

INTERNATIONAL COMMISSION

**FOR THE
NORTHWEST ATLANTIC FISHERIES**



ANNUAL PROCEEDINGS

Vol. 20

for the year

1969 - 70

Issued from the Headquarters of the Commission

Dartmouth, N. S., Canada

1970

Letter of Transmittal

The Chairman of the International Commission for the Northwest Atlantic Fisheries presents his compliments to the Governments signatory of the International Convention for the Northwest Atlantic Fisheries signed at Washington under date of 8 February 1949, and to the Commissioners and Observers representing those Governments and has the honour to transmit herewith annual proceedings of the International Commission for the Northwest Atlantic Fisheries for the year 1969-70.

This is the 20th annual report of proceedings of the Commission and is an authoritative record of its activities and achievements from 1 July 1969 to 30 June 1970. The report contains an account of the activities of the Commission's Secretariat; an account of the 20th Annual Meeting; summaries of research carried out in each of the five Convention subareas.

This report is prepared and transmitted conformity with the requirements of Article VI (1) (f) of the International Convention for the Northwest Atlantic Fisheries and Rules 3.2 (g) and 9.1 of the Rules of Procedure of the Commission.



A. W. H. Needler,
Chairman,
International Commission for the
Northwest Atlantic Fisheries.

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PART 1

Administrative Report for the Year Ending 30 June 1970

1. The Commission's Officers

Chairman of Commission	—	Dr A. W. H. Needler (Canada)
Vice-Chairman of Commission	—	Mr K. Løkkegaard (Denmark)
Chairman of Panel 1	—	Mr K. Løkkegaard (Denmark)
Chairman of Panel 2	—	Dr O. Rodriguez Martin (Spain)
Chairman of Panel 3	—	Mr A. Volkov (USSR)
Chairman of Panel 4	—	Mr R. Lagarde (France)
Chairman of Panel 5	—	Mr S. Perkowicz (Poland)
Chairman of Panel A (Seals)	—	Mr H. J. Lassen (Denmark)

These officers, with one exception, were elected at the 1969 Annual Meeting to serve for a period of 2 years. At the 1968 Annual Meeting, Mr H. J. Lassen was elected Chairman of Panel A to serve for a period of 2 years.

Chairman of Standing Committee on Research and Statistics	—	Mr Sv. Aa. Horsted (Denmark)
Chairman of Standing Committee on Finance and Administration	—	Mr R. W. Green (USA)
Chairman of Standing Committee on Regulatory Measures	—	Mr J. Graham (UK)

The Chairmen of Research and Statistics and Finance and Administration were elected at the 1967 Annual Meeting to serve for a period of one year and were unanimously re-elected at the 1968 and 1969 Annual

Meetings. The Chairman of the Standing Committee on Regulatory Measures was elected at the first meeting of the Committee, 30 January 1968.

2. Panel Memberships for 1969 - 70

Panel	1	2	3	4	5	A	Total
Canada		+	+	+	+	+	5
Denmark	+		+			+	3
France	+	+	+	+			4
Germany	+	+	+				3
Iceland	+						1
Italy			+	+			2
Norway	+		+			+	3
Poland	+	+	+	+	+		5
Portugal	+	+	+	+			4
Romania					+		1
Spain	+	+	+	+			4
USSR	+	+	+	+	+		5
UK	+	+	+				3
USA			+	+	+		3
TOTAL	10	8	12	8	5	3	46

3. The Commission's Office Accommodation

The office of the Commission has been located in the Bedford Institute since 1 August 1963 under a lease arrangement with the Canadian Department of Energy, Mines and Resources. The present lease arrangement has been extended to 1 August 1973.

4. The Commission's Secretariat

The staff members of the Secretariat are:

Executive Secretary	—	L. R. Day
Assistant Executive Secretary	—	B. J. Kowalewski (to 30 April 1970)
Editorial Assistant	—	W. H. Champion

Senior Secretary	--	(Miss) Jean Maclellan
Clerk Stenographer	—	(Miss) Gertrude Schrader
Clerk	—	G. M. Moulton

Additional clerical help was provided by:

(Mrs) Valerie Caton (Redbook Pts. I and II, List of Fishing Vessels, annual meeting documents)

(Miss) Margaret Munro (Sampling Yearbook Vol. 13)

Assistant Executive Secretary since 1 February 1966, Dr B. J. Kowalewski (Bolek) left the Commission's employ on 30 April 1970 to resume work in his home laboratory, the Sea Fisheries Institute in Gdynia, Poland. Dr Kowalewski's patience and good humour have not only stood him in good stead in making valuable contributions in his major task of improving the timeliness and quality of the Commission's statistics, but has won him many friends among his ICNAF colleagues. His co-workers and friends in the ICNAF Secretariat wish him and his family every success.

From a reappraisal of the duties of a new Assistant Executive Secretary in the light of Commission needs, approval was granted by the Commission to employ a biologist in the position with major responsibilities in statistics and in biological assessments of the state of the fish stocks and of the effects of fishing and conservation actions on them. A circular advertising the position was distributed widely on 11 February 1970.

Following the 1969 Annual Meeting in Warsaw, the Executive Secretary discussed with Depository Government the presentation to member governments of the 1969 Commission proposals for the international regulation of the trawl fisheries (1) for Atlantic salmon on the high seas in the Convention Area, (2) for haddock in Subarea 5, (3) for haddock in Div. 4X of Subarea 4, and (4) for red hake and silver hake in Subarea 5, and amendments to Articles IV, VII, and VIII of the Convention (20 June 1969, Washington); attended an interim meeting of Panel A, 25 September 1969, Dartmouth, N.S.; attended the 57th Statutory Meeting of ICES (29 September-3 October 1969, Dublin); attended the second meeting of the Joint ICES/ICNAF/IOC Coordinating Group for the North Atlantic (2 October 1969, Dublin); attended the North-East Atlantic Fisheries Commission (NEAFC) *ad hoc* Working Group on North-East Arctic (9-10 October 1969, London); discussed arrangements for the 20th Annual Meeting of the Commission with officials of the Canadian Department of Fisheries and Forestry and

Memorial University of Newfoundland (8 January 1970, St. John's); attended mid-term meetings of the Standing Committee on Regulatory Measures (21-22 January 1970, London); attended interim meeting of the Standing Committee on Finance and Administration (23 January 1970, London); attended interim meeting of the Assessments Subcommittee (26-30 January 1970, London); discussed with officials of the International Commission for the Conservation of Atlantic Tunas (ICCAT) the setting up of that commission (2-5 February 1970, Madrid). The Assistant Executive Secretary visited the Bureau of Commercial Fisheries Biological Laboratory, Woods Hole, to discuss data processing of statistics.

5. The Commission's Publications

Since June 1969 the Secretariat has issued almost 3,200 pages of printed material in nine publications.

The *1969 Meeting Proceedings* (104 p.) was distributed in August 1969. It contains the reports of the meetings of the Plenary and of the Panels, the Standing Committee on Finance and Administration and the Standing Committee on Regulatory Measures held during the Commission's 19th Annual Meeting, Warsaw, 2-7 June 1969.

The *Redbook 1969* was issued in three parts. Part I (62 p.) contains the proceedings of the 1969 meetings of the Standing Committee on Research and Statistics and its subcommittees. It was distributed in October 1969. Part II (136 p.) contains the reports by member countries on research conducted in the Convention Area in 1968. It was distributed in January 1970. Part III (156 p.) contains selected scientific papers presented to the 1969 meeting. It was distributed in January 1970.

The *Statistical Bulletin* Vol. 18 for the year 1968 (141 p.) will be distributed in July 1970. This year, for the first time, sealing statistics, data on catches and fishing effort in Subdivisions 5Ze and 5Zw and certain divisions of Subarea 6 are published.

The *Annual Proceedings* Vol. 19 for 1968-69 (56 p.) was distributed in January 1970. It contains the Administrative Report with audited financial statements for the year ending 30 June 1969, the Report of the 19th Annual Meeting, 1969, Summaries of Research carried out in each subarea of the Convention Area in 1968, and list of scientists and laboratories engaged in the Commission's work.

The *Research Bulletin of ICNAF* No. 6 (124 p.), containing 10 scientific contributions, was distributed in November 1969.

The *Research Bulletin of ICNAF* No. 7 is in preparation with 14 scientific contributions. To date only 9 of these papers have been received in the Secretariat and the galley proofs have been sent to the respective authors for comments. If no further contributions are received, Research Bulletin No. 7 will be about 100 pages and will be distributed in November 1970.

The *Sampling Yearbook* Vol. 13 (Part I) for the year 1968 (305 p.) will be distributed in July 1970. The volume contains length and age data for the major species sampled by the research agencies of the member countries in the ICNAF divisions in 1968. Part II will present age and length data for herring and will be distributed late in 1970.

