spain		Aug 12						
TROL								
France	Oct 30	Oct 11	X				Oct 30	
Spain								
(Biscay)	May 8	Aug 12		Jun 1	Aug 12	Jun 1	Aug 12	1975-84 (C/E & SIZE).
		Oct 10	X					
U.S.A.	Jul 16							
UNCL & Others								
Brazil	Aug 29	Aug 30						
Italy								

Portugal (Azores)						Jun 14		
St. Helena		Nov 5						
South Africa	May 4	Aug 23	X	May 4	Aug 23			
Spain		Aug 12						
U.S.A.	Jul 16	Jul 18	X		Apr 9		Apr 9	83-84 data for C/E & SIZE.
Venezuela	Jun 11	Apr	X	Jun 4	Apr			1983-84 data.
VEN-FOR		Apr	X		Apr			1983-84 data.
Bluefin Surface Fleet								
BB								
Cape Verde	Jun 7	Aug 2		Jun 7				Rep. by J. Pereira.
France (Biscay)	Sep 11	Sep 10	X					
Portugal (Azores)	Jun 14	Oct 9		Jun 14	Apr 18			C/E 1983 data.
(Madeira)	Aug 21		X	Aug 21				Data Jan-Jun 1984.
	Nov 6		X	Nov 6				Data Jul-Sep 1984.
		Mar 6	X		Mar 6			Data Oct-Dec 1984.
						Mar 24		1979-84 data*.
Spain (Can. Is.)	May 8	Aug 12		Mar 9		Mar 9		
		Oct 10	X					
(Biscay)	May 8	Aug 12		Jun 1				
		Oct 10	X					
(Medi.)	May 8	Aug 12					Aug 19	
		Oct 10					Oct 14	1983 SIZE data.
PS								
France (Medi.)	Sep 11	Sep 10	X			Oct 1	Sep 18	
Italy		May			May		May	

Table 1. (Cont.)

Species, Gear and Country	*TASK I* Date Rec'd 1984	1985	*No. of boats*	*TASK II CATCH & EFFORT* Date Rec'd 1984	1985	*BIOLOGICAL (SIZE)* Date Rec'd 1984	1985	*Remarks*
Morocco	Mar 27	May						1983 & 84 - J. C. Rey.
Norway	Mar 16	Feb 12	X		Feb 28		Feb 28	
					Apr 15			1982 data.
Portugal								
(Peninsula)	Jul 16	Aug 2						
(Azores)		Oct 9				Jun 14	Nov 6	
Spain	May 8	Aug 12						
		Oct 10	X					
U.S.A.	Jul 16	Jul 18	X			Jul	Jul 18	
TRAP								
Canada	May 14	Aug 14						
Italy		May						
Libya								See "Various".
Morocco	Mar 27	May						1983 & 84 - J. C. Rey.
Spain	May 8	Aug 12				Jan 20	Aug 19	
UNCL & Others								
Canada	May 14	Aug 14	X			Sep 10	Aug 12	
		Nov 5	X					
France								
(Medi.)	Sep 11	Sep 10						
Italy								
Portugal								
(Azores)					Apr 18			1983 data.
(Madeira)							May 24	1979-81 data.
(Peninsula)	Jul 16	Aug 2						

Spain	May 8	Aug 12					Aug 19	
		Oct 10	X					
U.S.A.	Jul 16	Jul 18	X		Jul 18		Jul 18	C/E 1983-84 data.
Billfishes (including SWO) Surface Fleet								
Benin		Mar 18	X					
Brazil	Aug 29	Aug 30						
Canada	May 14	Jul 30						
FIS	Apr 4							
Ghana								
Italy		Oct 31						Reported by FAO.
Morocco		May 30						1983-84 - J. C. Rey.
Portugal								
(Madeira)	Aug 21		X	Aug 21				Data Jan-Jun 1984.
	Nov 6		X	Nov 6				Data Jul-Sep 1984.
		Mar 6	X		Mar 6			Data Oct-Dec 1984.
							May 24	1980-84 data (SIZE).
(Azores)	Jun 14	Oct 9			Apr 18	Jun 14		Data for 1983-84.
Senegal	May 10	Nov 5		May 10	Nov 5			
South Africa	May 4	Aug 23	X	May 4	Aug 23			
Spain	May 8	Aug 1						
		Oct 10	X					
U.S.A.	Jul 16	Jul 18	X		Apr 9	Jul	Apr 9	1983-84 data (C/E), 84 preliminary (SIZE).
U.S.S.R.		Jul 26			Aug 5			
Small Tunas Surface Fleet								
Angola	Mar 26	Apr 19	X	Aug 14	Jul 16	Aug 14	Aug 12	
Benin		Mar 18	X		Mar 18			
Brazil	Aug 29	Aug 30	X	Aug 29	Aug 30		Aug 30	
Cape Verde	Jun 7	Nov 9	X	Jun 7				Also rec'd data for 1981-83.
Cuba	Aug 23	Jul 26	X					
FIS	Apr 4							

Table 1. (Cont.)

Species, Gear and Country	*TASK I* Date Rec'd 1984	1985	*No. of boats*	*TASK II CATCH & EFFORT* Date Rec'd 1984	1985	*BIOLOGICAL (SIZE)* Date Rec'd 1984	1985	*Remarks*
Ghana		Sep						
Italy		Oct 31						Reported by FAO.
Morocco	Mar 27	May						Trop. fleet incl. (rep. - J. C. Rey
Portugal								
(Peninsula)	Jul 16	Aug 2						
(Azores)	Jun 14	Oct 9			Apr 18	Jun 14		C/E for 1983-84.
(Madeira)	Aug 21		X	Aug 21				Data Jan-Jun 1984.
	Nov 6		X	Nov 6				Data Jul-Sep 1984.
		Mar 6	X		Mar 6			Data Oct-Dec 1984.
St. Helena		Nov 5	X					
Sao Tomé	Jul 10							
Senegal		Jan 18	X		Jan 18		Feb 26	C/E & SIZE - 1980-83.
		Aug 9			Aug 9			
Spain	May 8	Aug 12				Jan 20	Aug 19	
		Oct 10	X					
U.S.A.	Jul 16	Jul 18	X		Jul 18			
U.S.S.R.	Jun 27	May 22		Jun 27	Aug 5		Sep 11	
Longline Fleet (All Species)								
Brazil	Aug 29	Aug 30	X	Aug 29	Aug 30	Aug 29	Aug 30	
				Nov 3				
Brazil-based (leased):								
Japan	Aug 29	Aug 30	X	Aug 29	Aug 30	Aug 29	Aug 30	
				Nov 3				
Canada	May 14	Jul 30	X					

China (Taiwan)	Aug 8	Sep 18	X	Aug	Nov 7	Oct 28	Nov 7	C/E in no. fish also.
Cuba	Aug 23	Jun 26	X	Oct 5	Oct 7		Jun 26	SIZE only for BIL.
Japan	Sep 10	Sep 26	X	Apr 3	Jun 30	Jun 20	Sep	C/E & SIZE for 1983.
JP-CA-OB**							Aug 12	1981-84 data.
Korea	Aug 6	Aug 28	X	Aug 6	Jul 31	Aug 6	Jul 31	
Korea-Panama					Sep		Sep	Port sampling.
Morocco		May						1983 & 84 - J. C. Rey.
Panama		(Secretariat)			See Korea-Panama		See Korea-Panama	Task I per port sampling C/E.
South Africa	May 4	Aug 23	X	May 4	Aug 23			
Spain	May 8	Aug 12			Mar 18		Mar 18	1983 SWO data.
		Oct 10	X		Aug 12		Aug 12	1975-84 SWO data.
					Nov 6		Nov 6	1981, 83 SWO data.
Uruguay	Mar 22							
U.S.A.	Jul 16	Jul 18	X					
U.S.S.R.	Jun 27	May 22		Jun 27	Aug 5	Aug 24	Sep 11	
Venezuela	Jun 11	Apr	X	May 28	Apr			1983-84 data.
VEN-FOR		Apr	X		Apr			1983-84 data.
Various								
Puerto Rico transshipments (Reported by FAO)		Jan Jul-Oct Oct 31				Jul 16	Jul 18	Reported by U.S.A. 1983 data.

*HAND included.
**Canadian observer data taken on Japanese longliners.

Addendum 1 to Appendix 4 to Annex 10

Agenda of the Sub-Committee on Statistics

1. Opening of the meeting
2. Adoption of Agenda and arrangements for the meeting
3. Report of the progress made by national offices
4. Examination of ICCAT statistics
   - 4.1 National data collection systems
   - 4.2 Data processing by national offices
   - 4.3 Reporting to ICCAT
   - 4.4 Improvements to be made
5. Examination of progress made by the Secretariat
   - 5.1 Data processing done in 1985
   - 5.2 ICCAT/FAO data comparison
   - 5.3 Unconventional fleet statistics
   - 5.4 Port sampling program
   - 5.5 Secretariat data management policy
   - 5.6 Data dissemination and publication
   - 5.7 Biostatistical assignments
   - 5.8 Other matters
6. Consideration on the future of the Secretariat computer system
7. Future plans to improve statistics, and recommendations to the SCRS
   - 7.1 Exchange of computer programs
   - 7.2 Coordinating Working Party for Tuna Statistics
   - 7.3 Consideration of Statistical Bulletin to cover 1970-79
   - 7.4 Review of the ICCAT Port Inspection Form
   - 7.5 Others
8. Other matters
9. Adoption of Report
10. Adjournment

Appendix 5 to Annex 10

Report of the Ad-Hoc Working Group on ICCAT Publication Policy

The Ad Hoc Working Group met at the request of the SCRS to discuss the general ICCAT publication policy and distribution of scientific documents. Of particular concern were the working documents of each SCRS meeting, published together in the "Collective Volume of Scientific Papers".

Three explicit questions were formulated by the SCRS Chairman concerning these research documents:

- How could we improve the quality of these working papers?
- How can we avoid the frequent repetition of information presented in the different sets of documents and from one year to another?
- How can we reduce the number of research papers, with the idea in mind of a high quality publication which would be subject later to selection?

After examining and discussing document SCRS/85/17, which described in detail all the ICCAT publications and the various problems they pose, the group agreed to review all the publications in order to makesome proposals to the SCRS.

Finally, it was understood by the group that the study should have a dual goal: to improve the scientific quality of the publication and to decrease costs. Regarding costs, it was pointed out to the group that the highest cost was that of distribution (mailing, etc.) rather than the number of copies made, as our publications are generally done by offset printing at the Secretariat; hence the cost is low.

The ICCAT publications presently include the following:

- The Collective Volume of Scientific Papers in which the following information is published:

  SCRS research documents
  Report A

Reports of special working groups
Symposium documents
- Annual report of the Commission
- Statistical Bulletin
- Statistical Series
- Data Record

The number of pages of these documents, issued annually from 1973 to 1985, are indicated in Table 1. Details can be found in document SCRS/85/17.

After discussion, the group arrived at the following conclusions regarding each type of publication:

a) SCRS research documents

The SCRS research documents cannot be submitted to any limitation based on criteria for quality. They should be kept as a type of "ICCAT Scientific Compendium". Therefore, they should be maintained in the "Collective Volume of Scientific Papers".

In order to improve the quality of these documents, authors are encouraged to use the revision procedure of their documents before inclusion in the "Collective Volume". This must, however, be done within reasonable time limits.

With this same goal in mind, an authors' guide in the three official languages which outlines the best methods for preparing these scientific documents should be prepared by the Secretariat and distributed widely. Such a guide would probably improve the style and logic of the documents. This guide for authors should have instructions which are different from the typing instructions issued in advance of each SCRS meeting.

Furthermore, a statement should be included saying that the authors have full scientific responsibility for the documents. That statement would be: "This is a collection of documents for use in SCRS discussions and it has not been either approved or revised by the SCRS. Consequently, each document is the sole responsibility of the author or authors. Many of these documents may only show provisional research on the subject and the conclusions contained therein are not definitive. In order to ascertain the validity of the data and the conclusions expressed in each document, users are requested to contact authors."

It was agreed that the authors have the right to add the following: "Not to be cited without prior permission of the author."

Finally, distribution of the collection of research documents should follow the guidelines for distribution of the "Collective Volume", as outlined in point 4.

b) Report A

SCRS Report A should no longer be included in the "Collective Volume" series. Instead, this Report should be distributed on a limited basis in the simplest form possible to the SCRS and some Commission meeting participants. Some copies should be kept on file at the Secretariat.

However, the section of Report A entitled "Review of current research", for each species should be included in Report B, which is published in the annual report of the Commission.

c) Reports of special working groups

As regards the particular case of the working group meetings on species evaluation which are held prior to the SCRS meetings (e.g., bluefin), the report of these groups should constitute Report A. This would thereby avoid duplication.

The reports of each of these working groups should be reviewed by the rapporteur, with the assistance of the Secretariat, from the point of view of logic and style, in accordance with the guide for authors, but without any modification of the substance of the report, before inclusion in the "Collective Volume".

It was specified that each working group report thus distributed should include the text of the report, all statistical tables and the research documents presented.

The working group reports, also published as in the "Collective Volume", should follow the same guidelines for distribution as for the collection of research documents, (outlined in point 4).

d) Symposium documents

The proceedings of symposia should be published in the "Collective Volume" with the same conditions as for the working group reports.

e) Statistical Bulletin

The publication and distribution policy for the "Statistical Bulletin" remains unchanged.

f) Statistical Series and Data Record

The "Statistical Series" should be absorbed in the "Data Record". However, the "Data Record" should, some time in the future, be changed as follows:

- Reduction of the series to a catalogue of various data sets available at the Secretariat. (This catalogue already exists in the "Data Record" series.)
- Distribution of these data sets on a request basis, by extracting them from the data base and putting them on magnetic support compatible with the computer system of the person making the request, in accordance with his preference.
- If it is impossible to transfer the data sets to magnetic tape, the request for data could be met by sending listings of the data sets.

However, for the time being, the "Data Record" can be reduced to contain a catalogue and a set of summary tables of catch and effort and size data but in a more reduced form than they appear presently. This type of collection would supply the necessary infor-

mation to the numerous correspondents and thereby enable them to make detailed, specific requests to the Secretariat.

As concerns the improvement in the scientific quality of the ICCAT publications, there was considerable discussion by the group on the possibility of a selection process for documents submitted to the SCRS in order to improve the scientific quality of the ICCAT publications. The advantages of such a selection policy are offset by the numerous difficulties, outside the scientific field, in carrying out such a selection process.

Consequently, the group did not make any specific recommendation on the selection of ICCAT scientific documents.

The policy for distribution of each ICCAT publication was discussed. The results of the discussions are as follows:

The "Collective Volume" series should be distributed selectively, as follows:

- SCRS participants
- Interested participants of the Commission
- Scientists who do not participate in the SCRS but who are known to work on tunas
- Libraries of laboratories which carry out tuna research

It was agreed that the "Collective Volume" series should also be sent on request, while attempting to reduce to a minimum the distribution to people and organizations actually involved.

It is hoped that in this way we can reduce by a third the number of issues of each edition of the "Collective Volume".

Distribution of the "Data Record" should follow the same guidelines as those for the "Collective Volume".

Table 1. Selected ICCAT publications, 1973-1985

Year	*Collective Volume*	*Stat. Series*	*Data Record*	*Stat. Bulletin*	*Total*
			Pages		
1973	560	0	396	105	1,061
1974	628	0	302	102	1,032
1975	212	0	310	109	631
1976	385	109	698	74	1,266
1977	459	206	565	87	1,317
1978	400	544	558	89	1,591
1979	591	70	330	100	1,091
1980	1,824	119	625	120	2,688
1981	800	119	544	123	1,586
1982	697	0	736	310*	1,743
1983	1,096	166	543	131	1,936
1984	1,488	115	823	132	2,558
1985	895	---	---	---	895
Total	10,035	1,448	6,430	1,482	19,395

*Includes two Historical Statistical Bulletins (79 and 109 pages).

Composition of the "Collective Volume", 1980-85

Component	*Percent of total pages*
SCRS papers	51 (following 1979)
Workshop/Working Group Reports	30 (following 1979)
Reports "A"	20 (following 1980)
Symposia	5 (following 1981)

Source: SCRS/85/17.

Appendix 6 to Annex 10

Report of the Working Group on Computer Purchase

A small working group of 15 scientists with extensive backgrounds in computer systems and analysis was convened to review the computer requirements of the Secretariat. The terms of reference given to the group by the SCRS Chairman were to review the computer needs of the Secretariat in light of the impending doom and demise of the INFONET system. The group was to consider how to best meet the computer requirements under two separate scenarios:

1. The Secretariat, in the future, would continue to maintain its statistics functions plus the limited analytical capacity it presently has and the SCRS and its working groups would rely on facilities from member countries for computer support of its working groups.

2. The Secretariat in the future would continue its statistics functions and would supply computer support for working groups and the SCRS.

The members of the group assessed the Secretariat's needs and generally agreed with the information presented in SCRS/85/12. Members experienced in maintaining and updating large statistical data systems agreed that the Secretariat needs its own system in order to have on-line capability to avoid the processing delays currently experienced. The group noted that any system for statistics or analysis should not share word processing functions because interactive word processing will severely degrade statistical and analytical capabilities. The Secretariat should continue to use stand-alone word processing. The need to interface the word processors is not particularly important.

The group reviewed the difference between hardware requirements for the two scenarios based on previous experience in both areas. The conclusion was that the difference in hardware was, surprisingly, very slight. The main difference was in real memory size. Statistics-only operations should require more than one megabyte and full analytical capability would require two or more megabytes. After looking over the specifications of the available machines, the group concluded that both scenarios had essentially the same requirements.

Based on experience, the group concluded that three machines met the minimum requirements for memory size: the Micro-Vax II with 5 MB memory, the Hewlett Packard HP-9000, and the IBM-4361.

The group noted that the three machines should be tested by the Secretariat to assure that the basic operating system, text editor, and operating speed are acceptable. One method proposed was to create and run on each machine a series of programs which are designed to measure input-output speed, arithmetic computation speed, and logic speed. The time required by each of the machines to complete the programs may be used for comparison. Statistical applications require good input-output speed plus good logical speed.

The Secretariat also has the need to be able to read and write tapes in all normal densities. This requirement may eliminate the HP-9000 which is limited to 1600 BPI and may not be able to write in all required formats which the other two machines can. Consultation with service representatives on this point is needed.

It appears that the IBM-4361 and Micro-Vax II can both meet all the requirements. After a discussion of software availability and costs for both of these machines it was clear that the Micro-Vax II with 5 MB memory and a multi-density tape drive was the logical choice, providing the speed, editor, and operating system are all acceptable.

Appendix 7 to Annex 10

Proposal for Further Work on Micro Constituents of Bluefin Tuna Vertebrae

Document SCRS/85/36 reviews studies carried out on bluefin tuna and, in particular, the likely proportion of bluefin caught on the other side of the Atlantic from their side of origin. The methods, results and conclusions are presented and provide the foundation for the following proposal. Data are available for further analyses, in particular to look in more detail at observed average differences in both juveniles and adults from the east Atlantic and to broaden the analyses carried out on adult bluefin. Vertebrae have been scanned from some 50 adults, 25 each from the east and west Atlantic, with 15 to 25 readings per vertebra starting at the center and working out to the far edge. It may be possible to determine if there is evidence that individuals make frequent transatlantic migrations. Document SCRS/85/36 addressed only the question of net movement. It is of equal interest to determine how often and when individuals move. The management implications of these later questions are obvious.

Such further analysis, which might be undertaken through ICCAT contracting with IATTC, is as follows:

Task 1: Study of heterogeneity in the east Atlantic

The results described in SCRS/85/36 provide evidence of heterogeneity in the east Atlantic. The samples of juveniles collected in the Bay of Biscay and the samples collected in the Mediterranean (Gulf of Lion) differ statistically. There is also evidence of heterogeneity among adults collected in the Mediterranean; there seem to be two major groups. The results of cluster analyses suggest that one group is more prevalent in the Tyrrhenian Sea. The study would determine if the different patterns observed in the juveniles correspond to those of adults from regions within the Mediterranean. Specifically, it would examine in detail the suggestion from the data that there is a similarity between juveniles that "reside" in the Mediterranean and adults that were taken in the Ionian Sea.

The approach that would be used involves determining the nature of chemical differences between juveniles that were found inside and outside of the Mediterranean and looking for these patterns in specific subsets of adults. Monte Carlo techniques would be used to evaluate the probability of observing such differences and associations by chance alone.

Task 2: Determining the incidence of transatlantic movement in the lifetime of individual fish

Fifty giants have been irradiated; each required over seven hours of exposure. The 50 irradiated giants represent a great deal of data that has not been analyzed.

The task would be approached by systematically comparing chemical patterns that are known to differ geographically at each position irradiated along the vertebra. It should be possible to determine at what age and with what frequency fish cross over. It should also be possible to learn something of the oceanic regimes that these giants occupy as they mature.

Budget:

Costs are entirely for salaries and some programming assistance. Monte Carlo simulation studies will be carried out on the IATTC Micro-Vax computer and, if available, on the Cray super-computer. Prospects for the latter are excellent.

Salaries	
Investigator (80% salary for 6 months)	$24,500
Programming Assistance (and other technical help)	$ 5,300
Total costs	$29,800

Tasks outlined above would be started during the first part of the year and would extend through September, 1986. A report would be submitted at the conclusion of the studies to the 1986 SCRS.

Appendix 8 to Annex 10

Report of the Ad Hoc Working Group to Review Micro Constituent Analysis and its Relation to Stock Variation

The Working Group met on November 9, 1985, and reviewed the status of research submitted to ICCAT on analysis of chemical variability and stock variation in north Atlantic bluefin tuna.

1. Evaluation of procedures

The IATTC is establishing an outside evaluation of this methodology involving experts in disciplines other than fisheries, for example, physics, chemistry and osteology. The Working Group recommends that ICCAT request IATTC to provide the results of that review at the next annual meeting of the ICCAT. In addition to the above, a report of the bluefin work will be submitted to a peer-reviewed journal which will provide further evaluation.

2. Verification of procedure

The use of this technology on fish which were known to have crossed the Atlantic would allow for verification of the ability to detect transatlantic movement. Similarly, this would apply to fish known to have moved between the Mediterranean Sea and the Atlantic Ocean. Spain is tagging fish at the present time as part of it on-going research program. If hard parts can be obtained from returns of fish which have left these areas, verification of the micro-constituent methodology can be done. The U.S. will attempt to do this for returns in the west Atlantic. Since tag returns are low and estimated transatlantic crossings are also low, any increase in tagging efforts would be desirable. France would be able to tag in the Mediterranean but it is not sure if it would be able to charter a professional vessel with its own funds if this is a priority to be carried out in 1986. To allow for reference points it is valuable that ten fish from each year's tagging operations be sampled for vertebrae to establish a reference set against which future recoveries may be examined. It is recommended that the Secretariat coordinate this effort and report annually on progress.

3. Research Proposal of IATTC

IATTC has presented a proposal to analyze further data already gathered from samples of bluefin tuna vertebrae. The proposal addresses two separate items. The first is the possibility of detecting repeated transatlantic migrations of individual fish and the second is to examine further the differences between Mediterranean and east Atlantic fish. Although these were presented as a single proposal, the work could be separated into the two components. Participation in this research by ICCAT would result in ICCAT participating in advancing the development and application of new technology to fisheries science. Information from these analyses would provide further evidence concerning the value of this technology as well as possible information regarding stock separation and movements that may be useful for the SCRS in its deliberations on the status of bluefin tuna resources. The Working Group recommends this proposal as worthwhile for ICCAT funding either now or in the future.

Appendix 9 to Annex 10

Working Group on Biostatistical Assignments

A small Working Group (P. Cayré, A. Fonteneau, J. J. Maguire, J. Marcille and P. M. Miyake) was convened to review and revise the Report of the 1983 Working Group to Identify Biostatistical Assignments.

The Working Group agreed that the conclusions of the 1983 Report were still valid. It was noted that, nowadays, knowledge of computer science is a great asset for a biostatistician in carrying out his/her analyses.

The Working Group discussed the best way to achieve results on the four items mentioned in the 1983 Report (see Addendum 1 to this Report). It concluded that item 1 required the involvement of several different persons but that both the Secretariat's biostatistician and short-term contracts need to be involved. Progress on item 2 will most likely be achieved by giving short-term contracts to specialists. It is clear that items 3 and 4 should be addressed by the Secretariat's biostatistician.

Addendum 1 to Appendix 9 to Annex 10

Working Group to Identify Biostatistical Assignments

The problems that originally required the creation of a biostatistical position within the ICCAT Secretariat are outlined in the 1975 Report of the Sub-Committee on Statistics as: "...whether the right type of data are currently being collected; whether current data will be adequate in the future; the cost, benefit and effectiveness of current and future sampling schemes; contingency plans to deal with changing fleet composition; fishing areas and species exploited; and other such problems".

The Working Group noted that significant progress has been made in some of these fields while others by their very nature (on-going studies) will require work. The Working Group attempted to identify the tasks of a biostatistical nature relevant to the Secretariat's

mandate. Some of them are outlined below:

1. Quality control and data management: insuring that the data submitted to the Secretariat are thoroughly edited so that errors they may contain are corrected (this should include revisions to previously published data as well), that the data are diligently combined in common data bases and that the data bases are in a format rendering their analysis easy.
2. Study sampling procedures and variances associated with different levels of sampling by fleet and species. This could result in revision or establishment of sampling guidelines regarding the level of sampling and sample size.
3. Evaluate the adequacy of sampling by fleet and species. The logical result is to give advice to nationals on ways to meet the requirements. This could include training.
4. Monitor and organize sampling of fisheries not covered by conventional research programs.

The Working Group noted that the data and analysis requirements of the scientists are ever increasing and as a consequence the biostatistical demands have also increased and are likely to continue increasing. It is in the mandate of the Secretariat to meet these requirements and its work can only be made easier if it includes a biostatistician amongst its staff. Some of the tasks require stability and continuity while others could be performed by short-term contract. The Working Group believes that the Secretariat requires, on a permanent basis, at least one person-year for a biostatistical position plus funds for short-term contracts as need arises.

CHAPTER III
National Reports

NATIONAL REPORT OF BRAZIL

by

J. H. Meneses de Lima

1. Present status of the fishery

1.1 Fleet development

A total of 69 tuna boats operated in Brazilian waters in 1984. This fleet was comprised of 58 Brazilian boats (11 longliners and 47 baitboats) and 11 foreign-leased boats (3 Japanese longliners, 6 Japanese baitboats and 2 Spanish purse seiners). The distribution of the fleet, according to boat gross tonnage (GRT), is shown in Table 1.

The number of boats in the leased longline fleet decreased by one unit compared with 1983. These boats discontinued their activities in August, when leasing contracts ended, and were not replaced by three other boats until March, 1985. Concerning national longliners, one boat left the fleet based in Santos (SP) and was compensated for by a small longliner which started fishing in the tropical northeastern coast of Brazil.

The leased baitboat fleet increased by two vessels in August, 1984, to a total of six boats through October. After one boat ceased operations in November, the leased baitboat fleet was comprised of five boats.

The national baitboat fleet continued to show a decrease in the number of boats as a result of some converted baitboats resuming their original (sardine and shrimp) fishing activities. The reduction in the number of boats from 1983 to 1984 (18 percent) was less that recorded for the 1982 to 1983 period (41 percent). This seems to indicate that the fleet is approaching an average of 50-60 boats. Up to June, 1985, the number of boats was 49.

Regarding the purse seine fleet, the two Spanish-leased vessels ceased their activities in March, 1984.

Original report in English.

There is no reliable information available on the number of boats in operation in the artisanal fleet, but we believe that this fleet has had no changes in its composition during the last few years.

1.2 Fishing areas

National longliners operated in the same area as in previous years, from Cabo Frio (23°S) to Tramandaí (31°S), except for one small longliner converted from a lobster fishing boat that started operating at the end of 1983 in the northeastern coast in near-shore fishing areas, between 0°S and 10°S latitudes.

The leased longline fleet operated in tropical waters near Ascension Island (statistical quadrants 05010, 05015 and 05020) in the first quarter of the year. Afterwards, fishing operations concentrated in the south (28° to 34°S).