The *Special Publication* No. 7 (ICNAF Environmental Survey: NORWESTLANT 1-3, 1963) was distributed as follows: Part I Text (256 p.) in July 1969; Part II Atlas (286 p.) in July 1969; and Part III Oceanographic Data Record (1,238 p.) Volumes 1, 2, and 3 in February 1970. Part IV Biological Data Record will be distributed in December 1970.

A revised edition of the *ICNAF Handbook* (96 p.) was distributed in December 1969.

The *List of Vessels and Summary of Fishing Effort* in the ICNAF Convention Area 1968 (221 p.) was distributed in November 1969.

The *Symposium on Marine Food Chains* (ICES, FAO, ICNAF, UNESCO, and IBP) is being printed by Oliver and Boyd in the United Kingdom and University of California Press in USA. ICNAF contributed \$5,000 to the printing costs. The publication is being released simultaneously in UK and USA in late August 1970.

6. Cooperation with Other International Organizations

Close collaboration and cooperation was maintained with other international organizations with related objectives, particularly FAO Department of Fisheries, ICES, NEAFC, IOC, and OECD.

In the field of fishery statistics, the Secretariat continues to work closely with Mr L. P. D. Gertenbach

of FAO in his role as Secretary of the FAO/ICES/ICNAF Coordinating Working Party on Atlantic Fishery Statistics (CWP).

The second meeting of the ICES/ICNAF/IOC Coordinating Group for North Atlantic Oceanography was held in Dublin on 2 October 1969.

The ICES/ICNAF Joint Working Group on Selectivity Analysis met in Charlottenlund 2-6 September 1969 and 5-10 January 1970.

A Symposium on Physical Variability of the North Atlantic under the joint auspices of ICES/ICNAF/IAPSO/SCOR/IOC preceded the 57th Statutory Meeting of ICES, 25-27 September 1969, Dublin.

A symposium sponsored by ICES, FAO, and ICNAF on stock and recruitment will take place in Aarhus, Denmark, from 7 to 10 July 1970.

A symposium on the biology of seals is proposed to take place under the auspices of ICES, ICNAF, and IBP at a date which has not yet been set.

7. Cooperation with Non-Member Countries

The Governments of Japan and Cuba continue to show interest in the fisheries and the work of the Commission in the Northwest Atlantic. Publications and reports are forwarded to them regularly. Invitations have again been extended to these governments to send observers to the 1970 Annual Meeting. Both governments supply statistics on their catches and activities in the Convention Area.

Invitations to be represented by observers at the 1970 Annual Meeting were also extended to the Governments of Belgium, Ireland, Netherlands, and Sweden which, because of their fishing in the Northeast Atlantic and membership in NEAFC, are vitally interested in the effect of management practices in the Northwest Atlantic on the fisheries in the Northeast Atlantic.

8. Programs and Reports of Research

Reports on research carried out in 1968 by 12 of the 14 member countries were reviewed at the 1969 Annual Meeting of the Standing Committee on Research and Statistics and were subsequently published in ICNAF Redbook 1969, Part II, which was distributed in November 1969.

Programs of research to be carried out in 1970 in the Convention Area were received from most member countries and distributed widely early in 1970.

9. Mid-Year Meetings

An interim meeting of Panel A took place, under the Chairmanship of Mr H. J. Lassen (Denmark), at the headquarters of the Commission on 25 September 1969. Canadian and Norwegian proposals for regulation of the seal fishery for the 1970 season were considered. Items for discussion at the Panel's June 1970 meeting were suggested.

The second meeting of the Joint ICES/ICNAF/IOC Coordinating Group for the North Atlantic was held in Dublin on 2 October 1969 at the time of the 57th Statutory Meeting of ICES. ICNAF was represented by Dr H. W. Graham (USA) and the Executive Secretary. Exchange of plans and programs was agreed.

The ICES/ICNAF Joint Working Group on Selectivity Analysis held its second and third meetings in Charlottenlund from 2 to 6 September 1969 and 5 to 10 January 1970 under the Chairmanship of Dr A. I. Treschev (USSR). The second meeting continued its evaluation of the properties of net materials and the analysis of selectivity data. The third meeting examined the factors which cause or may cause differences in mesh selection and examined the adequacy of the present system of mesh differentials.

The Standing Committee on Regulatory Measures met in London, 21-22 January 1970, under the Chairmanship of Mr J. Graham (UK). The Committee examined further the factors involved in the development of country catch quota schemes.

An interim meeting of the Standing Committee on Finance and Administration took place in London on 23 January 1970 under the Chairmanship of Mr W. L. Sullivan, Jr. (USA). The Committee discussed matters relating to reorganization of the Commission Secretariat and salary adjustments for the Executive Secretary.

The Subcommittee on Assessments met in London, 26-30 January 1970, under the Chairmanship of Mr R. Hennemuth (USA). In addition to assessment of the cod and haddock stocks, a special working group, chaired by Mr B. B. Parrish (UK), reviewed the present state of knowledge of the juvenile and adult components of the Northwest Atlantic herring stocks and set down requirements for research.

The ICES/ICNAF Joint Working Party on North Atlantic Salmon met in London, 2-5 February 1970, under the Chairmanship of Mr B. B. Parrish. The Working Party reviewed the latest information available on the West Greenland and the Norwegian Sea salmon fisheries and considered further the assessment of the effects of these fisheries on total and home waters catches.

10. Statistics and Sampling

The volume of catch and effort data collected, compiled and published by the Secretariat continues to increase rapidly. Reporting of data from the increased catches of commercial fish, from the addition of harp and hood seals, from the subdivision of ICNAF Div. 5Z into 5Ze and 5Zw and from the divisions of Statistical Subarea 6 have alone increased the size of the Statistical Bulletin by well over 25% from 104 pages in the 1966 volume to 141 pages in the 1968 volume.

The volume of length and age data has increased steadily with better sampling of the traditional fisheries and the sampling of newly exploited fish and fish stocks. The Sampling Yearbook volume has increased in size from a total of 234 p. of data for all species in 1967 to 301 p. of data for groundfish and flounder species alone in 1968.

The demands created by this increasing volume of statistical and sampling data can only be met economically by mechanization of the data processing procedures in the Secretariat. Steps are being taken to investigate possible solutions.

The Secretariat wishes to thank the national statistical offices for their cooperation in timely and accurate reporting. Through the CWP, and particularly its Secretary, Mr L. P. D. Gertenbach of the Department of Fisheries of FAO, the Secretariat has steadily improved the Commission's statistical program.

11. Changes in the Convention

The 1963 Protocol amending paragraph 5 of Article VIII of the Convention to allow the Commission to propose national and international measures of control on the high seas entered into force on 19 December 1969.

The 1964 Protocol amending paragraphs 7 and 8 of Article VIII of the Convention to facilitate the entry

into force of proposals adopted by the Commission entered into force on 19 December 1969.

Proposed changes in paragraphs 2 of Articles IV and VII of the Convention were adopted by the Commission on 5 and 6 June 1969 to establish a more appropriate basis for the determination of representation on the Panels and to provide for greater flexibility in the types of fisheries regulatory measures which may be proposed by the Commission, respectively. These proposals were forwarded to Depository Government 20 June 1969. The Draft Protocol was signed 1 October 1969. Ratification, approval or adherence is still required by 10 of the 14 Contracting Governments.

12. International Regulation of Trawl Fisheries

Amendments to trawl regulations regarding mesh measuring adopted by the Commission 9 June 1967 for Subareas 1-5 inclusive entered into force on 1 January 1970 for all Contracting Governments.

A proposal, adopted by the Commission on 6 June 1969, by a two-thirds majority, to prohibit fishing for Atlantic salmon on the high seas entered into force on 3 April 1970 for all Contracting Governments except Denmark, Fed. Rep. Germany and Norway.

Proposals adopted by the Commission on 7 June 1969 establishing a closed season, closed areas and catch quotas for haddock in Subarea 5 and Div. 4X of Subarea 4 and for a closed season and area for red and silver hake in Subarea 5, for 1970, 1971, and 1972 entered into force on 1 January 1970.

13. Financial Matters

The ICNAF staff assessment scheme has operated since 1 January 1968 based on the federal tax portion

only of the basic tax for Canadian employees of ICNAF. On 6 October 1969, the Government of the Province of Nova Scotia advised that, due to the jurisdictional difficulties preventing the staff assessment scheme being set up based on the provincial portion of the basic tax, an *ex gratia* grant could be made to the Commission for the year 1968 and each subsequent year upon application, in the amount of the annual provincial income tax liabilities of the Commission's staff. The 1968 grant was made to the Commission on 10 November 1969.

The Executive Secretary was authorized by cable vote conducted on 29 September 1969 to bring the Commission employees under a long-term disability insurance plan developed by the International Fisheries Commissions Pension Society. Basically the plan provides a tax-free monthly benefit payment after a three-months elimination period for long-term disability suffered to age 65 at a monthly rate shared equally by employer and employee. The plan became effective 1 May 1970.