The total fishing area exploited by the baitboat fleet extended from south of the bank of Abrolhos (20°S) to the southern limits of Brazilian waters (34°44'S).

Most fishing operations were concentrated between Cabo de São Tomé (22°S) and Tramandaí (31°S). Within these limits, there are five major fishing areas: southeast of Cabo São Tomé, southeast of Cabo Frio, south of Ilha Grande, east of São Francisco do Sul and east of Cabo de Santa Marta Grande (Figure 1). Fishing operations north of Cabo São Tomé and south of Tramandaí were carried out sporadically in the spring and summer by the leased baitboat fleet.

1.3 Trends in catch and effort

The total annual catch of tuna and tuna-like species taken in 1984 in Brazilian waters amounted to 22,752 MT, about 1,000 MT less than the 1983 catch.

Of the total catch, 18,201 MT were taken by the industrial fishery (baitboats, longliners and purse seiners), 4,168 MT by the artisanal fishery (set nets, gill nets, trolling, etc.) and 38.3 MT by the sport fishery.

Trends in catch and effort by fleet category are as follows:

The catch by the Japanese-flag longline fleet amounted to 1,311.6 MT, a 42 percent decrease compared to 1983 (Table 2). This decrease is attributed to the reduction in the number of fishing boats and to the fact that they operated only up to the middle of the year. There was a change in catch composition by species, with bigeye tuna replacing yellowfin as the most important species in the catch. A similar trend was observed in the catch rates. As concerns the total catch, catch rates were close to those of previous years.

Catches of the national longline fleet showed a slight decrease compared to 1983. Catch composition by species was the same as in previous years, with yellowfin and swordfish comprising the highest proportion of the catch. Fishing effort increased and catch rates continued to decline (Table 3).

The total catch of the leased baitboat fleet was 5,877.6 MT, a 58.3 percent increase compared to the 1983 catch (Table 4). This increase was due to more boats being added

to the fleet. Skipjack continued to be the predominant species in the catch, followed by yellowfin. Fishing effort showed only a slight increase and catch rates increased 40 percent over 1983, returning to the same level of 1982, when this fleet started operating.

The catch by the national baitboat fleet was 9,137.0 MT, representing a strong decline (33.6 percent) compared to 1983. This was due to the reduction in the number of boats as well as to the low catch rates (Table 5). Catch composition by species was similar to that of the leased baitboat fleet, although yellowfin comprised a higher proportion of the total catch. Fishing effort declined due to the reduction in the number of boats in operation and catch rates showed a decrease in relation to 1983. As reported last year, this decrease in the catch rate might be much greater than it appears, due to the expected increase in fishing power of this fleet as a result of the continuous increase in the average GRT of the boats.

Catches taken by the Spanish leased purse seine fleet amounted to 840 MT, with the following species composition: skipjack, 52.6 percent; yellowfin, 39.7 percent; and frigate tuna 7.7 percent. Data on the operation of this fleet, and on the Gran Cayman-flag fleet, from 1982 to 1984, are shown in Table 6.

Catches taken by the artisanal fleet amounted 4,168 MT, a 102 percent increase over 1983. However, these higher catches are attributed to the inclusion of catch data from artisanal fisheries off the states of the south and southeast regions. Considering catches from artisanal fisheries only in the northeastern states, the increase was about 32.5 percent.

2. Research activities

Catch and effort data were collected (Task II by month, area and gear), from more than 70 percent of the catches taken by the industrial fleet in 1984.

The size sampling work carried out by SUDEPE improved, making it possible to measure 27,469 fish, distributed by species as follows: 24,212 skipjack, 1,301 yellowfin, 590 albacore, 829 bigeye, 519 swordfish and 18 frigate tunas. As regards yellowfin, size sampling also covered baitboat landings in 1984.

Length frequency data on swordfish from national longliners in the period 1971-1984, as well as size sampling data taken from research cruises for other species, were also submitted in 1984. Size frequency data on billfishes are being prepared and will be ready this year.

Although floating aggregating devices (FAD) experiments have been tried along the south and southeast coast of Brazil since 1982, there is insufficient evidence of their success in aggregating tunas and facilitating catches. So far, three different FAD designs have been tested, varying from the most rudimentary type to more diversified models, adapting to the prevailing sea conditions in the area.

The lack of periodical maintenance cruises to replace damaged FAD parts to assure their longer duration and insufficient coverage of the catches taken by baitboats operating in FAD areas are the main problems to be solved in future experiments. Other problems are those related to strong currents and winds that occur in some periods of the year in lo-

cations where the FADs have been placed. A more elaborate FAD was set in the south late in the year, concluding the experiments in this region. Similar experiments will take place in the future off the northeastern coast where there is already an experimental FAD being tried.

Results from studies in other research areas in 1984 were presented in scientific papers submitted to the SCRS Meeting.

3. Preliminary information for 1985

Catches of tuna taken by the industrial fleet in the first quarter of 1985 reached a total of 18,033 MT, distributed by fleet as follows: longline, 964 MT; and baitboat, 17,069 MT. Based on these data and assuming that catches from the artisanal fleet will reach the same level as last year, it is expected that the 1985 total catch will be approximately 30,850 MT.

The tuna fishery that started in the northeast region with a converted national longliner has been successful, and one more medium-sized boat is operating there.

Catches of the longline fleet based in Santos (SP) have continued to show a decline, and there has been an increase in the proportion of sharks in the catch. For this reason a longliner of this fleet was modified for tuna fishing to use a surface gill net. Fishing operations were carried out up to the northeast coast.

Although this experiment is still being conducted, preliminary information reported by the fishermen has demonstrated low catch rates and an even larger proportion of sharks.

As regards research activities, we have extended the port sampling program to obtain size frequency data on yellowfin and albacore from leased baitboat fleet landings in Santa Catarina State.

Table 1. Number of boats by gross tonnage (GRT) class (baitboats and longliners) and carrying capacity class (purse seiners)

BAITBOATS			*LONGLINERS*			*PURSE SEINERS*	
GRT	*Brazilian flag*	*Japanese flag*	*GRT*	*Brazilian flag*	*Japanese flag*	*Carrying capacity (MT)*	*Spanish flag*
50	04	--					
51-150	37	--	51-200	11	--	501-600	01
151-200	06	--	201-500	--	03	More than 1000	01
201-300	--	06					

Source: PDP/SUDEPE.

Table 2. Total catch, estimated effort and catch rate by main tuna and tuna-like species caught by Japanese longline-leased fleet in Brazilian waters, 1976-1984

		Yellowfin		*Albacore*		*Bigeye*		*Swordfish*		*Total catch*	
Year	*Effort No. hooks*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*
1977	273,825	45.2	16.5	55.0	20.1	65.6	23.9	12.6	4.6	470.4	171.8
1978	1,733,413	450.0	26.0	374.2	22.0	481.0	27.7	180.4	10.4	1,998.4	115.3
1979	1,174,577	378.7	32.2	215.6	18.3	401.2	34.2	201.6	17.2	1,508.7	128.4
1980	1,278,542	283.3	22.2	204.1	15.9	392.6	30.7	409.5	32.0	1,666.7	130.4
1981	1,178,950	727.5	61.7	187.1	15.9	341.4	28.9	222.8	18.9	1,902.0	161.3
1982	2,240,916	582.1	26.0	537.1	24.0	464.0	20.7	390.8	17.4	2,816.3	125.7
1983	1,781,589	504.7	28.3	472.2	26.5	378.2	21.2	282.8	15.9	2,263.2	127.0
1984	1,082,131	131.6	12.16	280.0	25.87	521.5	48.19	121.5	11.22	1,311.6	121.20

Source: PDP/SUDEPE.

Table 3. Catches, estimated effort and catch rate by main tuna and tuna-like species caught by the national longline fleet in Brazilian waters, 1976-1984

		Yellowfin		*Albacore*		*Bigeye*		*Swordfish*		*Total catch*	
Year	*Effort No. hooks*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*	*Catch (MT)*	*Hook rate (kg/100 hks)*
1976	1,085,005	424.3	39.1	156.8	14.5	111.8	10.3	371.8	34.3	1,421.4	131.0
1977	1,250,335	368.0	29.4	157.0	12.6	150.0	12.0	330.0	26.4	1,423.8	113.9
1978	1,281,380	331.0	25.8	65.0	5.1	76.0	5.9	138.0	10.7	872.0	68.1
1979	1,294,565	553.0	42.7	151.0	11.7	167.0	12.9	213.0	16.5	1,361.0	105.1
1980	1,192,610	236.2	19.8	184.9	15.2	174.0	14.6	1,125.0	94.3	2,150.0	180.3
1981	1,223,105	459.5	37.6	63.1	5.2	102.4	8.4	405.0	33.1	1,140.4	93.2
1982	1,629,735	322.2	19.8	173.1	10.6	188.1	11.5	613.0	37.6	1,448.9	88.9
1983	2,302,915	337.1	14.6	191.2	8.3	127.4	5.5	470.7	20.4	1,458.2	63.3
1984	2,575,255	343.6	13.3	171.0	6.6	135.7	5.3	341.3	13.2	1,380.6	53.6

Source: PDP/SUDEPE, Instituto de Pesca (Sao Paulo).

Table 4. Total catch, estimated effort and catch rates of main tuna species taken by the leased Japanese baitboat fleet, 1982-1984

			Skipjack		*Yellowfin*		*Others*[2]	
Year	*Effort (fishing days)*	*Total catch (MT)*	*Catch rate*[1]	*Catch (MT)*	*Catch rate*[1]	*Catch (MT)*	*Catch rate*[1]	*Catch (MT)*	*Catch rate*[1]
1982	163	1,761.0	10.80	1,714.0	10.51	4.0	0.02	43.0	0.26
1983	513	3,713.3	7.23	3,659.6	7.13	39.7	0.08	14.0	0.03
1984	569	5,877.6	10.30	5,707.8	10.00	129.0	0.23	40.8	0.07

Source: PDP/SUDEPE.

1 MT/day of fishing (including unsuccessful scouting days).

2 Includes albacore, bigeye tuna and small tunas.

Table 5. Total catch (MT), estimated effort and catch rates of main species taken by the national baitboat fleet, 1979-1984

	EFFORT		TOTAL CATCH			SKIPJACK			YELLOWFIN			OTHERS		
Year	Total fishing days*	Effective fishing days**	Catch (MT)	Catch rate 1	2	Catch (MT)	Catch rate 1	2	Catch (MT)	Catch rate 1	2	Catch (MT)	Catch rate 1	2
1979	--	--	2,104.0	--	--	1,818.0	--	--	117.0	--	--	169.0	--	--
1980	--	1,068	6,846.0	--	6.41	6,070.0	--	5.68	392.0	--	0.37	384.0	--	0.36
1981	--	2,821	14,737.0	--	5.22	13,786.0	--	4.89	906.0	--	0.32	45.0	--	0.02
1982	6,108	4,053	17,469.0	2.86	4.31	16,299.0	2.67	4.02	1,027.0	0.17	0.25	143.0	0.02	0.04
1983[3]	4,629	2,783	13,751.0	2.97	4.94	11,688.0	2.52	4.20	1,738.0	0.37	0.62	325.0	0.07	0.12
1984	3,709	2,638	9,137.0	2.46	3.46	7,379.0	1.99	2.80	1,169.0	0.31	0.44	589.0	0.16	0.22

Source: PDP/SUDEPE.

*Refers to all days of fishing, including unsuccessful scouting days.

**Refers only to days of fishing that resulted in effective fishing.

1 MT/day of fishing.

2 MT/day of effective fishing.

3 Fishing effort raised to total catch based on data from Rio de Janeiro fleet, because sampling of catch and effort data from the other fleets showed low percentage of coverage.

Table 6. Purse seine fishery in Brazil by foreign leased boats, 1982-1984

											Catch rates				
Year	Qtr	Fleet	No. of trips covered	No. of boats	Days at sea	Fishing and searching days	Effective fishing days	Total sets	Successful sets	Total catches (MT)	MT/days at sea	MT/searching and fishing days	MT/effective fishing days	MT/set	MT/successful set
1982	III/IV	G.C.	03	01	68	–	–	37	10	95.9	1.41	–	–	2.59	9.59
1983	I	G.C.	03	01	22	–	–	29	21	103.0	4.68	–	–	3.55	4.90
1983	II	G.C.	02	01	24	–	–	12	09	32.6	1.36	–	–	2.72	3.62
1983	IV	Spn.	05	02	126	87	24	11*	01	319.1	2.53	3.67	13.29	–	–
1984	I	Spn.	06	02	125	87	315	78*	30	840.0	6.72	9.65	26.67	–	–

Source: PDP/SUDEPE.

G.C. = Gran Cayman flag boats.

Spn. = Spanish flag boats.

*Partial information.

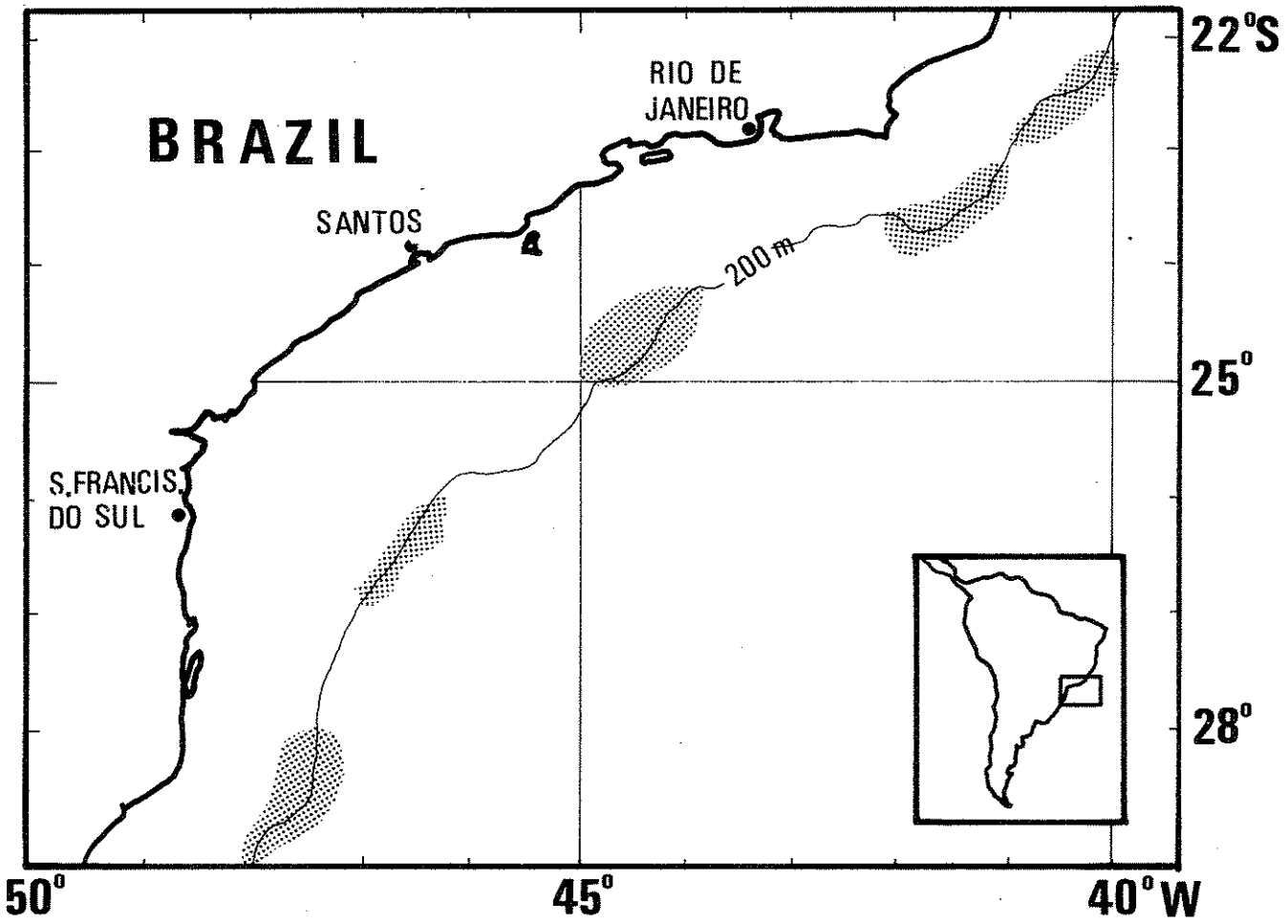

Fig. 1 Major fishing areas of the baitboat fleets operating off the southeastern Brazilian coast.

NATIONAL REPORT OF CANADA

by

D. Clay

1. Status of the fisheries

1.1 Bluefin tuna

Canadian landings of Atlantic bluefin tuna in 1984 totaled 590 large fish weighing 264.2 MT, a decline to only half of the 1983 landings.

The Canadian trap fishery was down again in 1984, landing only eight fish.

Prices paid to Canadian fishermen varied more than in the past; monthly, and particularly regional differences were common. St. George's Bay had the highest average price and had a more successful fishery in 1984 than 1983; all other regions were down in landings from 1983 levels. The catch per unit of effort, based on longbook information, is down in 1984 for both the rod and reel charter sport fishery and the "tended line" commercial fishery.

The mean weight of bluefin caught in the Gulf of St. Lawrence in 1984 was 457.5 kg, up 5 percent from 1983 and continuing the long trend begun in the late 1960's.

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 1984 totaled 499 MT. The longline fishery made up 93 percent (465 MT) with the remaining 34 MT taken by the harpoon fishery.

These figures are less than 50 percent of the 1983 landings but comparable to the 1982 levels.

The drop in 1984 levels is partially attributed to a shift in effort to other fisheries, mainly Atlantic halibut.

Original report in English.

2. Research studies

2.1 Bluefin tuna

Intensive biological sampling was conducted on Prince Edward Island, in St. Margaret's Bay and St. George's Bay, Nova Scotia. Approximately 120 otoliths were collected (from the 590 fish landed) and ages read from them.

Individual weights were collected from all fish landed in 1984 and vessel log records from 1981 and 1984 were analyzed to complete the CPUE series from 1975.

More tissue samples were collected during 1984 and fat, protein, water and ash composition analyzed on these and those collected during 1983.

Sampling data collected by the Department of Fisheries and Ocean International Observer Program were analyzed for the first time and preliminary findings were reported. Future analysis will occur on current and historic data as they become available.

2.2 Swordfish

No new studies were initiated and no tagging was carried out during 1984.

3. Preliminary information for 1985

3.1 Bluefin tuna

The landings as of October 20, 1985, were approximately 75 percent of what they were the same time in 1984, indicating a poor year for the 1985 Canadian large-fish fishery.

The St. Margaret's Bay trap fishery is the only region with higher landings than in 1983 or 1984, although the 35 or so fish landed are still an order of magnitude below the historic catches of the 1960's and 1970's.

There were no Canadian purse seine fisheries in 1985 and no tuna were tagged and released; some tag recoveries were recorded.

4. Documents presented to the 1985 SCRS

Two research documents and one meeting document were presented to the SCRS in 1985. These are listed in Appendix 2 to Annex 10 and/or published in the Collective Volume of Scientific Papers, Vols. XXIV and XXV.

NATIONAL REPORT OF CAPE VERDE

by

H. Santa Rita Vieira

1. General information on tuna fisheries in Cape Verde

The fisheries of Cape Verde are defined according to vessel type:

1.1 Artisanal fishery

The artisanal fishery is comprised of small boats and the main fishing gears used are lines and beach seines.

The small boats are made of wood and vary greatly in size, shape and capacity. The average size is 4-5 meters in length and about 1.5 meters in width. Oars, sails, outboard motors or a combination of the three are used to propel these small boats.

About 1,173 vessels distributed throughout 75 landing sites operate almost all year around the islands, at the edges of the insular plateaus, or around schools, with a crew of three to four fishermen per boat.

Many fishing gears are used which can catch tuna or other pelagic or demersal fish. Tuna are caught on the surface but more frequently in deep water.

The gears are handlines with lengths varying from 150 to 450 meters. As tuna are brought to the surface near the boats, if the size is judged too large, the fish is harpooned, the head is held out of the water with the aid of a hand hook inserted in the fish's eyes, and then the fish is beaten to death with hammers before been hauled on board.

An average of 2-3 kg. of bait is used per trip and the bait can be either dead or alive. The live bait is kept in the bottom of the boat where the water is changed frequently.

Atlantic little tuna and frigate tuna are often caught with beach seines.

The artisanal fishery catch is sold on the local market as fresh fish for local consumption. During the hot season some artisanal fishermen sell to the canning or freezing companies.

A small canning company is almost entirely supplied by around 40 boats.

Tuna comprise 40-60 percent of the total artisanal catch of which yellowfin is the most important species in terms of quantity.

Original report in French.

1.2 Industrial fishery

The so-called industrial fishery is comprised of vessels of over seven meters, with an inboard motor and a closed hull and whose yield is exported either frozen or, after processing, canned.

The fleet comprised of small wooden or fiberglass vessels (7-25 meters overall length) equipped as tuna baitboats and steel oceanic tuna vessels (39 meters overall length).

These vessels are very old and are often immobilized at the port generally because of mechanical problems.

A new fleet of eight fresh-fish baitboats of 15-18 meters overall length should begin to arrive at the end of this year.

Skipjack, caught mainly during October and November, is the most important species of the baitboat catch.

The fishing areas frequented by the baitboats are generally the same as those used by the small boats, except for the freezer baitboats, which conducts cruises outside Cape Verde waters.

2. The fleet

The fleet which was active during 1984 and 1985 is described in Table 1.

3. Catches

The total catch for 1984 and 1985 is shown in Tables 2 and 3. Statistics on the artisanal fishery for 1981 to 1983 are shown in Table 4.

4. Fishing areas

Fishing activities in 1985 took place mostly in Cape Verde. A baitboat fished in Azores during July, 1985, with unsatisfactory results. Another, which conducted a fishing cruise to Mozambique, returned to Cape Verde at the beginning of June, 1985.

5. Statistics

As regards statistics of the industrial fishery, Cape Verde tries to follow the ICCAT recommendations in collecting catch, effort and size sampling data by $5^{o}x5^{o}$ areas.

Concerning the artisanal fishery, we are convinced that the catch and effort estimates recorded since 1981 are still biased. Only in 1985 were there sufficient port samplers to obtain sampling that we feel is representative.

Taking into account adaptation time and other difficulties, it is estimated that only data for 1986 are more or less reliable.

We are presently carrying out size sampling of tuna caught by the artisanal fishery.

Table 1. Cape Verde fleet operating in 1984 and 1985

	1984	*1985*
Boats	1173	?
Baitboats without freezers	27	31
Freezer baitboats	2	4

Table 2. Cape Verde catch (MT) of tunas for 1984 (Commercial and artisanal fisheries)

	Total	*T. albacares*	*T. obesus*	*K. pelamis*	*A. solandri*	*A. thazard & E. alletteratus*	*Gear*	*Effort*
Artisanal fishery	3,511	1,831	4	331	1,336	9	HAND	128,710
Artisanal fishery	1	–	–	–	–	1	UNCL	2,726
Artisanal fishery SUCLA	142	127	–	11	4	–	HAND	6,720
Commercial fishery	2,015	862	97	1,030	25	1	BBF&BB	1,788
Commercial fishery	5	–	–	–	–	5	PSS	5
TOTAL	5,674	2,820	101	1,372	1,365	16		

Table 3. Catch (MT) of tunas in 1985 (Commercial fishery up to the end of September)

Total	*T. albacares*	*T. obesus*	*K. pelamis*	*A. solandri*	*A. thazard & E. alletteratus*	*T. alalunga*	*Gear*	*Effort*	*Area*
826	431	15	360	10	10	--	BB	1,403	C. Verde
14	--	--	--	--	--	14	BBF	31	Azores
565	67	7	491	--	--	--	BBF	183	C. Verde
12	--	--	--	--	12	--	PSS	6	C. Verde
1,417	498	22	851	10	22	14		1,623	

Table 4. Cape Verde catches of tunas by the artisanal fishery, 1981-1983

Year	*Total*	*T. albacares*	*T. obesus*	*K. pelamis*	*A. thazard & E. alletteratus*	*A. solandri*	*Effort (No. trips)*
1981	6,749	4,404	59	4	1	2,281	152,490
1982	4,282	2,691	63	53	40	1,435	130,271
1983	5,046	3,392	1	61	30	1,562	160,400

NATIONAL REPORT OF CUBA

by

B. García Moreno

1. Tuna fleet

In 1984, the number of Cuban tuna vessels which operated in the Atlantic Ocean was similar to that of previous years. However, in 1985 the number of vessels was slightly lower since some large longliners had to stop their fishing activities because of mechanical problems.

The Cuban longline fleet which operated in 1984 was comprised of 18 large longliners (501-1000 GRT) based in the port of Las Palmas de Gran Canaria, as well as 13 medium longliners (51-200 GRT) based in Cuban ports.

A medium purse seiner (501-600 GRT) carried out fishing activities in the central eastern Atlantic, basically in the Gulf of Guinea.

Approximately 60 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

The fishing area of the 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 medium and small longliners as well as for a large number of baitboats.

3. Catches

Cuban catches of tuna and tuna-like species in 1984 reached 9,610 MT, and fishing effort was mainly directed at yellowfin tuna.

The species composition of the catches, in order of importance, was broken down as follows:

Original report in Spanish.

Yellowfin 4,005 MT (41.7 percent), skipjack 1,558 MT (16.2 percent), swordfish 1,367 MT (14.2 percent), billfish 678 MT (7 percent), spotted Spanish mackerel 544 MT (5.6 percent), blackfin tuna 487 MT (5 percent), bigeye 447 MT (4.6 percent), blue marlin 373 MT (3.9 percent), albacore 136 MT (1.4 percent) and Atlantic little tuna 15 MT (0.15 percent).

Table 1 shows the catches of tuna and tuna-like species caught by Cuba during the period 1980-1984.

4. Fishery outlook

Most of the large longliners which fish in distant waters are mechanically deficient after more than 20 years of use. Because of substantial changes in fishing strategy, it is expected that there will be a gradual retirement of these vessels without immediate replacement by new vessels.

Since in the next few years the number of these vessels in operation will be less, Cuban tuna and tuna-like catches are expected to decline gradually from year to year, until stabilizing at levels considerably lower than the present levels; and most of the catches by various gears will be made in the Cuban Economic Zone or nearby areas.

5. Research

Biological sampling continued in Cuban ports on skipjack, blackfin, billfish and blue marlin and this information served as a base for completing Forms 3.4 and 3.5 devised for the aforementioned species.

Research was also carried out in relation to abiotic-abundance parameters of skipjack and blackfin tunas. Research was also carried out on the abundance of larvae and other biological aspects of these species.

6. Statistics

Copies of Forms 1.1, 1.2 and 2, with information corresponding to 1984, were sent to ICCAT.

Table 1. Cuban catches (MT) of tunas and tuna-like species during 1980-1984

	1980	*1981*	*1982*	*1983*	*1984*
Yellowfin	5,800	4,900	3,754	2,709	4,005
Albacore	100	100	111	74	136
Bigeye	1,400	700	521	421	447
Skipjack	2,500	1,300	1,323	1,835	1,558
Spotted Spanish mackerel	500	600	476	689	544
Billfish	800	600	589	1,068	678
Swordfish	600	400	686	1,228	1,367
Blue marlin	--	300	436	396	373
Atlantic little tuna	--	100	77	6	15
Blackfin	--	700	622	558	487
Others	100	--	--	--	--
Total	11,800	9,700	8,595	8,984	9,610

NATIONAL REPORT OF FRANCE

1. State of the fisheries

	1978	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Yellowfin	41.6	38.7	43.6	40.6	29.2	31.9	5.8
Skipjack	19.9	15.2	22.5	27.2	26.1	20.5	13.2
Bigeye	2.2	3.1	0.8	0.4	3.0	6.0	2.1
Albacore	8.4	8.0	4.2	3.3	3.6	3.0	2.9
Bluefin	2.3	1.8	1.7	2.4	5.0	4.1	4.2
TOTAL (1,000 MT)	74.4	66.8	72.8	73.9	66.9	65.5	28.2

The tuna catches made by the French fleet in 1984 decreased sharply, following the departure of the inter-tropical purse seine fleet to the Indian Ocean.