14. Financial Statements for the Fiscal Year Ending 30 June 1970

The accounts of the Commission for the year ending 30 June 1970 show that Can. \$116,300 was appropriated by the Commission for ordinary expenditures.

Obligations incurred during the fiscal year totalled Can. \$113,977 which was Can. \$2,323 less than the total of Can. \$116,300 appropriated by the Commission.

An audit of the Commission's finances was completed in July 1970 by the Office of the Auditor General of Canada, in accordance with the Financial Regulations.

The report of the Auditor General dated 21 September 1970 to the Chairman and Members of the Commission reads, in part, as follows:

EXHIBIT I

Statement of Budget Appropriations, Obligations Incurred, and Balances of Appropriations for the year ended 30 June 1970

(Expressed in Canadian Dollars)

<u>Purposes of Appropriation</u>	<u>Appropriated by Commission</u>	<u>Obligations Incurred</u>	<u>Surplus or Deficit (-) Balances of Appropriations</u>
Personal services:			
Salaries	\$ 67,000	\$ 63,362	\$ 3,638
Superannuation and Canada Pension Plan	2,000	1,529	471
Additional help	1,200	1,555	355
Group medical and insurance plans	500	200	300
Retroactive salaries	6,600	7,977	-1,377
Travel	6,500	6,043	457
Transportation	500	334	166
Communications	3,500	4,842	-1,342
Publications	15,000	16,349	-1,349
Other contractual services	4,000	4,717	-717
Materials and supplies	3,500	2,862	638
Equipment	1,000		1,000
Annual meeting	4,000	4,207	-207
Contingencies	1,000	-	1,000
Totals	<u>\$ 116,300</u>	<u>\$ 113,977</u>	<u>\$ 2,323</u>

EXHIBIT II — GENERAL FUND

Statement of Income and Expenditure
for the year ended 30 June 1970
(with comparative figures for the year ended 30 June 1969)

(Expressed in Canadian dollars)

	<u>1970</u>	<u>1969</u>
Income (and Source of Funds):		
Members' contributions assessed --		
Canada	\$ 10,966	\$ 10,922
Denmark	6,790	4,684
France	8,878	8,843
Germany, Federal Republic	6,790	6,764
Iceland	2,616	2,605
Italy	4,702	4,684
Norway	6,790	6,764
Poland	10,966	10,922
Portugal	8,878	8,843
Romania	2,616	2,605
Spain	8,878	8,843
Union of Soviet Socialist Republics	10,966	10,922
United Kingdom	6,790	6,764
United States of America	<u>6,790</u>	<u>6,764</u>
	\$ 103,416	\$ 100,929
Transferred from Miscellaneous Fund	12,884	—
Transferred from Working Capital Fund	—	8,000
Surplus, 30 June 1968 appropriated for 1968-69 obligations	<u>—</u>	<u>4,771</u>
	116,300	113,700
Obligations incurred (Exhibit 1)	<u>113,977</u>	<u>109,012</u>
Amount carried to Working Capital Fund (Appendix 2)	<u>\$ 2,323</u>	<u>\$ 4,688</u>

EXHIBIT III

Statement of Assets and Liabilities as at 30 June 1970
(with comparative figures as at 30 June 1969)

(Expressed in Canadian dollars)

Assets			Liabilities		
	1970	1969		1970	1969
GENERAL FUND					
Cash on hand and in bank (Appendix 1)	\$ 1,391	\$ 8,168	Unliquidated obligations	\$ 2,474	\$ 7,581
Accounts receivable	1,464	320	Credits due to Member Governments	381	907
	<u>\$ 2,855</u>	<u>\$ 8,488</u>		<u>\$ 2,855</u>	<u>\$ 8,488</u>
WORKING CAPITAL FUND					
Cash on deposit	\$ 22,025	\$ 13,852	Principal of Fund (Appendix 2)	\$ 24,345	\$ 20,000
Accounts receivable	2,320	6,148		<u>\$ 24,345</u>	<u>\$ 20,000</u>
	<u>\$ 24,345</u>	<u>\$ 20,000</u>			
MISCELLANEOUS FUND					
Cash on deposit	\$ 21,494	\$ 12,884	Principal of Fund (Appendix 2)	\$ 21,494	\$ 12,884

APPENDIX 1

General Fund Cash Flow for the year ended 30 June 1970

Cash on hand and in bank, 30 June 1969		\$ 8,168
Add: Member Government contributions:		
Assessments 1969 - 70	\$ 103,416	
Advance payments for 1970 - 71	381	
	103,797	
Less: Advance payments for 1969 - 70	907	102,890
Funds from Miscellaneous Fund for 1969 - 70 appropriations		12,884
		123,942
Deduct: Obligations liquidated:		
Unliquidated obligations, 30 June 1969	\$ 7,581	
Obligations incurred 1969 - 70	113,977	
	121,558	
Less: Unliquidated obligations, 30 June 1970	2,474	119,084
Balances of 1969 - 70 appropriations transferred to:		
Working Capital Fund	2,323	
Increase in accounts receivable	1,144	122,551
Cash on hand and in bank, 30 June 1970		<u>\$ 1,391</u>

APPENDIX 2

WORKING CAPITAL FUND

Balance, 30 June 1969		\$ 20,000
Add: Balances of 1969-70 appropriations	\$ 2,323	
Sales of publications	3,157	
Refund of superannuation	731	
Bank interest	<u>3,134</u>	<u>9,345</u>
		29,345
Deduct: Transfer to Miscellaneous Fund		<u>5,000</u>
Balance, 30 June 1970		<u>\$ 24,345</u>

MISCELLANEOUS FUND

Balance, 30 June 1969		\$ 12,884
Appropriated for 1969-70 obligations		<u>12,884</u>
Add: Staff assessments 1969-70	\$ 14,033	
<i>Ex gratia</i> grant -- 1968 provincial income taxes	2,461	
Transfer from Working Capital Fund	<u>5,000</u>	<u>21,494</u>
Balance, 30 June 1970		<u>\$ 21,494</u>

PART 2

Report of 20th Annual Meeting of the International Commission for the Northwest Atlantic Fisheries St. John's, Newfoundland, 1 – 6 June 1970

BY THE CHAIRMAN, DR A. W. H. NEEDLER

1. Introduction

Under the terms of a Convention signed in 1949, the International Commission for the Northwest Atlantic Fisheries (ICNAF) is responsible for the investigation, protection, and conservation of the fisheries of the Northwest Atlantic in order to make possible the maintenance of a maximum sustained catch from these fisheries. Based on the results of scientific investigations promoted and coordinated by the Commission, measures to ensure wise use of the stocks of commercial fish are recommended to member governments.

The Commission has six panels, five of which review the fisheries and recommend conservation measures in geographic subareas of the Convention Area (Subarea 1, off West Greenland; Subarea 2, off Labrador; Subarea 3, off south and east Newfoundland; Subarea 4, the Gulf of St. Lawrence and Nova Scotia Banks; and Subarea 5, the Gulf of Maine). The sixth panel has jurisdiction respecting harp and hooded seals in the Convention Area.

The Commission has Standing Committees on Research and Statistics (STACRES), on Finance and Administration (STACFAD), and on Regulatory Measures (STACREM).

2. Time and Place of Meeting

The 20th Annual Meeting of ICNAF was convened at Memorial University of Newfoundland, St. John's, Newfoundland, at the kind invitation of the Government of Canada, from 1 to 6 June 1970, under the chairmanship of Dr A. W. H. Needler (Canada).

STACRES, with its subcommittees and working groups, held scientific meetings in advance of the

plenary sessions of the Commission from 25 to 29 May 1970 under the chairmanship of Mr Sv. Aa. Horsted (Denmark). The Assessments Subcommittee met on 22 and 23 May under Mr R. Hennemuth (USA); the Steering and Publications Subcommittee on 24 May under Mr Sv. Aa. Horsted; the Environmental Subcommittee on 25 May under Dr H. W. Graham (USA); an *ad hoc* Working Group on Gear and Selectivity on 25 May under Dr H. Bohl (Fed. Rep. Germany); the Statistics and Sampling Subcommittee on 26 May under Dr A. W. May (Canada) and an *ad hoc* Working Group on Coordinated ICNAF Groundfish Surveys on 26 May under Dr M. Grosslein (USA).

STACRES met daily in plenary session to allocate items of business and to consider the reports and recommendations of the subcommittees and working groups and to prepare its report on the state of the exploited fish stocks and the effect of fishing on these stocks.

Scientific Advisers to each of the six Commission panels met on 29 and 30 May.

Plenary sessions of the Commission were convened daily from 1 to 6 June to assign agenda items and receive reports and recommendations from the three standing committees and the six panels.

3. Participants (Appendix I)

Commissioners, Advisers, and Experts from each of the 14 member countries were in attendance. Observers were present from the Food and Agriculture Organization of the United Nations (FAO), the General Fisheries Council for the Mediterranean (GFCM), the International Council for the Exploration of the Sea (ICES), the

International North Pacific Fisheries Commission (INPFC) and the Government of Japan.

Commission guests included Mr W. L. Molo, World Data Center A, Oceanography, Washington, D.C., USA, and Professor William Burke, School of Law, University of Washington, Seattle, Washington, USA.

The names and addresses of meeting participants are recorded in Appendix I to this Report. The organization and officers of the Commission and its components for the year 1970-71 are recorded on the inside of the front cover of these Proceedings.

4. Opening of the Meeting (Agenda Item 1)

The Opening Session of the 20th Annual Meeting of the Commission was convened in the Little Theatre, Arts and Administration Centre of Memorial University of Newfoundland at 1000 hrs on 1 June 1970. The Chairman of the Commission, Dr A. W. H. Needler, Deputy Minister of Fisheries and Forestry for Canada, welcomed the Commissioners, Advisers, Observers and Guests and pointed out that it was particularly appropriate that the Commission should be celebrating its 20th Anniversary in Newfoundland where the oldest fisheries in the Western Hemisphere have been prosecuted for more than 300 years.

The Chairman then introduced Mr E. Whalen, M.P., Parliamentary Secretary to the Minister of Fisheries and Forestry for Canada, who welcomed the Commission on behalf of the Government of Canada as follows:

"It gives me the greatest of pleasure on behalf of the Government of Canada to welcome you to this country on the occasion of this 20th Annual Meeting of the International Commission for the Northwest Atlantic Fisheries. Although the Commission's headquarters are in Dartmouth, Nova Scotia, it is five years since the Commission held an Annual Meeting in this country.

"In particular, I would welcome you to St. John's, Newfoundland, the first occasion on which this Commission has met in this province. It is of interest to note that when the Convention under which this Commission operates was signed in February 1949, Newfoundland in her own right, signed the Convention. Later that year Newfoundland was welcomed by Canada as its tenth province; consequently it was included with Canada when Canada ratified the Convention in 1950. It is most appropriate, we feel, that this meeting be held in this fine city, a seaport and fishing centre of long renown.

"In its twenty years, the Commission can look back on the accomplishment of a great deal of useful cooperative research. The application of this research to rational exploitation of the resource, has been slower. There are many difficulties in the way of application of international conservation measures. Too often they are not applied until the fish stocks have already been seriously over-fished. We in Canada are glad to see that the Commission in 1969 at last recommended closed seasons and quotas for the over-fished haddock stocks of the Georges and Browns Bank areas. Canada looks forward to similar action to protect other hard-pressed groundfish stocks in the Northwest Atlantic. Such measures should be taken before stocks are reduced below their most productive levels.

"On your agenda for this meeting are many important items of common concern to all of us; some of these are of special concern to Canada.

"Atlantic salmon are very important to the people of our five Atlantic Provinces. Last year your Commission passed a resolution recommending that the new, but fast developing, high seas fishery for salmon be prohibited. It poses a serious threat to the livelihoods of those who depend on commercial or sports fishing of salmon in and near their rivers of origin, and indeed, if it continued its recent rapid growth it would discourage the great efforts on the part of Canada and other countries, necessary to protect salmon rivers from many damaging influences and to maintain the salmon stocks themselves. A way must be found to control this new fishery.

"Another great concern to Canada is the welfare of the rapidly expanding herring fishery in the Convention Area. We have, of course, noted the virtual disappearance of formerly prolific herring stocks in other parts of the world; indeed we are now using drastic restrictions to rebuild our Pacific herring stocks. We urge accelerated cooperative research, leading in time to the regulatory measures which, we expect, will be found necessary to keep this great fishery at its most productive level.

"You have been considering a scheme of international inspection. Such a scheme is in effect on the other side of the Atlantic under the auspices of the North-East Atlantic Fisheries Commission. You now have in effect the necessary Protocol to the Convention to allow your Commission to recommend a scheme of international inspection to member governments. It is a good many years since Canada first advocated this, and I am sure all of you wish to introduce an effective international enforcement regime without further delay.

"On behalf of the Government of Canada, I wish the Commission every success in its important work."

The Chairman thanked Mr. Whalen for his encouraging remarks and introduced Captain, the Honourable E. W. Winsor, M.P.A., Acting Minister of Fisheries for Newfoundland and Labrador, who welcomed the Commission on behalf of the Government of Newfoundland and Labrador as follows:

"Mr Chairman, Ladies and Delegates to the Twentieth Annual Meeting of the International Commission for the Northwest Atlantic Fisheries:

"Amongst all the people living within the area of influence of your Commission, there is none who should be more grateful or should give you a more genuine or heartfelt welcome than the Minister of Fisheries of the Province of Newfoundland and Labrador. In my position of Acting Minister, I am deeply conscious of this, for it is the fishing grounds off the shores of this province which are of the greatest importance to your members.

"It would be foolish of me to attempt to trace your good works since your Commission was founded in 1949, but I would be remiss if I did not comment on the dedication which has gone into the fulfilling the needs and objectives which brought you into existence. We are extremely proud of the part which Canada has played and particularly, Mr Chairman, of your personal contribution since the inception of the Commission which has done great honour to your native land.

"I would venture to say that there is not unanimity at all times in the things you may wish to do and there will continue to be points of disagreement between nations involved, but the heartening side is that people of all the nations represented are prepared to sit down and consider issues and problems on the basis of the overall interest. This was exemplified when the member governments agreed to implement measures for the conservation of the haddock fisheries on Georges Bank and Browns Bank, and the closure, during season, of an area in the southern part of the Commission's jurisdiction to conserve stocks of red and silver hake. These are more recent examples of the sort of cooperation which exists and it augurs well for the future.

"It has been said that one of the greatest threats which faces the future of civilization could be the scarcity of food to feed the exploding world population, and more and more we must look to the oceans of the universe as a source of supply. There is the frightening possibility that even with proper management, our

oceanic resources cannot stand up to the anticipated pressures. What has happened to cod and haddock is an example of this, and I have been told that the long-range possibility of building back stocks of these species is not too encouraging without rigid controls.

"In closing, I want to tell you how honoured we are that you chose to hold your Twentieth Annual Meeting in the City of St. John's and in this old and historic part of Canada, and how genuinely glad I am that your organization exists. I hope nothing will hamper your progress in the field of scientific and biological research, and may your management techniques improve to the point that in harmonious cooperation you will be able to take advantage of the fisheries wealth of the Northwest Atlantic for the good of all mankind."

The Chairman introduced His Worship Mayor W. G. Adams of the City of St. John's who expressed, on behalf of its hardy, friendly, uncomplicated people, their deep understanding of, and complete appreciation for the objectives of the Commission and their hope that the meetings would be stimulating, effective and produce good for all mankind.

The Chairman then introduced Lord Taylor, President and Vice-Chancellor of Memorial University of Newfoundland, who, as host to the Commission's meetings, extended a warm welcome to its delegates from many lands. He reviewed the history and development of the university and the contributions it was making to the future of Newfoundland and Canada.

The Chairman thanked the speakers for their warm welcome and good wishes for success and a pleasant stay in Newfoundland. He then declared the 20th Annual Meeting of the Commission opened.

Following the opening ceremonies, the First Plenary Session was convened by the Chairman. Second, Third, Fourth, Fifth, and Sixth Plenary Sessions were convened on 1, 2, 4, 5, and 6 June. During the period 1 to 6 June the following business of the Commission was concluded.

5. Agenda (Item 2)

In accordance with Commission Rules of Procedure 4.2(b), the provisional agenda for the Annual Commission Meeting was transmitted to all Contracting Governments and Commissioners not less than 60 days in advance of the meeting. The agenda was adopted without changes at the First Plenary Session.

6. Publicity (Item 3)

The Commission agreed that the Chairman of the Commission and the Chairmen of the Standing Committees with the Executive Secretary would constitute a committee to determine policy regarding publicity.