1.1 Bluefin

In spite of a 22 percent decrease in number of days of effective fishing in 1984 compared to 1983, bluefin catches in the Mediterranean have remained at the same level for those two years, that is, 3,600 MT. The amount of tuna landed in the Basque region is slightly higher. It is expected that 1985 landings of bluefin will be high (more than 6,000 MT).

1.2 Albacore

The albacore fishing season was good in spite of a decrease in the number of vessels targeting this species (2,400 MT in 1983 by 113 trollers, 2,800 MT in 1984 by 103 trollers). The 1985 season, which extended until November, was poor at the beginning of the season, essentially because of the bad meteorological conditions in July-August in the north-east Atlantic. Albacore catches by purse seiners are becoming more and more frequent in the Mediterranean.

Original report in French.

1.3 Tropical tunas

The French catches of tropical tunas declined sharply in 1984 following the departure of the majority of the French purse seiners to the Indian Ocean. The catches of the French baitboat fleet based in Dakar are somewhat higher in spite of the slight decrease in fishing effort.

2. Research

The principal organizations which conduct tuna research are ORSTOM ("Office de la Recherche Scientifique et Technique d'Outre-Mer") and IFREMER ("Institut Français de Recherche pour l'Exploitation de la Mer").

2.1 Albacore

Research cruises were continued in 1984 and 1985 on commercial vessels. Thanks to the close collaboration between IFREMER scientists on land and on board vessels and the CMS ("Centre Météorlogique 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^{O} W which are not frequented by the commercial vessels. In 1986 gill nets will be tried in order to increase the yield of the albacore vessels.

IFREMER collected statistical data (catch, effort and size composition). The data processed by the data treatment centers of the national statistics network were compared to the official data and served as a base for the overall estimates for 1984.

2.2 Bluefin

Bluefin sampling was continued in the Mediterranean on the landings of 23 French purse seiners. A scientist from IFREMER participated in the Bluefin Working Group Meeting held in Miami from September 18 to 28, 1985.

2.3 Tropical tunas

Research on tropical tunas continued by ORSTOM scientists stationed in Senegal and Ivory Coast within the framework of the research programs of these two countries. Work was carried out on the biology and population dynamics of yellowfin, skipjack and bigeye. In 1984, studies were concentrated on problems of management of the fisheries which catch juvenile tropical tunas. In particular, a procedure was proposed at this meeting to correct the species composition of the logbooks from the size frequency sampling. A new multi-gear simulation model for various species was updated and used to try to es-

timate the consequences of closing areas where juvenile yellowfin and bigeye are concentrated. These studies helped the ICCAT Working Group, which met in Brest in July, 1984, to conclude that a strategy of seasonal closure of fishing areas would not presently produce an increase in the yield of the yellowfin, skipjack and bigeye fisheries.

3. References

Documents presented to the SCRS in 1985 are listed in Appendix 2 to Annex 10 and/or are published in the Collective Volume of Scientific Papers, Vol. XXIV and XXV.

NATIONAL REPORT OF GHANA

by

M. A. Mensah

1. Tuna fleet

The Ghanaian flag tuna fleet that operated during 1984 was comprised of 27 baitboats and 4 purse seiners. In addition, 4 Japanese-flag baitboats operated for the first four months of the year and then left the fleet.

A significant event in the operation of the fleet was that since March, 1984, the fleet has been landing their catches in Abidjan. Generally, only local market catches (undersized tuna) were discharged in Tema. It was very seldom that a tuna boat unloaded its total catch in Tema.

2. Landings

The following landings, in metric tons, were made in 1984 by Ghanaian-flag and foreign-flag vessels:

Species	*Foreign Flag*	*Ghanaian Commercial*	*Total*
Yellowfin	200.605	4,230.229	4,430.834
Bigeye	—	119.266	119.266
Skipjack	1,708.406	20,252.231	21,960.637
Black skipjack	—	223.493	223.493
Frigate tuna	—	—	—
Sailfish	—	0.230	0.230
Mixed*	213.596	4,318.416	4,532.012
Total	2,122.607	29,143.865	31,266.472

*"Mixed" consists of all species considered undersized which cannot be exported and *Elegatis bipinnulatus*. Black skipjack includes *Euthynnus alletteratus* and *Sarda sarda*.

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	565.457	171.867	425.695	1,126.484	2,289.503
Bigeye	—	0.614	—	41.154	41.768
Skipjack	4,016.813	2,448.915	6,983.376	3,573.480	17,022.584
Black skipjack	1.142	—	—	0.264	1.406
Mixed	1,181.655	442.911	1,426.288	594.368	3,645.222
Total	5,765.067	3,064.307	8,835.359	5,335.750	23,000.483

The total quarterly landings of purse seiners were as shown below:

Species	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Yellowfin	167.946	264.712	336.593	1,372.080	2,141.331
Bigeye	1.426	6.112	16.945	53.015	77.498
Skipjack	747.133	1,447.262	1,007.006	1,736.652	4,938.053
Black skipjack	—	86.565	78.098	57.424	222.087
Mixed	566.141	9.189	43.418	268.272	887.020
Total	1,482.646	1,813.840	1,482.060	3,487.443	8,265.989

3. Research

During the year collection of nominal catch (Task I), catch and effort (Task II) and biological data continued. This work was initially hampered by the change in landing center from Tema to Abidjan. However, Abidjan tuna scientists succeeded in collecting as much data as possible for cross-checking with the Ghanaian tuna scientists. Before the year ended, scientists of Ghana and Ivory Coast met in Abidjan and agreed on how best to collect, handle and analyze catch data from the Ghanaian flag vessels that unload in Abidjan.

i) Studies were continued on length frequency distributions, maturity and feeding of the three principal tuna species: namely, yellowfin, skipjack and bigeye. A total of 3,273 skipjack, 2,394 yellowfin and 305 bigeye were measured in Tema during the year for length frequency distribution.

ii) Port sampling at Tema was poor because most landings were made in Abidjan.

iii) No tags were recovered during the year.

4. Research Program for 1985-86

i) If the fleet returns to Tema for landing, effort will be intensified to improve Task II statistics and size sampling.

ii) Biological sampling would continue.

NATIONAL REPORT OF IVORY COAST

by

F. X. Bard and J. B. Amon Kothias

1. Statistics

Fishing by the Ivory Coast tuna fleet has been reduced considerably. In the Atlantic three vessels of the Ivorian fleet operated part of the year and caught 1,385 MT of tunas. A breakdown of the catch, by species, is given in Table 1. As regards other fleets, landings and transshipments at the port of Abidjan reached 98,517 MT.

Task I, Task II and biological data are collected by the "Centre de Recherches Océanographiques" (CRO) and are submitted to ICCAT.

Ghanaian baitboats (21 vessels) are more and more regularly landing their catches at Abidjan. At the end of 1985 it can be estimated that the entire Ghanaian fleet is based in Abidjan.

2. Research

A tagging cruise was carried out in May, 1985, and 69 tuna were tagged.

Diverse research on the biology of tunas has been carried out (collection and analysis of hard parts, gonads).

3. References

The results of research activities are listed in Appendix 2 to Annex 10 and/or are published in the Collective Volume of Scientific Papers, Vol. XXV.

4. Publications

Bard, F. X., J. M. Stretta, M. Slépoukha, 1985. Les épaves artificielles comme auxiliaires de la pêche thonière en Océan Atlantique. Quel avenir. Pêche Maritime, Octobre 1985, no. 1291: pp. 655-659.

Original report in French.

Table 1. Catches (MT) by the Ivorian tuna fleet

Species	*1983*	*1984*	*1985*
Yellowfin	7,712	837	661
Skipjack	6,961	2,935	722
Bigeye	96	10	1
Albacore	72	1	2
Total	14,841	3,783	1,386

NATIONAL REPORT OF JAPAN

by

S. Kume
Far Seas Fisheries Research Laboratory

1. Fishing activities

In 1984, three types of gears were used by the Japanese tuna fishery in the Atlantic: longline, pole-and-line and purse seine. The 1984 Japanese catch of Atlantic tuna and tuna-like species amounted to 42,567 MT, 92 percent of which was taken by the longline fishery (Table 1). The 25 percent increase over the 1983 catch was due mainly to the increase in the catch of bigeye tuna. The pole-and-line fishery ceased operations in April, 1984. In 1985, the longline and purse seine fisheries continued operations as in recent years.

Japanese fishermen have been under governmental regulatory measures relating to the regulations of the International Commission for the Conservation of Atlantic Tunas (ICCAT) imposed on bluefin, yellowfin and bigeye tunas. In May and June, 1984, a government patrol boat monitored the longline fleet for bluefin tuna. In the same period of 1985, two boats were dispatched for the same purpose.

1.1 The longline fishery

The preliminary longline catch in 1984 was 39,096 MT, an increase of about 13,400 MT over the 1983 catch and slightly above the average of the last five years (Table 3). The number of longliners also increased from 182 in 1983 to 212 in 1984 (Table 2). The bigeye catch of 24,310 MT (62 percent) was higher than that of other species. The catches of other species were as follows: yellowfin tuna (3,967 MT, 10 percent), swordfish (3,789 MT, 10 percent) and bluefin tuna (3,246 MT, 8 percent). The high bigeye catch was due to the concentration of longliners in the bigeye fishing grounds. In the first half of 1985, the longline fleet reportedly operated in the same pattern as in recent years.

Original report in English.

1.2 The pole-and-line fishery

There was no fishing by this gear type in the Atlantic after April, 1984. The tuna catch by this fishery in 1984 was only 565 MT, comprised mainly of skipjack (Table 4) taken by two baitboats based at Tema (Table 2).

1.3 The purse seine fishery

During 1984, one Japanese purse seiner operated in the Gulf of Guinea and caught 2,906 MT of tropical tunas, most of which were comprised of skipjack and yellowfin tuna (Table 5). In 1985, two purse seiners operated. (The second vessel started operations in April.)

2. Research activities

The Far Seas Fisheries Research Laboratory (FSFRL) has been conducting scientific research on Atlantic tunas and tuna-like fishes. The collection and processing of Atlantic fishery data were also carried out by the FSFRL. All the statistical and scientific results were routinely reported to the ICCAT Secretariat and were also presented at the regular and intersessional meetings of the Standing Committee on Research and Statistics (SCRS). In September, 1985, two FSFRL scientists participated in the Meeting of the Working Group on Bluefin Tuna held in Miami, Florida, U.S.A.

2.1 Fishery data

Up to now, preliminary 1984 catch data (Task I) and final 1983 catch and effort data (Task II) for the longline fishery were reported to the ICCAT Secretariat. The quick reporting system of logbooks at the port of call has been in effect since April, 1984. Final processing of longline data for 1984 is now in progress. Task I and II data for the pole-and-line and purse seine fisheries were finalized and reported for 1984. On-board size sampling was continued, and length data for 1983 were compiled and reported to ICCAT.

2.2 Tuna biology and stock assessment

Scientific research by the FSFRL on the biology and population dynamics of Atlantic tunas and billfishes focused on stock assessment studies on bluefin and bigeye tunas. Five papers were presented at the Meeting of the Working Group on Bluefin Tuna and dealt with a review of the monitoring system and stock assessment techniques, recent longline fishing conditions, and CPUE analyses on bluefin tuna. In addition, an updated stock evaluation of bigeye tuna was presented to the SCRS Meeting.

3. References

The documents presented to the SCRS in 1985 are listed in Appendix 2 to Annex 10 and/or are published in the Collective Volume of Scientific Papers, Vols. XXIV and XXV.

Table 1. Japanese catch (MT) of tunas and tuna-like fishes by type of fisheries, Atlantic and Mediterranean, 1979-1984

Type of fishery	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Total	44,480	49,505	53,814	63,664	33,906	42,567
Longline (Home-based)	27,613	35,437	37,636	50,794	25,596	39,096
Pole-and-line	16,867	14,068	16,178	10,620	5,577	565
Purse seine	---	---	---	2,250	2,733	2,906

Table 2. Annual number of Japanese tuna boats operating in the Atlantic, 1979-1984

Type of fishery	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Longline (Home-based)	249	300	320	269	182	212
Pole-and-line	15	12	10	7	4	2
Purse seine	---	---	---	1	1	1

Table 3. Catches (MT) of tunas and tuna-like fishes taken by the Japanese longline fishery, 1979-1984

Year	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Total	27,612	35,437	37,636	50,794	25,596	39,096
Atlantic	27,511	35,317	37,535	49,828	24,913	38,041
Albacore	1,324	1,369	2,298	1,350	1,318	800
Bigeye	11,957	20,477	21,044	32,867	15,141	24,310
Bluefin	4,251	4,816	4,286	2,865	3,320	2,210
Southern bluefin	6,192	2,788	2,506	1,135	505	1,636
Yellowfin	1,986	2,839	4,145	6,062	2,069	3,967
Swordfish	968	2,107	2,232	3,723	1,893	3,770
Blue marlin*	134	308	468	1,132	440	833
White marlin	57	106	143	111	44	76
Sailfish**	39	55	94	173	69	97
Others	603	452	319	410	114	342
Mediterranean	101	120	101	966	683	1,055
Bluefin	99	119	100	961	677	1,036
Swordfish	2	1	1	5	6	19

*Includes minor amount (19 MT) of black marlin.
**Includes shortbill spearfish.

Table 4. Catches (MT) of tunas and tuna-like fishes caught and landed by the Japanese Atlantic pole-and-line fishery, 1979-1984

Year	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Total	16,867	14,068	16,178	10,620	5,577	565
Bigeye	582	243	184	95	49	26
Yellowfin	573	697	2,564	1,752	966	97
Skipjack	14,686	12,304	12,935	8,520	4,562	442
Others	1,026	824	495	253	---	---

Table 5. Catches (MT) of tuna taken by the Japanese Atlantic purse seine fishery, 1979-1984

Year	*1979 - - - - - - - - - - - - - - - - - 1981*	*1982*	*1983*	*1984*
Total		2,250	2,733	2,906
Bigeye	- - - no fishery - - -	30	22	23
Yellowfin	- - - no fishery - - -	810	1,245	1,516
Skipjack	- - - no fishery - - -	1,410	1,440	1,367
Albacore	- - - no fishery - - -	---	26	---

NATIONAL REPORT OF THE REPUBLIC OF KOREA

1. The fisheries

The total Korean catch of Atlantic tunas and tuna-like species in 1984 amounted to 15,750 MT, a decrease of 12 percent from the 1983 catch. About 94 percent of the total catch was taken by the longline fishery and 6 percent by the pole-and-line fishery (Table 1).

The total annual catch in the Atlantic has shown a significant downward trend since 1975, after reaching a peak of 46,500 MT. The fishing grounds where the fleet operated were reduced as the number of fishing vessels decreased. However, the total catch for the first half of 1985 was estimated at 10,500 MT, an increase of approximately 92 percent compared to that of the previous year.

1.1 The longline fishery

The total longline catch in 1984 amounted to 14,800 MT, a 9 percent decrease from the 1983 catch (Table 2). Of the total longline catch, 8,900 MT (60 percent) bigeye, 2,700 MT (18 percent) yellowfin, 1,300 MT (9 percent) albacore were taken.

There have been no major changes in fishing patterns or areas by this fishery in recent years. According to logbook data from commercial fishing vessels, the main fishing grounds were distributed principally in the tropical area from 10^{o}N to 10^{o}S. However, the catch of the Korean tuna longline fishery, which peaked at 38,800 MT in 1977, has continued to decrease.

1.2 The pole-and-line fishery

One Korean baitboat based at Tema participated in fishing activities for tropical tunas in the Gulf of Guinea from January to August, 1984. The total catch by this boat amounted to 970 MT, a 43 percent decrease compared to the 1983 catch (Table 3). The total catch was comprised of 850 MT skipjack, the main target species of this fishery, and 120 MT yellowfin. The 1984 skipjack catch decreased to 45.5 percent and the yellowfin catch decreased to 19.5 percent of the 1983 catch.

The total annual catch of the Korean pole-and-line fishery has shown a considerable decrease since 1979, when it peaked at 17,200 MT. This was mainly due to the decrease in the number of fishing boats as a result of changes in the vessels' flags to other flag nations.

Original report in English.

2. Research activities

As in the past, catch and effort statistics as well as size frequency data for 1984 on Atlantic tunas and related species were collected from commercial fishing vessels by the National Fisheries Research and Development Agency (FRDA). The FRDA processed and compiled all the data as required by the SCRS. The 1984 total catch statistics (Task I) by gear and species, the 1984 catch and effort data (Task II) for the longline fishery and the pole-and-line fishery, and size frequency data on major fishes have been submitted to ICCAT.

An intensive effort was made to improve the coverage rate and accuracy of Task II data to comply with the SCRS recommendation on statistics. As a result, the 1984 Task II data covered about 63 percent of the total catch for the longline fishery and 100 percent for the pole-and-line fishery.

Table 1. Korean catch (MT) of Atlantic tunas and tuna-like fishes by type of gear, 1975-1984

Type of gear	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Longline	38,819	31,575	38,849	29,094	20,069	18,952	22,306	21,033	16,224	14,785
Pole-and-line	7,653	3,339	6,202	10,364	17,188	9,901	9,529	3,503	1,697	969
Total	46,472	34,914	45,051	39,458	37,257	28,853	31,835	24,536	17,921	15,754

Table 2. Nominal catch (MT), by species, of tunas and tuna-like fishes taken by the Korean Atlantic longline fishery, 1971-1984

Year	*Bluefin*	*Yellow-fin*	*Albacore*	*Bigeye*	*Skipjack*	*Sword-fish*	*Blue marlin*	*White marlin*	*Sail-fish*	*Other billfishes*	*Others*	*Total*
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

Table 3. Nominal catch (MT), by species, of tunas and tuna-like fishes taken by the Korean Atlantic pole-and-line fishery, 1973-1984

Year	*Yellowfin*	*Bigeye*	*Skipjack*	*Albacore*	*Unclassified and others*	*Total*
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

NATIONAL REPORT OF SAO TOME & PRINCIPE

by

G. Espirito Santo

1. The fishery

São Tomé & Principe does not conduct a tuna fishery since it does not have a fleet. However, the artisanal fishermen occasionally catch tuna using hand lines.

In 1985 landings of tunas caught by the artisanal canoe fishery amounted to 215 MT.

2. Research

Tuna research which began in 1982 continued in 1984 and 1985 on species composition, the biological charcteristics of tunas, as well as studies on how hydrological and meteorological conditions affect the behavior of these species.

3. Statistics

As regards statistics, São Tomé & Principe has tried to comply with the ICCAT recommendations in providing catch data. Nevertheless, we have encountered great difficulties in obtaining data from foreign countries which fish under license.

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 which operated in 1984 was comprised of 21 baitboats and 4 purse seiners.

An increase in overall catches was noted (Table 1) for 1984 (13,111 MT) as compared to 1983 (9,722 MT). This increase in catch observed in the landings of the three species (yellowfin, skipjack and bigeye) is related to an active fishing season which was more notable near the end of the year.

In 1985, the fishery seems to be equally successful due to, among other things, the fishing agreement reached with Mauritania which came at an opportune moment.

The landings or transshipments of the FISM purse seine fleet in Dakar in 1984 (1,057 MT) show a marked decline when compared to 1983 (7,004 MT) due to the departure of a major segment of this fleet to the Indian Ocean. This decrease was largely compensated for by the increase in landings and transshipments of the Spanish and Mexican-flag tuna fleets (23,758 in 1984 compared to 8,876 MT in 1983).

The total tuna landings and transshipments at Dakar in 1984 (37,927 MT) have therefore increased sharply (26,000 MT in 1983).

1.2 Other species

The landings of small tunas (Table 2) in 1984 (6,238 MT) are slightly less than those in 1983 (7,129 MT).

Sailfish catches (Table 3) in 1984 (154 MT) are much lower (462 MT in 1983), due to the poor catchability of this species observed by both the artisanal and sport fisheries.

Swordfish (*Xiphias gladius*) catches in Senegalese waters by Spanish longliners in 1984 rose to nearly 550 MT.

Original report in French.

2. Research

The collection of tuna statistics and sampling of catches in Dakar continued as in the past. It should be noted that in 1984 there was an improvement in the sampling rate of the baitboat catches (83 percent in 1984).

An analysis of the sampling methods presently used to estimate the landings of small tunas by the Senegalese canoe fishery was made in 1984-1985 and should result in a better estimation of the catches of these species. In 1985 a significant number of small tunas (730 Atlantic little tuna, 394 Atlantic bonito, and 8 frigate tuna) were tagged from canoes. The recoveries already observed (about 2 percent) seem to indicate what can be expected from processing these tagging data.

The importance of the work carried out by the CRODT for the ICCAT Meeting of the Working Group on Juvenile Tropical Tunas (Brest, July 12-21, 1984) should be emphasized. The stock status of the three species (yellowfin, skipjack and bigeye), multi-species and multi-gear models, management scenarios, improvement of specific statistics, etc. served as a basis for the group's discussions.

A meeting was held at the CRODT (June 2-6, 1985), attended by Senegalese, French and Ivorian scientists to prepare the SCRS documents (FISM tuna fleet) and to plan or distribute the tasks of each of the scientists in the writing of the FAO synopsis on Atlantic tropical tunas.

3. Publications

The documents presented to the SCRS in 1985 are listed in Appendix 2 to Annex 10 and/or are published in the Collective Volume of Scientific Papers, Vol. XXV.

Table 1. The tuna fishery in Dakar, 1984-85

	1984						1985[1]					
Fishery	*No. of boats*	*Effort (days at sea)*	*Catch (MT) YFT*	*SKJ*	*BET*	*Total*	*No. of boats*	*Effort (days at sea)*	*Catch (MT) YFT*	*SKJ*	*BET*	*Total*
Dakar												
– Baitboats	21	2,896	3,396.4	3,732.9	2,105.7	9,235.0	21	1,510	1,637.0	1,799.2	1,014.9	4,451.1
– Purse seiners	4	638	1,425.6	1,566.8	883.9	3,876.3	3	310	1,079.2	1,186.1	669.1	2,934.4
Total	25	--	4,822.0	5,299.7	2,989.6	13,111.3	24	--	2,716.2	2,985.3	1,684.0	7,385.5
Foreign												
FISM (landings transshipments)	6	218	401.6	655.6	0.1	1,057.3	4	478	YFT + BET 875.7	202.4	--	1,078.1
Spain (landings)[2]	32	3,883	8,270.6	15,166.5	321.2	23,758.3			.....not available.....			
Total	38	4,101	8,672.2	15,822.1	321.3	24,815.6	4	478	875.5	202.4		1,078.1

1. Provisional data up to August 31, 1985, and species composition of the provisional catches.
2. The 1985 total (up to August 31) does not include Spanish landings.

Table 2. Landings (MT) of small tunas in Senegal, 1983-1984

Species	1983 Artisanal fishery	1983 Commercial fishery	1983 Total	1984 Artisanal fishery	1984 Commercial fishery	1984 Total
Atlantic little tuna (*E. alletteratus*)	4,572	1,333	5,905	4,444	796	5,240
W. African Spanish mackerel (*Scomberomorus tritor*)	662	–	662	868	–	868
Atlantic bonito (*Sarda sarda*)	562	–	562	130	–	130
Total	5,796	1,333	7,129	5,442	796	6,238

Table 3. Landings (MT) of sailfish (*Istiophorus albicans*) in Senegal, 1984

	Number of individuals	Weight (MT)	Percent	Percent in 1983 Report
Artisanal fishery	3,209	93.1	60.4	89.1
Sport fishery	1,369	41.1	26.7	10.5
Commercial fishery	667	20.0	12.9	0.4
Total	5,245	154.2	100.0	100.0
1983 Report	15,407	462.2		

NATIONAL REPORT OF SOUTH AFRICA

by

A. J. Penney

1. The fishery

Total catches increased by roughly 3 percent during 1984 to 3,714 MT due to a 28 percent increase in the albacore catch. The increased albacore catch resulted from the exploitation of extensive shoals located by pole-boats operating off the northwestern coast. Catches of other species declined as a result of this concentration of effort on albacore, although the yellowfin tuna catch (806 MT) remained the second highest since the record catch made in 1979. Catches of bigeye tuna (36 MT) and skipjack (10 MT) were minimal. An interesting development in the fishery was the four-fold increase in the catch of broadbill swordfish (to 28 MT) due to by-catches made during experimental longline fishing for hake and kingklip.

2. Research

2.1 Biological sampling

A total of 2,690 albacore were measured from foreign vessels transshipping 2,260 MT of tuna in Table Bay Harbour.

2.2 Environmental research

A number of inter-disciplinary research cruises were conducted in commercial tuna fishing areas, during which various biological and hydrological surveys were conducted.

Original report in English.

NATIONAL REPORT OF SPAIN

by

A. González-Garcés

1. The fisheries

Spanish catches of tuna and tuna-like species in the Atlantic and Mediterranean in 1984 reached 148,423 MT, an increase of about 5,500 MT compared to 1983, and represented the highest catches for Spain of tuna and tuna-like species in these areas since the inception of the fisheries (Figure 1).

The catches (in metric tons) of the main species in the last few years are shown in Table 1.

It should be noted that there are some variations in these data when compared with those presented last year. These variations mainly concern yellowfin, skipjack and bigeye and are due to modifications made to comply with the recommendations of the Working Group on Juvenile Tropical Tunas (Brest, July 1984).

Spain has traditionally fished in four different areas in the Atlantic: the tropical east Atlantic, the Canary Islands, the northeast Atlantic and the Mediterranean. Catches of the tropical west Atlantic fishery have increased considerably recently.

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 1983 the Spanish tropical fleet in the east Atlantic was comprised of 52 vessels, whereas in 1984 there were 55 purse seiners operating in this area.

On the other hand, in 1984, 14 boats (four in category 6 and ten in category 7) left the Atlantic and operated in the Indian Ocean. In 1985 there was no change in this fleet (41 vessels in the Atlantic and 14 vessels in the Indian Ocean). Some of the vessels in the

Original report in Spanish.

Indian Ocean returned to the Atlantic during the summer because of the bad weather in the Indian Ocean.

The distribution of the fleet in the last three years, according to gross registered tonnage (GRT), was as follows:

GRT	*1983*	*1984*	*1985*
300-450	2	2	2
451-750	9	9	9
751-1,250	24	24	24
more than 1,250	17	20	20
TOTAL	52	55	55

In spite of the departure of part of the fleet from the fishery, the total catches in 1984 increased with respect to 1983, due to the significant increase in skipjack catches. There was, however, a marked decrease in yellowfin and bigeye catches.

The catches in the tropical east Atlantic in the last few years, after corrections were made to comply with the recommendations of the Working Group on Juvenile Tropical Tunas, are shown in Table 2.

In 1984, the catches were higher for this fishery than ever before (about 10,000 MT more than in 1983), although they were only a few tons more than the 1982 catch.

Catches in the first three quarters of 1985 are estimated to be about 34,000 MT for yellowfin plus bigeye and about 20,000 MT for skipjack.

1.2 The tropical west Atlantic fishery

Spanish catches in the tropical west Atlantic are presented in Table 3. It can be noted that after three years of no fishing in this area, catches for 1983 and 1984 are considerable and the 1984 catches are the highest of the entire historical series.

1.3 The Canary Islands fishery

The tuna fleet in the Canary Islands is mainly comprised of small boats less than 20 GRT which use live bait. The fleet, which increased by six boats with respect to 1983, is comprised of the following: 259 boats of less than 20 GRT, 35 boats in the 20-50 GRT class, 28 in the 51-150 GRT class and one longliner of 750 GRT.

Catches in this area for the last few years are shown in Table 4. The 1984 catches were more than 2,500 MT higher than 1983 catches. This was basically due to the increase

in yellowfin catches. On the other hand, there was a considerable decrease in bluefin catches.

Catches (up to September 30, 1985) are estimated as follows: 640 MT yellowfin, 2,600 MT skipjack, 3,400 MT bigeye, 1,300 MT albacore and about 35 MT bluefin.

1.4 The northeast Atlantic fisheries

There are three basic fisheries for tunas and tuna-like species in this area: an albacore fishery which operates from June to October in a wide area from Gibraltar to Ireland and from the European coasts to 35°W, a swordfish fishery which usually operates during the first and fourth quarters of the year in an area from Senegal to Ireland and from the African and European coasts to 35°W, 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.