7. Report of the Standing Committee on Finance and Administration (STACFAD) (Item 28)

At its First Plenary Session, the Commission assigned all financial and administrative items on its agenda (Items 4, 5, 6, 7, 8, 9, and 31) to STACFAD. These items and others on the STACFAD agenda were considered at two meetings on 1 and 4 June 1970. STACFAD also confirmed recommendations from its mid-term meeting held in London on 23 January 1970. The reports and recommendations of STACFAD were presented to the Third and Fourth Plenary Sessions on 4 and 5 June 1970 respectively.

a) Panel memberships

STACFAD reviewed panel memberships as required under Article IV(2) of the Convention. Applications by the Federal Republic of Germany to withdraw from membership in Panel 3 and to be accepted for membership in Panel 4, by Norway for membership in Panel 2, and by Romania for memberships in Panels 2 and 3 were adopted by the Commission on the recommendation of the respective panels and

Panel	1	2	3	4	5	A	Total
Canada		+	+	+	+	+	5
Denmark	+		+			+	3
France	+	+	+	+			4
Germany	+	+		+			3
Iceland	+						1
Italy			+	+			2
Norway	+	+	+			+	4
Poland	+	+	+	+	+		5
Portugal	+	+	+	+			4
Romania		+	+		+		3
Spain	+	+	+	+			4
USSR	+	+	+	+	+		5
UK	+	+	+				3
USA			+	+	+		3
TOTAL	10	10	12	9	5	3	49

STACFAD. Panel memberships for the year 1970-71 thus total 49 and are distributed among the 14 member countries (see accompanying table).

b) Reports by the Secretariat

The Executive Secretary submitted the following reports on administrative and financial matters:

- i) Auditor's Report for the fiscal year ending 30 June 1969 (1969 Annu. Proc. Vol. 19, p. 10-13);
- ii) Administrative and Financial Report for the fiscal year ending 30 June 1970 (estimated from 20 April 1970) (Comm. Doc. 70/7);
- iii) Budget estimate for the fiscal year ending 30 June 1971 (Appendix I to the 1970 Agenda for STACFAD);
- iv) Budget forecast for the fiscal year ending 30 June 1972 (Appendix II to the 1970 Agenda for STACFAD);

c) Recommendations on finance and administration

The Commission adopted the following recommendations:

- i) that the Auditor's Report showing appropriations of Can. \$113,700 and obligations incurred of Can. \$109,012 for the fiscal year ending 30 June 1969 be adopted;
- ii) that the provisional Administrative Report with financial statements for the fiscal year ending 30 June 1970 (estimated from 20 April 1970) be adopted;
- iii) that the position of Assistant Executive Secretary, vacant since 30 April 1970, be filled by a fishery biologist at a salary range from Can. \$14,889 to \$19,820 (Administrative Services Grades 6 and 7 in the Canadian Government salary schedule effective 1 October 1969);
- iv) that the salary scale for the Executive Secretary be established as from Can. \$20,000 to \$25,000 with annual increments of Can. \$500 on satisfactory performance, with the level established for the 1970 - 71 fiscal year being Can. \$23,000;

- v) that the position of Editorial Assistant be reclassified from Information Services Grade 1 to Administrative Services Grade 4 (Can. \$10,500 - \$11,931) in view of additional responsibility in financial and administrative matters within the Secretariat;
- vi) that an amount of Can. \$2,800 for additional help for the Assistant Executive Secretary for the fiscal year 1970 - 71 be approved and that requirements for the fiscal year ending 30 June 1972 be detailed by the Assistant Executive Secretary for consideration at the 1971 Annual Meeting of the Commission;
- vii) that Can. \$5,000 be declared in excess of the present and anticipated needs in the Working Capital Fund and that it be transferred to the Miscellaneous Fund immediately in accordance with Financial Regulation 4.7;
- viii) that the Commission appropriate a sum of Can. \$124,500 from Contracting Governments and the Miscellaneous Fund to meet ordinary expenditures and Can. \$5,000 from the Working Capital Fund to support the ICES/FAO/ICNAF Stock and Recruitment Symposium, for the fiscal year ending 30 June 1971, the appropriations to be used for the following purposes:
- | | | | |
|--------------------------------------|-------|-----------|--|
| 1. Personal Services | | | |
| a) Salaries | ..... | \$ 69,200 | |
| b) Superannuation | ..... | 2,500 | |
| c) Additional help | ..... | 4,000 | |
| d) Group medical and insurance plans | ..... | 500 | |
| e) Contingencies | ..... | 2,500 | |
| f) Forecast increase | ..... | 1,500 | |
| 2. Travel | ..... | 6,500 | |
| 3. Transportation | ..... | 500 | |
| 4. Communications | ..... | 4,000 | |
| 5. Publications | ..... | 18,300 | |
| 6. Other Contractual Services | ..... | 5,000 | |
| 7. Materials and Supplies | ..... | 4,000 | |
| 8. Equipment | ..... | 1,000 | |
| 9. Annual Meeting | ..... | 4,000 | |
10. Contingencies 1,000
- Total ordinary expenditures \$124,500
- Special appropriation from Working Capital Fund
- i) Stock Recruitment Symposium 5,000
- ii) Transfer to Miscellaneous Fund 5,000 10,000
-
- ix) that the Executive Secretary be authorized to increase staff salaries and to make retroactive payments effective on the date of the salary increases for the Public Service of Canada to the extent possible in the contingency salary item (Can. \$2,500) of the budget for the fiscal year ending 30 June 1971;
- x) that the Executive Secretary investigate the possible costs to ICNAF of items required for implementation of the ICNAF international inspection scheme and report to a mid-year meeting of STACFAD for approval to meet any expenditures necessary during the fiscal year ending 30 June 1971;
- xi) that the Contracting Governments give consideration at the 1971 Annual Meeting to authorizing appropriations of Can. \$130,000 for the ordinary expenses of the Commission and Can. \$5,000 from the Working Capital Fund for expenses in connection with the ICNAF Northwest Atlantic Environmental Symposium, 1971, for the fiscal year ending 30 June 1972;
- | | | | |
|--------------------------------------|-------|-----------|--|
| 1. Personal Services | | | |
| a) Salaries | ..... | \$ 71,000 | |
| b) Superannuation | ..... | 2,500 | |
| c) Additional help | ..... | 4,000 | |
| d) Group medical and insurance plans | ..... | 500 | |
| e) Contingencies | ..... | 5,000 | |
| f) Forecast increases | ..... | 1,500 | |
| 2. Travel | ..... | 6,500 | |
| 3. Transportation | ..... | 500 | |
| 4. Communications | ..... | 4,000 | |
| 5. Publications | ..... | 17,500 | |
| 6. Other Contractual Services | ..... | 5,000 | |
| 7. Materials and Supplies | ..... | 4,000 | |
| 8. Equipment | ..... | 1,000 | |

9. Annual Meeting	6,000
10. Contingencies	1,000
<hr/>	
Total ordinary expenditures	\$130,000
Special appropriation Working Capital Fund	
i) Northwest Atlantic Environmental Symposium	5,000

- xii) that the Commission express its gratitude to the Canadian Government in writing through the Executive Secretary for its application of the Canadian Government Employees' Compensation Act to the ICNAF staff;
- xiii) that Contracting Governments be billed by the Commission for payments due, under the 1970 - 71 administrative budget, in accordance with Article XI of the Convention, on 14 August 1970;
- xiv) that the 1971 Annual Meeting be held in Halifax, Nova Scotia, Canada, from 27 May to 5 June, the 1972 Annual Meeting in the United States beginning the first full week in June at a location to be agreed later when all possibilities have been explored, and the 1973 Annual Meeting at the Commission headquarters beginning the first full week in June, if no invitation is extended at the 1971 Annual Meeting;
- xv) that the Commission note the unanimous re-election of Mr R. W. Green (USA) as Chairman of STACFAD for the year ending 30 June 1971.

8. Status of Commission Proposals (Item 10)

The Commission reviewed the status of Commission proposals for international regulation of the fisheries and for changes in the Convention. It was pleased to **note** that the 1967 proposals relating to mesh measurement in Subareas 1-5 and the 1969 proposals relating to haddock in Division 4X of Subarea 4 and in Subarea 5 and those relating to silver and red hakes in Subarea 5 entered into force on 1 January 1970 under the terms of the amended provisions of paragraph 7 and 8 of Article VIII of the Convention. It also **noted** that the 1969 proposal relating to the ban on salmon fishing on the high seas entered into effect on 3 April 1970 for all Contracting Governments except Denmark, the Federal

Republic of Germany, and Norway which had objected to the proposal.

The Commission was pleased to **note** that the Protocol, adopted 7 June 1963 by the Commission, which allows it to make proposals for national and international measures of control on the high seas to ensure application of the regulatory measures in force under the Convention and the Protocol, adopted 6 June 1964 by the Commission, which establishes less time-consuming procedures for bringing into effect the regulatory measures adopted by the Commission, entered into force for all Contracting Governments on 19 December 1969.

9. Matters Relating to Commission Trawl Regulations (Items 13, 14 and 15)

At its Second Plenary Session, the Commission reviewed and **adopted** the summary report of inspections, infringements, and actions taken by each Contracting Government relating to mesh size, mesh obstruction, and excess landings for the calendar year 1969.

The Commission **noted** that a simplification of its trawl regulations was included in the 1969 revision of the ICNAF Handbook as requested by the 1969 Annual Meeting.

The Commission **noted** that STACRES, after considering the reports of the three meetings of the ICES/ICNAF Working Group on Selectivity Analysis and the variability of the results presented, could not agree on a departure from the present system of mesh differentials for nets made of different twine materials and that further experiments would be carried out in relation to the adoption of the polyamide standard twine.

10. Protocol to the Convention Relating to Amendments to the Convention (Item 11)

The Commission reviewed a proposed Protocol to the Convention, drafted by Depositary Government at the request of the 1969 Annual Meeting, which would establish quicker and smoother working procedures for amending the Convention. Delegates differed regarding the need for a change in procedures and about the Protocol itself. A Special Committee was set up to develop acceptable procedures. The Commission, by a

two-thirds majority, **adopted** the Special Committee's redrafted Protocol for presentation to Contracting Governments by Depositary Government. Article I of the Protocol reads as follows:

"Article XVII of the Convention is renumbered 'Article XVIII' and a new Article XVII is inserted to read as follows:

'Article XVII

- '1. Any Contracting Government or the Commission may propose amendments to this Convention to be considered and acted upon by a regular meeting of the Commission or by a special meeting of the Commission called in accordance with the provisions of paragraph 6 of Article II of the Convention. Any such proposed amendment shall be sent to the Executive Secretary at least ninety days prior to the meeting at which it is proposed to be acted upon, and he shall immediately transmit the proposal to all Contracting Governments and to all Commissioners.
- '2. A proposed amendment to the Convention shall be adopted by the Commission by a three-fourths majority of the votes of all Contracting Governments. The text of any proposed amendment so adopted shall be transmitted by the Depositary Government to all Contracting Governments.
- '3. Any amendment shall take effect for all Contracting Governments one hundred and twenty days following the date on the notification by the Depositary Government of receipt of written notification of approval by three-fourths of all Contracting Governments unless any other Contracting Government notifies the Depositary Government that it objects to the amendment, within ninety days of the date on the notification by the Depositary Government of such receipt, in which case the amendment shall not take effect for any Contracting Government. Any Contracting Government which has objected to an amendment may at any time withdraw that objection. If all objections to an amendment are withdrawn, the amendment shall take effect for all Contracting Governments one hundred and twenty days following the date on the

notification by the Depositary Government of receipt of the last withdrawal.

- '4. Any Government which becomes a party to the Convention after an amendment has been adopted in accordance with paragraph 2 of this Article shall be deemed to have approved the said amendment.
- '5. The Depositary Government shall promptly notify all Contracting Governments of the receipt of notifications of approval of amendments, the receipt of notifications of objection or withdrawal of objections, and the entry into force of amendments."

11. Application of Amended Convention Article VIII to Seals (Item 12)

The Commission discussed the applicability of the 1964 Protocol to the Convention Relating to Entry into Force of Proposals Adopted by the Commission to proposals relating to harp and hood seals pursuant to the 1961 Protocol and a proposed Declaration of Understanding on this matter to ensure the intention of the Commission to have the provisions of the amended Convention Article VIII apply also to harp and hood seals. The Commission unanimously **adopted** a proposal to put on record its understanding that the 6-month period as dictated by the 1964 Protocol applied to proposals relating to harp and hood seals, and accordingly there was no need to adopt the proposed Declaration of Understanding.

12. International Enforcement (Items 16 and 17)

The Commission noted that, with the coming into effect of the 1963 Protocol to the Convention Relating to Measures of Control on 19 December 1969, consideration could be given to the adoption of the international enforcement scheme proposed for ICNAF at its 1968 Annual Meeting (1968 ICNAF Meeting Proceedings No. 19). Following discussion the Commission **adopted** the following proposals for an ICNAF scheme of Joint International Enforcement of the Fishery Regulations in the Convention Area for presentation to Contracting Governments by Depositary Government:

“That pursuant to paragraph 5 of Article VIII of the Convention, the following arrangements be established, as from 1 July 1971, for international control outside national fishery limits for the purpose of ensuring the application of the Convention and the measures in force thereunder:

- ‘1. Control shall be carried out by inspectors of the fishery control services of Contracting Governments. The names of the inspectors appointed for that purpose by their respective governments shall be notified to the Commission.
 - ‘2. Ships carrying inspectors shall fly a special flag or pennant approved by the Commission to indicate that the inspector is carrying out international inspection duties. The names of the ships so used for the time being, which may be either special inspection vessels or fishing vessels, shall be notified to the Commission.
 - ‘3. Each inspector shall carry a document of identity supplied by the authorities of the flag state in a form approved by the Commission and given him on appointment stating that he has authority to act under the arrangements approved by the Commission.
 - ‘4. Subject to the arrangements agreed under paragraph 9, a vessel employed for the time being in fishing for sea fish or in the treatment of sea fish in the Convention area shall stop when given the appropriate signal in the International Code of Signals by a ship carrying an inspector unless actually fishing, shooting or hauling, in which case it shall stop immediately it has finished hauling. The master of the vessel shall permit the inspector, who may be accompanied by a witness, to board it. The master shall enable the inspector to make such examination of catch, nets or other gear and any relevant documents as the inspector deems necessary to verify the observance of the Commission’s recommendations in force in relation to the flag state of the vessel concerned and the inspector may ask for any explanations that he deems necessary.
 - ‘5. On boarding the vessel an inspector shall produce the document described in 3 above.
- Inspections shall be made so that the vessel suffers the minimum interference and inconvenience. An inspector shall limit his enquiries to the ascertainment of the facts in relation to the observance of the Commission’s recommendations in force in relation to the flag state of the vessel concerned. In making his examination an inspector may ask the master for any assistance he may require. He shall draw up a report of his inspection in a form approved by the Commission. He shall sign the report in the presence of the master of the vessel who shall be entitled to add or have added to the report any observations which he may think suitable and must sign such observations. Copies of the report shall be given to the master of the vessel and to the Inspector’s Government who shall transmit copies to the appropriate authorities of the flag state of the vessel and to the Commission. Where any infringement of the recommendations is discovered the inspector should where possible also inform the competent authorities of the flag state, as notified to the Commission, and any inspection ship of the flag state known to be in the vicinity.
- ‘6. Resistance to an inspector or failure to comply with his directions shall be treated by the flag state of the vessel as if the inspector were an inspector of that state.
 - ‘7. Inspectors shall carry out their duties under these arrangements in accordance with the rules set out in this recommendation but they shall remain under the operational control of their national authorities and shall be responsible to them.
 - ‘8. Contracting Governments shall consider and act on reports of foreign inspectors under these arrangements on the same basis as reports of national inspectors. The provisions of this paragraph shall not impose any obligation on a Contracting Government to give the report of a foreign inspector a higher evidential value than it would possess in the inspector’s own country. Contracting Governments shall collaborate in order to facilitate judicial or other proceedings arising from a report of an inspector under these arrangements.

'9. (i) Contracting Governments shall inform the Commission by 1st March each year of their provisional plans for participation in these arrangements in the following year and the Commission may make suggestions to Contracting Governments for the co-ordination of national operations in this field including the number of inspectors and ships carrying inspectors.

(ii) The arrangements set out in this Recommendation and the plans for participation shall apply between Contracting Governments unless otherwise agreed between them; and such agreement shall be notified to the Commission:

Provided, however, that implementation of the scheme shall be suspended between any two Contracting Governments if either of them has notified the Commission to that effect, pending completion of an agreement.

'10. (i) Nets shall be inspected in accordance with the regulations in force for the subarea in which the inspection takes place. The number of undersized meshes and the width of each mesh examined shall be entered in the inspector's report, together with the average width of the meshes examined.

(ii) Inspectors shall have authority to inspect all nets.

'11. The inspector shall affix an identification mark approved by the Commission, to any net which appears to have been used in contravention of the Commission's recommendations in force in relation to the flag state of the vessel concerned and shall record this fact in his report.

'12. The inspector may photograph the net in such a way that the identification mark and the measurement of the net is visible, in which case the subjects photographed should be listed in the report and copies of the photographs should be attached to the copy of the report to the flag state.

'13. The inspector shall have authority, subject to any limitations imposed by the Commission, to carry out such examination and measurement of the catch as he deems necessary to establish whether the Commission's recommendations are being complied with. He shall report his findings to the authorities of the flag state of the inspected vessel as soon as possible.'"

The Commission, in adopting the Scheme, agreed that subject to the approval of Contracting Governments, which would be notified to the Commission, and without prejudice to the rights of Contracting Governments under the provisions of paragraph 9(ii) of the Scheme:

(a) as between the USSR and other Contracting Governments the provisions of the Scheme relating to inspection of gear below deck and of catch would not be operative;

(b) as between Poland and other Contracting Governments the provisions of the Scheme relating to inspection of gear or catch below deck would not be operative; and

(c) as between Romania and other Contracting Governments the provisions of the Scheme relating to inspection of gear below deck and of catch would not be operative.

The Commission also adopted detailed proposals of the mechanics of application of the Scheme including an ICNAF pennant to identify inspection vessels, an identification card for inspection officers, an inspectors' reporting form, the design of an identification mark for inspected trawl nets, the design of a net inspection form, and a questionnaire from the inspector to skipper.