The fleet that operated in 1984 was comprised of 228 baitboats, 505 trollers, 185 longliners, 3 traps and an indeterminate number of boats that sporadically catch tuna, usually bluefin, but which do not target this species (for example, purse seiners which target sardines or anchovies, trawlers that put out lines at night, boats using nets in which a tuna sometimes becomes caught, etc).

In 1984, a fourth trap was lowered but because of technical problems it could not be used.

Catches in this area in the last few years are shown in Table 5. A sharp decrease can be observed for 1984 basically due to the drop in albacore catches which decreased to almost half the 1983 catch level (14,000 MT less in 1984 than in 1983). This decrease in albacore catches occurred mainly in the baitboat fleet which operated to the north of Spain.

However, bluefin catches remained high, at the same level as 1983. Of the 4,802 MT of bluefin tuna caught in this area, 2,271 MT were caught by traps and 2,364 MT were caught by the Bay of Biscay baitboat fishery.

In the Bay of Biscay, 1,678 MT of bluefin (of which 710 MT were age-0 fish) were landed at a single port, Fuenterrabia, which has a fleet of 21 boats exclusively targeting this species. The remaining 686 MT (of which 290 MT were age-0 fish) were caught by the albacore fleet as by-catch.

The significant increase in bluefin catches in this area in 1983 and 1984 seems to be due to the entry in the fishery of the strong 1982 cohort. Therefore, we can expect high catches in the Bay of Biscay in 1985.

The 1985 total catches are expected to be on the order of 3,000 MT bluefin, 17,000 MT albacore, 6,000 MT swordfish and about 1,000 MT others species. According to these estimates, bluefin catches will decrease slightly, principally due to the decrease in trap catches. Albacore catches will increase slightly, and swordfish catches will remain the same.

1.5 Mediterranean fisheries

A varied fleet operates in this areas and includes longliners (118 vessels), trollers, baitboats (114 vessels), small purse seiners, sport vessels, "saltillo" (hand line), 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 6. In 1984 they increased by about 2,500 MT basically due to the recent development of the bluefin and albacore baitboat fishery.

For the first eight months of 1985, catches are estimated at 900 MT of bluefin tuna (165 MT from the longline fishery, 495 from the traps and 240 MT from handlines), 450 MT of swordfish, 150 MT of Atlantic bonito and 390 of frigate tuna. Bluefin and albacore catches from the baitboat fishery are not included in these estimates since this fishery begins in September-October.

2. Research

2.1 The tropical fisheries

In 1984, catch and effort data by month, area and gear (ICCAT Task II) were obtained from 85 percent of the total catches in the area. Size sampling was carried on 52,417 fish in 1984 (15,517 yellowfin, 30,531 skipjack, 3,105 bigeye and 3,264 other species).

The collection of these data and sampling in African ports, where the Spanish fleet unloads most of its catches, was carried out in collaboration with the "Centre de Recherches Océanographiques" of Abidjan (Ivory Coast) 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.

Research carried out during 1984 and 1985 centered on the ICCAT SCRS recommendations for tropical species and are reflected in several documents presented to the SCRS and to the Working Group on Juvenile Tropical Tunas in 1984. These documents analyzed the activities of the Spanish tropical fleet, studied the duration of the sets, fishing power, effort, species composition of the sets, analyzed the behavior of the schools with respect to the fisheries, i.e., the effects of lunar phases on yield, association of fish with floating objects, etc.

2.2 Canary Islands fisheries

As regards to ICCAT Task I and II data, the Canary Islands fisheries were monitored by means of an information and sampling network which covers 100 percent of the catch.

In 1984, 8,963 tuna were sampled and up to September 30, 1985, 3,520 individuals were sampled.

Tagging cruises were conducted in which 208 tuna (skipjack, albacore, yellowfin and bigeye) were tagged in 1984 and 221 skipjack were tagged in 1985.

In 1985, a biological research program was begun in this area to study growth rate by sex. The program is directed principally, though not exclusively, at bigeye, the main species of the Canary Islands fishery. Up to now, skeletal pieces of bigeye, skipjack, yellowfin and albacore have been collected for studies on growth.

2.3 The northeast Atlantic fisheries

The collection of detailed ICCAT Task II statistical data covers 90 percent of the total catches of this area. As regards size sampling, 17,022 albacore, 43,893 swordfish, 3,749 bluefin, 1,824 Atlantic bonito, 1,319 frigate tuna, 1,149 yellowfin and 409 bigeye were measured in 1984.

In 1984 two tagging cruises were carried out, one directed at albacore in which 193 albacore and one bluefin tuna were tagged, and another directed at bluefin in which 513 bluefin (mostly age-2 fish) and 4 bigeye tuna were tagged.

Two tagging cruises were also carried out in 1985, one directed at albacore (126 albacore tagged) and another at bluefin tuna (407 bluefin tagged).

Through the efforts of the samplers-reporters, a tagging program was begun in 1984 on commercial vessels in Galicia on swordfish and associated species (sharks) using ICCAT tags. In this program, the fishermen themselves tag the young fish. In this way, about 60 swordfish and 35 sharks were tagged and released between October, 1984, and October, 1985.

In 1984 and 1985, studies were carried out on the evaluation of the stocks of bluefin tuna (east Atlantic stock), albacore and swordfish and the results were presented to the SCRS. Spain also participated in the 1984 and 1985 meetings of the Working Group on Bluefin Tuna.

2.4 The Mediterranean fisheries

In 1984 the sampling and information network for tuna fisheries in this area was reorganized and extended. In 1985 the coverage rate of Task II statistics reached 85 percent.

Some 3,669 bluefin, 12,532 swordfish, 383 albacore, 2,959 Atlantic bonito, 1,525 frigate tunas and 112 Atlantic little tuna were measured in 1984.

In recent years, special attention has been given in this area to juvenile bluefin, principally "class-0" bluefin, to estimate the catch, and 51 individuals were tagged in 1984.

A size-weight relationship was studied for frigate tuna and an analysis of the Spanish fishery for small tunas (Atlantic bonito, frigate tuna and Atlantic little tuna) in the Mediterranean was carried out. In addition, an analysis of the swordfish fishery in this area was conducted.

It should be emphasized that a first review of data and an analysis of the recent Mediterranean albacore fishery (which began in 1981) was made. This included a study on the relationship between surface water temperature and catches of this species.

3. References

The documents presented to the SCRS in 1985 are listed in Appendix 2 to Annex 10 and/or are published in the Collective Volume of Scientific Papers, Vols. XXIV and XXV.

Table 1. Spanish catches of tunas and tuna-like species in 1978-1984

Year	*YFT*	*SKJ*	*BET*	*BFT*	*ALB*	*SWO*	*OTH*	*TOTAL*
1978	35,670	27,097	6,849	4,190	25,404	4,342	6,803	110,355
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	46,061	50,087	10,566	7,547	17,323	7,560	9,279	148,423

Table 2. Spanish catches of main tuna species from the eastern tropical fishery (ETRO) in 1978-1984

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

Table 3. Spanish catches of main tuna species from the western tropical fishery (WTRO) in 1978-1984

Year	*YFT*	*SKJ*	*TOTAL*
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

Table 4. Spanish catches of main tuna species from the Canary Islands fishery (CANA) in 1978-1984

Year	*YFT*	*SKJ*	*BET*	*BFT*	*ALB*	*TOTAL*
1978	248	558	3,850	1,548	1,160	7,364
1979	145	1,330	2,975	758	604	5,812
1980	77	2,162	4,034	397	518	7,203*
1981	96	3,876	2,313	524	1,009	7,818
1982	385	3,366	1,449	43	519	5,762
1983	690	1,255	2,352	305	768	5,370
1984	2,458	1,837	2,784	2	977	8,058

*Includes 15 MT small tunas (10 MT frigate tuna and 5 MT Atlantic little tuna).

Table 5. Spanish catches of main tuna species from the north-east Atlantic fishery (NE) in 1978-1984

Year	*BFT*	*ALB*	*SWO*	*OTH*	*TOTAL*
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

Table 6. Spanish catches of main tuna species from the Mediterranean fishery (MEDI) in 1978-1984

Year	*BFT*	*ALB*	*SWO*	*BON*	*FRI*	*OTH*	*TOTAL*
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

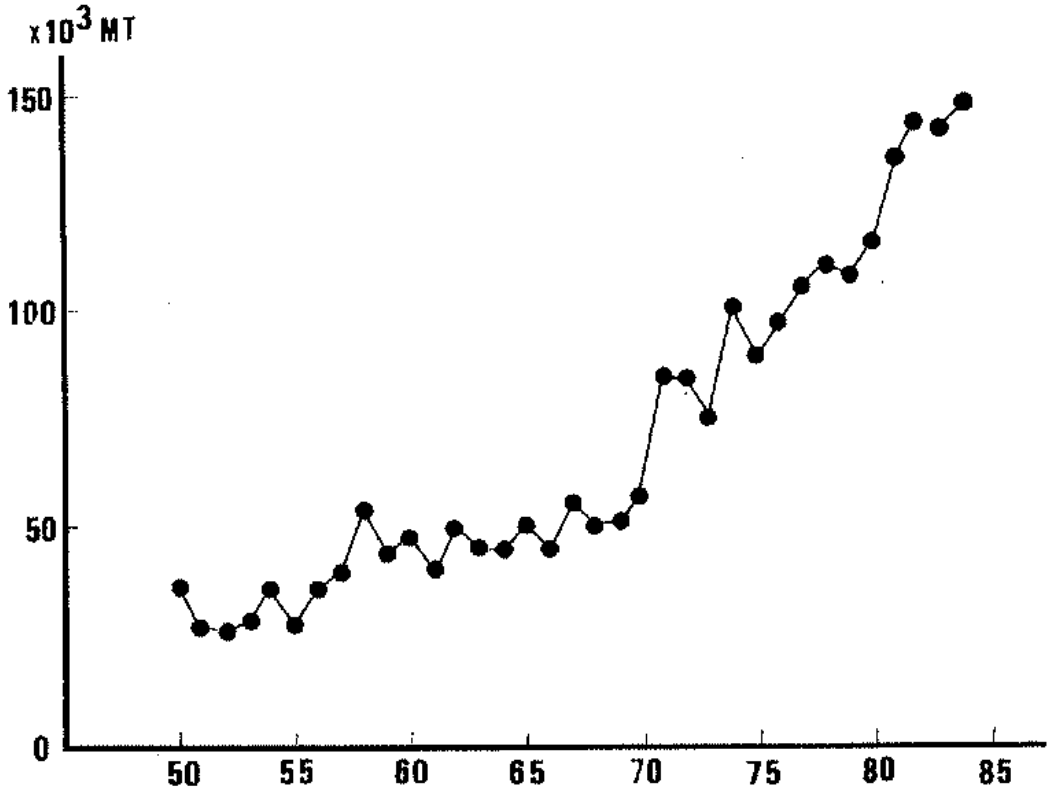

Fig. 1 Total Spanish catches of tunas and tuna-like species from 1950 to 1984.

NATIONAL REPORT OF THE UNITED STATES

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 is shared by the Southwest Fisheries Center, La Jolla, California, and the Southeast Fisheries Center, Miami, Florida. The Center's 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 2,477 MT in 1984 from 1,070 MT in 1983. In 1984, the catch consisted of 1,252 MT of yellowfin tuna, up from 226 MT from 1983, 408 MT of bigeye tuna, up from 255 MT in 1983, and 817 MT of skipjack tuna, up from 589 MT in 1983. Most of this increase was due to five large purse seiners that operated in the west Atlantic, primarily in the Caribbean Sea, and caught 1,069 MT of yellowfin tuna and 709 MT of skipjack tuna. Most of the remainder of the total tropical tuna catches were incidental catches by small purse seiners and long-

*Prepared by staff members of the Southwest Fisheries Center, La Jolla, California, and the Southeast Fisheries Center, Miami, Florida.
Original report in English.

liners targeting other species as well as other small fisheries operating in the Gulf of Mexico and off the U.S. East coast.

Levels of tropical Atlantic tunas imported into the United States declined slightly (less than one percent) to 87,143 MT in 1984. This figure represents approximately one-quarter of the total Atlantic catch of major tuna species. Skipjack tuna led the imports with 40,770 MT. Estimated yellowfin and bigeye tunas imports are 3,500 MT and 2,134 MT, respectively for 1984. In 1984 imported tropical tuna landings were sampled for size and species composition in Puerto Rico. Approximately 5,000 fish were measured in the 1984 sampling. A document providing results from the 1984 sampling and comparing it to previous data has been prepared for the SCRS meeting.

The sampling of imports continues in Puerto Rico where, from January 1 through October 16, 1985, 852 yellowfin, 188 bigeye and 302 skipjack tunas from the Atlantic Ocean were sampled. Approximately 150 fish of other species including albacore, bullet tuna and blackfin tuna were also sampled as part of that program. Samples indicate that virtually all tropical tunas imported in 1985 to date are larger than the ICCAT imposed 55 cm minimum size (3.2 kg).

2.2 Temperate tunas and billfishes

U.S. vessels caught 1,338 MT of bluefin tuna in 1984, down slightly (4 percent) from 1983. 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.

The U.S. catch of albacore tuna was up 39 percent to 25 MT. This catch was primarily incidental to swordfish longline operations along the U.S. East coast.

3. Research activities

Each year 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 1984 and 1985 was largely devoted to studying the potential changes in the east Atlantic yellowfin tuna stocks following a reduction in fishing effort. In 1984, many vessels that had been fishing in the east Atlantic left to fish in the Indian Ocean. Although there are indications that these vessels are returning, special attention is being given to the yellowfin fishery in the wake of the effort reduction.

One document prepared for the SCRS meeting investigated the variability in yellowfin catch and effort data. The analysis provides confidence levels for predicting the extent of catch reduction expected with an observed decrease in fishing effort. The analysis showed that the smaller the observed change in catch per effort, the more data points are required to be confident that catch per effort has changed.

A second area of research involves evaluating the relationship between longline catch per effort and stock density. A document was prepared for the SCRS meeting which examines the theory of longline fishing from the standpoint of random encounters between fish and schools of fish and a gear that can become saturated. The document discusses trends in longline hook rates from the standpoint of this theory and likely fish behavior. The analysis showed that without experimental evidence it is not possible to justify choices between assumptions which define the relationship between CPUE and stock density.