13. Report of the Standing Committee on Research and Statistics (STACRES) (Item 27)

The Standing Committee met under the chairmanship of Mr Sv. Aa. Horsted (Denmark), with Mr D. J. Garrod (UK) and Dr A. W. May (Canada) as Rapporteurs in St. John's, Newfoundland, from 25 to 29 May 1970. The Subcommittee on Assessments held a mid-term meeting in London, England, from 26 to 30 January 1970 and met in St. John's from 22 to 23 May 1970. The ICES/ICNAF Joint Working Group on Selectivity

Analysis met at ICES headquarters in Charlottenlund, Denmark, from 2 to 6 September 1969 and again from 5 to 9 January 1970. The ICES/ICNAF Joint Working Party on North Atlantic Salmon met in London from 2 to 5 February 1970.

The Report of the Standing Committee with subcommittee and working group reports as appendices is published separately as ICNAF Redbook 1970 Part I. The Report was **adopted** by the Commission in plenary session on 5 June 1970. The major items considered at these meeting are summarized below:

a) **Assessments**

The Assessments Subcommittee reported

- i) that the total nominal catches of all species in the Convention Area decreased by about 10% from 1968 to 1969. Groundfish landings increased in all subareas except Subarea 5, while herring landings decreased in Subarea 5, increased in Subarea 4 and remained stable in Subarea 3.
- ii) that present studies on ICNAF cod stocks substantiate the earlier conclusions that fishing is beyond that required to secure the maximum yield per recruit. High yields in 1967 and 1968 were achieved largely by decreasing the stocks accumulated and total yield is now expected to decrease further from the 1969 level. Consideration, therefore, should be given to limitation of fishing on all cod stocks in the ICNAF Area.
- iii) that the haddock stock in the Sable Island (Div.4W) - Banquereau (Div.4V) area of the Scotian Shelf has been fully exploited in recent years. With the 1969 abundance the lowest on record, a reasonable management objective would be to encourage the increase of the adult stock to produce a sustained yield of 20,000 to 25,000 tons annually. Measures should be considered to prevent the taking of large numbers of juvenile haddock in incidental catches of fisheries for non-regulated species. Particularly significant in this regard is the substantial summer silver hake fishery on Sable Island Bank, a nursery ground for young haddock.
- iv) that the annual quota of 18,000 tons of haddock set in the Browns - LaHave - Bay of Fundy (Div.4X) area for the 1970 - 72 period is too high to ensure that fishing mortality will not exceed the 1968 level.
- v) that the 1969 year-class of haddock in the Georges Bank - Gulf of Maine - (Subarea 5) region seems to be as poor as the preceding five. Estimates of recruits in 1970 and 1971 reaffirms the 1969 recommendation that no fishery take place.
- vi) that, with the total herring catch from the ICNAF Area (adults and juveniles combined) having increased dramatically from 180,000 in 1960 - 61 to 951,000 tons in 1968 due primarily to the growth of fisheries on adult herring, research is urgently required to provide estimates of stock abundance and to determine the inter-relationship between the stock of juvenile and adult herring currently exploited in Subareas 4 and 5.
- vii) that control of effort and mesh size would mitigate reduction of the spawning stocks of yellowtail flounder on Georges Bank (Div.5Ze) and along southern New England (Div.5Zw) following recent poor recruitment and high fishing intensity.
- viii) that conditions for exploitation of silver hakes in Subareas 4 and 5 and red hake stocks in Subarea 5 will remain favourable in 1970 - 71 and even improve in 1971 - 72 due apparently to improved recruitment or availability.
- ix) that, in order to provide better information for assessment and management, a minimum sampling requirement by each country be the length measurement of 200 fish for every quarter of the year and ICNAF division in which 1,000 or more tons of fish are caught.
- x) that a working group be set up to make a detailed evaluation of an ICNAF groundfish survey.
- xi) that the present level of assessment studies and associated research be increased by the allocation of additional staff and money to the Secretariat and that definite commitments be made by member countries for scientists to initiate studies of the stocks

which are most crucially in need of assessment.

b) Statistics and sampling

The Subcommittee reported

- i) that the Statistical Bulletin for the year 1968 included catch and effort statistics for harp and hooded seals from 1937 to 1968 and for ICNAF species in Div.5Ze and 5Zw as well as in Div.6A, 6B, and 6C;
- ii) that the list of ICNAF species will include the frigate mackerel, *Auxis thazard*, and the Queen crab (snow crab), *Chionoecetes opilia*;
- iii) that the basis for separation of the red and white hakes was modified and the footnote to the ICNAF list of species as published in Statistical Bulletin will be altered accordingly;
- iv) that member countries should make every effort to report catches of flounders by species;
- v) that the proportion of fishing effort data derived by means of estimates would be tabulated by species, division, country, gear, and tonnage category from 1969 submissions for consideration at the 1971 meeting;
- vi) that the 1969 Sampling Yearbook would include a summary showing for each species, division, country and gear the numbers of fish sampled by length and age in relation to total catch;
- vii) that Denmark and USA will participate as representatives of ICNAF in the Seventh Session of the FAO/ICES/ICNAF Coordinating Working Party on Atlantic Fishery Statistics.

e) Environmental studies

The Committee noted that the extreme ice conditions had a drastic effect on the cod fisheries in West Greenland (Subarea I) in 1969, the influence being partly physical with the ice preventing normal operations; that the Georges Bank - Gulf of Maine Environ-

mental Surveys are providing estimates of the population of spawning fish by egg survey, and **recommended**

that the Chairman of the Environmental Subcommittee serve in a liaison capacity to IGOSS (Integrated Global Ocean Station System) to bring to its attention those properties and conditions which might be most useful to fisheries and fishery research in the ICNAF Area.

d) Gear and selectivity

The Committee, following consideration of the gear and selectivity items on its agenda by an *ad hoc* Working Group, noted that the ICES/ICNAF Working Group on Selectivity Analysis, found it impossible to analyse the relation between selectivity and the physical properties of twine material due to insufficient data and that, due to the variability of the results, there were varying opinions about departing from the present system of mesh size differentials for different twine materials; and **recommended**

- i) that, after editorial consideration by members of the ICES/ICNAF Working Group on Selectivity Analysis, its reports be summarized for publication as an ICES Cooperative Research Report if ICES so agrees, the report to contain the tables of basic data and the bibliography;
- ii) that the Subcommittee on Assessments examine the requirements for further selectivity experiments in relation to the adoption of polyamide in place of manila as the selectivity standard;
- iii) that member countries be encouraged to undertake commercial trials using codends made of thick twines in order to evaluate their durability and practicability with a view to elimination of topside chafers;
- iv) that the ICNAF regulations concerning topside chafers be altered to authorize the use of a Polish-type (large-mesh) chafer made of thick (10 mm diam.) twine of knotless construction;

e) Ageing techniques

The Committee noted that interested scientists met on board the USSR R/V *Persey III* to study redfish and

herring ageing. Exchange of redfish, herring and haddock otoliths and scales among scientists from various countries will continue.

f) ICES/ICNAF Joint Working Party on North Atlantic Salmon

The Committee reviewed the report of the meeting of the Working Party held in London 2 - 5 February 1970, noting particularly the latest information on the salmon fisheries off West Greenland and in home waters and the effects of the Greenland fishery on total and home waters catches.

The Committee noted that the total catch in the West Greenland fishery increased by about 90% from 1968 to 1969 to an estimated 2,100-2,200 tons of which the offshore drift-net fishery took 56% and the inshore set gill-net fishery the remainder. The increase is due to a doubling of the number of drift-net vessels in the fishery and the use of highly effective monofilament nylon nets. Non-reporting of tags taken at West Greenland has made it necessary that all possible steps be taken to increase the efficiency of reporting tag recaptures from the drift-net fishery. Tagging suggests that the major part of the stock at West Greenland is derived from Canadian and UK rivers, while biochemical and parasite studies suggest strongly that a major portion of the salmon are of North American origin. A total of 1,817 salmon has been tagged at West Greenland during the period 1965 - 69. By the end of 1969, 11 were reported in home waters (Canada 5, Scotland 4, Ireland 2).