3.2 Southeast Fisheries Center

Scientists at the Southeast Fisheries Center continued to emphasize bluefin tuna, marlin and swordfish research during 1984-1985. Two scientific planning review meetings were held during the past year for the presentation and discussion of research plans. Scientists assisted in arrangements and prepared four documents for the Meeting of the Working Group on Bluefin Tuna in Miami, Florida, in September, 1985. The documents were on analysis of west Atlantic bluefin mark-recapture data, estimation of spawning stock biomass and population size from larval abundance, results of a multi-year study in the chemical variability and stock variation in north Atlantic bluefin tuna, and investigation of migration. Also, a least squares system for calibrating VPA estimates of stock size to independent abundance indices was presented.

Billfish research in 1985 emphasized the continued development of a swordfish data base. A document was prepared for the SCRS Meeting which presents a summary of U.S. historical size frequency and trip data, estimates mortality rates from tagging data, evaluates aging techniques and growth models and results of a yield-per-recruit analysis and a virtual population analysis of the status of swordfish stocks in the northwest Atlantic.

Monitoring of catch and catch rates of Atlantic billfish and tunas from tournaments and dock surveys continued with over 87,000 person-hours of recreational fishing effort recorded in 1984. The number of tag-released billfish (3,700) in 1984 set a new record, and the return of a tagged blue marlin set a record for the longest time at large (nearly eight years) for that species.

An extensive research effort was devoted to king and Spanish mackerel during 1985. These efforts included: collection of charter boat catch-per-unit-effort data throughout the Gulf of Mexico and southeastern coasts of the United States, collection of size frequency data and collection of samples for stock identification analyses. An assessment of king mackerel stocks completed this year showed serious depletion in the Gulf of Mexico.

4. References

The documents presented to the SCRS in 1985 are listed in Appendix 2 to Annex 10 and/or are published in the Collective Volume of Scientific Papers, Vols. XXIV and XXV.

Table 1. Catches and landings (MT) of Atlantic tunas and tuna-like fishes by United States fishermen, 1967-1984[1]

Year	Blue-fin	Yellow-fin[2,3]	Albacore	Bigeye[2]	Little tunny	Skip-jack[2]	Bonito	Sword-fish	Spanish mackerel	King mackerel	Unclas-sified	Total
1967	2,320	1,136	0	0	7	493	22	474	3,577	2,767	10	10,806
1968	807	5,941	0	18	6	3,314	43	274	5,342	2,813	2	18,560
1969	1,226	18,791	0	148	7	4,849	98	171	4,952	2,814	1	33,057
1970	3,327	9,029	0	195	158	11,752	83	287	5,506	3,050	--	33,387
1971	3,169	3,764	0	544	5	16,224	90	35	4,713	2,571	50	31,165
1972	2,138	12,342	10	212	212	12,290	24	246	4,863	2,213	--	34,550
1973	1,294	3,590	0	113	20	21,246	261	406	4,437	2,710	--	34,077
1974	1,857	5,621	13	865	51	19,973	92	1,125	4,990	4,747	1	39,335
1975	2,823	14,335	1	67	67	7,567	117	1,700	5,288	3,095	19	35,079
1976	1,931	2,252	0	28	5	2,285	23	1,429	6,385	4,053	30	18,421
1977	1,956	7,208	2	331	53	6,179	268	912	5,453	3,837	71	26,270
1978	1,852	9,747	9	248	113	8,492	224	3,039	3,310	2,507	31	29,572
1979	2,297	3,182	11	212	12	3,102	502	3,405	2,926	2,204	11	17,864
1980	1,505	2,118	21	202	88	3,589	195	3,535	5,429	3,192	513	20,387
1981	1,530	1,866	54	152	97	5,373	333	2,074	2,748	3,368	200	17,795
1982	812	883	126	377	87	731	209	3,746	3,747	3,713	962	15,393
1983	1,394	226	18	255	107	589	253	2,132	2,784	3,033	453	11,244
1984[4]	1,338	1,252	25	408	41	817	217	3,813	1,892	2,403	883	13,089

1. Estimated catch is for bluefin tuna, yellowfin tuna, albacore, bigeye tuna, skipjack tuna and little tunny. Landings are for all other species. Sport catches are not included, except for bluefin tuna.
2. Includes catches of purse seiners flying the flags of Bermuda, Netherlands Antilles, Nicaragua and Panama.
3. Includes small quantitites of bigeye tuna prior to 1975.
4. Preliminary.

NATIONAL REPORT OF THE U.S.S.R.

by

Yu. A. Vialov, V. V. Ovchinnikov
AtlantNIRO

1. The fisheries

In 1984, the total catch of tunas and tuna-like species taken in the east Atlantic by the Soviet fleet amounted to 12,604 MT including 5,903 MT bullet and frigate tunas, 2,168 MT yellowfin, 1,233 MT bigeye, 1,000 MT skipjack, 613 MT Atlantic little tuna (total catch of tunas was 10,917 MT), 174 MT swordfish, 1,290 MT bonito and 223 MT Spanish mackerel.

Compared to the 1983 catch of 13,461 MT, the 1984 catch decreased due to a decline in the catch of skipjack and Atlantic little tuna and bonito. The catches of yellowfin, bigeye, bullet and frigate tunas increased considerably which was attributed to an increase in purse seine and longline fishing effort. The total fishing effort in the central east Atlantic (main fishing area) was 1.6 million hooks in the longline fishery and 837 fishing days in the purse seine fishery. On the whole, purse seine and longline catches were 6,245 MT and 1,739 MT, respectively; 4,620 MT were taken by surface fishing gears (trawls) in the east Atlantic.

According to preliminary data, in the first half of 1985 the catch was 6,922 MT (central east Atlantic) including 6,859 MT tunas, 59 MT swordfish, and 4 MT marlin.

2. Scientific research

In 1984-1985, research included studies on the oceanographic aspects of the distribution of commercial aggregations of skipjack and bigeye tunas, and the biological characteristics of skipjack. Studies were also carried out on the peculiarities of feeding of yellowfin tuna. The age of frigate tuna was determined, and the length-age structure of Atlantic little tuna from the central east Atlantic was given. Length-weight relationships were revealed for four tuna species.

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2.1 Skipjack

Examination of data on skipjack tagging has indicated that skipjack migration routes have been related to the direction of movement of surface waters in a quasi-stationary system along divergence of large-scale, south tropical cyclonic gyre-clockwise currents. The range of the size composition of skipjack catches is wider in the open central east Atlantic than in the coastal waters and fluctuates between 36 and 68 cm (47.9 cm on the average) which corresponds to age 2-5. Feeding intensity was lower in open waters (mean stomach fullness index was 1.28) than in coastal waters (mean index was 1.87). Larval crustaceans and mollusks of 2.5-23 mm in length were predominant in stomachs.

2.2 Bigeye tuna

According to data on longline fishing for 1980-1984, the fishery for bigeye tuna is confined by equatorial divergences, by eastern boundary divergences and by northern sub-tropical convergences. Tunas spawn in the northern and southern near-equatorial fishing grounds, and aggregations of feeding tunas are fished in the area of the northern sub-tropical convergence.

2.3 Yellowfin tuna

Feeding intensity of yellowfin tuna differs in the west, central and east Atlantic. The most intense feeding is recorded in the northern hemisphere in December. The degree of stomach fullness is higher in the south part of the area than in the north.

2.4 Small tunas

One dark (intense growth) and one light (retarded growth) zone of a section of spine of the first dorsal fin was taken as an annual growth mark for frigate tuna and Atlantic little tuna. Back calculation data on growth indicate that mean lengths of frigate tuna and Atlantic little tuna are 22.9 and 34.6 cm in the first year of life, 30.4 and 40.4 cm in the second year, 36.7 and 46.9 cm in the third year, and 40.4 and 48.3 cm in the fourth year. The maximum age of Atlantic little tuna is five years with a mean length of 50.3 cm. The age composition of catches for frigate tuna is 50 percent at age 3, 45 percent at age 4 and for little tunas 43 percent at age 2, 32 percent at age 3, and 12.3 percent at age 4, and 11.7 percent at age 5.

Length-weight relationships for four tuna species from the Sierra Leone area were calculated:

Skipjack	$W = 0.04193 \times L^{2.814}$
Atlantic little tuna	$W = 0.03501 \times L^{2.458}$
Bullet tuna	$W = 0.09822 \times L^{2.486}$
Frigate tuna	$W = 0.003276 \times L^{3.458}$

3. Research cruises

In 1984-1985, two research cruises were aimed at studying longline fishing for tunas in the central west Atlantic, and one cruise was directed toward the study of purse seine fishing in the central east Atlantic. Four observers were on board commercial seiners and two observers were on board a tuna mother-ship.

The materials collected on these cruises were as follows:

Longline fishing:

Massive measurements	3,478
Biological analyses	1,495
Age samples	1,895
Hydrological stations	78

Purse seine fishing

Massive measurements	6,700
Biological analyses	970
Age samples	370
Samples for fecundity studies	70
Morphometry	50
Biochemical analysis	100
Hydrological stations	135

4. References

The documents presented to the SCRS in 1985 are listed in Appendix 2 to Annex 10 and/or are published in the Collective Volume of Scientific Papers, Vol. XXV.

5. Publications (in Russian)

Alekseeva, E. I. and F E. Alekseev, 1984. Sexual cycles of fishes in studying of species structure and functional structure of the area. In: Intraspecific differentiation of marine commercial fishes and invertebrates. Kaliningrad, p. 28-38.

Gaikov, V. Z. and L. I. Korolevich, 1984. Comparative morphometric characteristics of bigeye tuna *Thunnus obesus* (Lowe) in the Atlantic Ocean. In: Intraspecific differentiation of marine commercial fishes and invertebrates. Kaliningrad, p. 48-51.

Ovchinnikov, V. V., S. Yu. Leontjev and V. G. Shchieglov, 1984. To the analysis of population structure of skipjack (*Katsuwonus pelamis* L.) in the Atlantic Ocean. In: Intraspecific differentiation of marine commercial fishes and invertebrates. Kaliningrad, p. 39-47.

Ovchinnikov, V. V., A. K. Sigaev, *et. al.*, 1985. Methodic substantiation of searching, fishing and biological investigation into tunas, swordfish and billfishes, and sharks in the Atlantic Ocean. AtlantNIRO, Kaliningrad, 125 p.

Sigaev, A. K. and V. V. Ovchinnikov, 1984. Impact of hydrophysical conditions on distribution and migration of tunas. In: Oceanological factors in fisheries forecasting. Kaliningrad, p. 16-25.

Table 1. Data on the U.S.S.R. catch of tunas, first half of 1985

Species	*MT*
Yellowfin tuna	1,755
Atlantic little tuna	1,852
Frigate tuna	1,602
Skipjack	1,150
Bigeye tuna	500
Swordfish	59
Marlin	4
Total	6,922

NATIONAL REPORT OF TAIWAN

by

H. C. Liu

1. The fishery

The total number of Taiwanese longliners in the Atlantic Ocean increased from 99 vessels in 1983 to 116 at the end of 1984, which represents an increase of about 17 percent over the previous year. The total landings made by Taiwanese longliners also increased from 23,653 MT in 1983 to 24,964 MT in 1984. Albacore was still the target species in 1984 and comprised 91.4 percent (22,812 MT) of the total landings (24,964 MT). Of the albacore landings, 14,923 MT were from the north Atlantic and 7,889 MT were from the south Atlantic.

2. Statistics

2.1 Task I statistics

Landing reports made at the base ports around the Atlantic were used to estimate Task I statistics. Landings statistics, in weight by species, were reported by local agents to each corresponding fishing company in Taiwan. Each company then summarized the landing statistics and reported them to the Taiwan Fisheries Bureau (TFB). The TFB then compiled the monthly Taiwanese total landing statistics by port. Task I statistics were estimated primarily based on these port landing statistics released by the TFB, excluding the landings from those vessels which actually operated in another ocean but transshipped their catch to nearby Atlantic ports for landing.

2.2 Task II statistics

Logbooks filled out on board each vessel operating in the Atlantic were either mailed directly to the corresponding fishing company in Taiwan or passed through local agents at the base port to the corresponding fishing company in Taiwan. Each company then submits the logbooks to the TFB where the first check is made. The TFB then transfers them for further data compilation to the Tuna Resources Research Center (TRRC), located at the Institute of Oceanography of the National Taiwan University. The TRRC technicians

Original report in English.

double check the logbooks before using the computerized data processing system to compile the statistics.

For compiling Task II statistics, monthly coverage rates for each five-degree square block (FDSB) were estimated. The coverage rate for each FSDB area was estimated by:

$$\text{Coverage rate} = \frac{\text{Total no. of hooks of the logbooks returned}}{\text{Total no. of hooks used}}$$

The total number of hooks used in each FDSB area was obtained from the daily position report of longliners, provided by the Kaohsiung Fisheries Radio Station (KFRS), which is operated by the TFB. According to our regulations, every longliner operating in distant waters is requested to report its fishing position and the number of hooks to the KFRS on a daily basis.

Thus, the catch and effort statistics from logbooks were summarized and then raised to 100 percent coverage according to the calculated monthly coverage rate of each FDSB area.

2.3 Biological data

All longliners fishing in the Atlantic were requested to conduct on-board size measurements of the first 30 fish captured in each operation. The size data thus obtained were either mailed along with the logbook or transferred separately by the local agent at the base port to the corresponding fishing company in Taiwan. Each company then submitted them through the TFB to the TRRC. The TRRC then compiled these size data by month, species, and FDSB. In compliance with the ICCAT format for biological data, size data compiled by ICCAT large-area units and by quarter were also provided.

3. Quick projected annual catch estimates for 1985

As of August, 1985, the number of vessels fishing in the Atlantic was 167. Based on landing statistics for the first six months, by port, this year's total landings will be approximately 32,000 MT.

4. Research

Size measurements of the ten most important species of longline catches were carried out in 1984. A total number of about 265,000 individuals were measured, broken down as: 249,587 albacore, 5,074 yellowfin and 7,155 bigeye tuna.

Standardized total longline effort on albacore was updated to 1984. 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 1984.