The Committee noted that Canada, Denmark, and UK will extend their research in Greenland waters, the Labrador Sea, and Davis Strait concentrating on tagging, sampling, and on surveys to show distribution, abundance, and composition of stocks within and outside the exploited area. Also the Committee, recognizing the need for better knowledge of the exploitation rate in Greenland waters and the distribution and mortality of fish leaving Greenland waters, **recommended**

- i) that the ICES/ICNAF Joint Working Party on North Atlantic Salmon meet in conjunction with the 1970 Annual Meeting of ICES to elaborate a proposal for a program for an international tagging experiment on salmon at West Greenland, if possible in 1972, and an evaluation of the possible results from such an experiment, these proposals and the evaluation to be presented to the 1970 ICES meeting and the 1971 ICNAF meeting;

and, agreeing that the 1969 and 1970 reports of the Working Party should be considered for publication, **recommended**

- ii) that, at the next meeting of the ICES/ICNAF Joint Working Party on North Atlantic Salmon, consideration be given to publication of the 1970 report of the Working Party, including material from the 1969 report as appropriate, and that if publication is recommended and agreed by ICES, it be as an ICES Cooperative Research Report.

g) Other matters

The Commission was pleased to note

- i) that Mr W. Molo, Director of the World Data Center A, Oceanography, Washington, D.C., gave a lecture on the mission and function of the WDC;
- ii) that, following a recommendation from the 1969 meeting, a paper was presented by Messrs. Bainbridge and Cooper of the Oceanographic Laboratory, Edinburgh, on the distribution and abundance of redfish larvae as determined by the Laboratory's continuous plankton recorder survey;
- iii) that tribute was paid by fellow scientists to Mr Sv. Aa. Horsted (Denmark) and Dr H. W. Graham (USA) who had made valuable contributions to the work of the Commission as Chairmen of STACRES and the Environmental Subcommittee respectively.

14. Report of the Standing Committee on Regulatory Measures (STACREM)
(Items 18 and 29)

The Commission, at its First Plenary Session on 1 June 1970, had before it the report of the mid-term meeting of STACREM held in London on 21 - 22 January 1970 under the Chairmanship of Mr J. Graham (UK). STACREM, is considering possible further factors in development of country catch quota schemes, took note of the report of the NEAFC *ad hoc* Study Group on the North East Arctic, October 1969, which added the new point that the percentage shares of different

countries would not necessarily remain fixed at all levels of total catch, but that the lower level of the total allowable catch the greater might be the degree of preference accorded to those countries in the scheme having special needs, i.e. factors other than historical performance. A further point was the possibility of schemes in which countries accounting for the major part of the catch might agree on a quota scheme which they would observe so long as catches by countries outside the agreement did not exceed a level agreed by the participating countries. STACREM noted that the Protocol adopted by the Commission in June 1969 which would allow the Commission to set national quotas, was not yet in effect and noted the USA proposal to have the nations fishing in Subarea 5 meet before the 1970 Annual Meeting to discuss the application to haddock in Subarea 5 of the principles of allocating national quotas (see Section 15[e], Report of Panel 5). STACREM discussed the administrative, legal, and technical factors in controlling fishing effort at the national level and agreed that an essential part of a catch quota scheme is an effective system of obtaining national fishery statistics by species and subareas. Investigation of the possible use of a uniform or standard form of log book was proposed (see Section 15[f], Report of Joint Meeting of Panels 1 - 5).

The Commission adopted the Report and agreed to dispense with a meeting of STACREM during the period of the 20th Annual Meeting.

15. Reports of Meetings of Panels (Items 19, 20, 21, 22, 23, 24, and 30)

The Commission assigned plenary item 19 on conservation measures for Atlantic salmon, item 24 on conservation of herring stocks and item 18 on a standard log book for fishing vessels to a Joint Meeting of Panels 1 - 5; item 20 on uniform mesh regulations for Subareas 1, 2, and 3 to Panels 1, 2, and 3; item 21 on haddock regulations to Panels 4 and 5; items 22 and 23 on silver and red hake and yellowtail flounder regulations to Panel 5. Reports of the meetings of Panels 1 - 5 and of Panel A (Seals) and of the Joint Meeting of Panels 1 - 5 were received by the Commission.

- a) **Panel 1.** The Panel, under the chairmanship of Mr K. Løkkegaard (Denmark), noted the reduction in cod catch in Subarea 1 in 1969 to the lowest level since 1952 and **recommended**

“that STACRES give priority to the assessment of the Subarea 1 cod stock in relation to the Panel’s consideration of the need for additional conservation measures.”

- b) **Panel 2.** The Panel, under the chairmanship of Captain Tavares de Almeida (Portugal), **recommended**

“that the mesh size for Subarea 2 be increased from 114 to 130 mm and that 1 July 1971 be the date by which all countries should be using the new mesh size in the subarea.”

Poland and Spain reserved their position on the date of entry into force of the new regulation for trawlers, preferring a date of 1 January 1972, but would do their best to comply with the earlier date. The Panel unanimously approved the applications of Norway and Romania for panel membership.

The Panel unanimously elected Captain T. de Almeida Chairman for the ensuing year.

- c) **Panel 3.** The Panel, under the chairmanship of Mr A. Volkov (USSR), **recommended**

“that the mesh size for Subarea 3 be increased from 114 to 130 mm except that the exemption for redfish fishing be continued in Div. 3NOP.”

However, Canada reserved her position in relation to Subdivision 3Pn and 3Ps and to haddock in Div.3NOP.

The Panel was informed by the Federal Republic of Germany of the wish to withdraw from membership in the Panel.

- d) **Panel 4.** The Panel, under the chairmanship of Mr R. Lagarde (France), received a Canadian proposal for regulation of the haddock fishery in Div.4VW combining quota regulations and a closed area based on conclusions of the Assessments Subcommittee and the Panel Advisers. It was felt, however, that member countries needed more time to study the implications particularly for catches of other species in the proposed closed area. The Panel agreed that

the Assessments Subcommittee should give the proposal further study. Canada pointed out that the quota, previously set for haddock in Div.4X, may be too high based on the Assessment Subcommittee studies. The Panel agreed that the matter should be referred to the Assessments Subcommittee.

The Panel approved the application of the Federal Republic of Germany for membership in the Panel.

- e) **Panel 5.** The Panel, under the chairmanship of Dr F. Chrzan (Poland), received a US proposal to amend the haddock quota regulation for Subarea 5 to extend through May the existing ban during March - April on fishing with gear capable of catching demersal species in two areas and to reduce the size of the westernmost one of these areas. The proposal was withdrawn when Panel members agreed that scientists should be given more time to evaluate the existing regulations.

A US proposal for both catch quota and mesh size regulations in the fishery for yellowtail flounder in Subarea 5 was discussed at length and the Panel **recommended**

- "1. That the Contracting Governments take appropriate action to regulate the catch of yellowtail flounder, *Limanda ferruginea* (Storer), by persons under their jurisdiction fishing in Subarea 5 so that the aggregate catch of yellowtail flounder taken in 1971 shall not exceed:
- a) 16,000 metric tons from fishing grounds east of 69°W;
 - b) 13,000 metric tons from fishing grounds west of 69°W.
- "2. That Competent Authorities of each Contracting Government shall report bi-weekly yellowtail flounder catches by persons under their jurisdiction taken in each of the areas referred to in paragraph 1 to the Executive Secretary of the Commission not later than 7 days after the end of a two-week reporting period. Information of yellowtail flounder by-catch taken by the vessels which do not conduct

specialized fishing for yellowtail flounder shall be reported to the Executive Secretary of the Commission in 700 ton increments. The Executive Secretary shall notify each Contracting Government of the dates on which accumulative catches of yellowtail flounder from each of the areas referred to in paragraph 1 equal 80 percent of the allowable catch for the area in question.

- "3. That within 10 days of receipt of notification from the Executive Secretary in accordance with paragraph 2, each Contracting Government shall prohibit catches of yellowtail flounder by persons under their jurisdiction from the area or areas referred to in the notification from the Executive Secretary, except as provided in paragraph 4.
- "4. That, in order to avoid impairment of fisheries conducted primarily for other species and which take small quantities of yellowtail flounder incidentally, the Contracting Governments may permit persons under their jurisdiction to have in possession on board a vessel fishing primarily for other species subsequent to a closure referred to in paragraph 3, yellowtail flounder caught within such a closed area in amounts not exceeding 5,000 lb or 2,268 kg, or 10% by weight, of all other fish on board caught in the closed area.
- "5. That the assessment of effects of fishing for yellowtail flounder in Subarea 5 be reviewed at the mid-term meeting of the Assessment Subcommittee, and that the catch data of all countries for 1970 which is required for such a review be made available." and further **recommended**

"That the trawl regulations applicable in Subarea 5 be extended to apply to yellowtail flounder, *Limanda ferruginea* (Storer), in the same manner that they apply to cod and haddock."

The Panel noted that the effectiveness of the regulatory measures for silver and red hakes in the subarea enacted 1 January 1970 cannot yet be stated.

The Panel elected Dr F. Chrzan chairman for the ensuing year.

- f) **Panel A (Seals).** The Panel, under the chairmanship of Mr E. Hesselbjerg (Denmark) in the absence of Mr H. J. Lassen (Denmark), received briefs from the World Federation for the Protection of Animals (WFPA), Comité d'Action pour le Sauvetage des Phoques, Geneva, and the European Committee for the Protection of Seals, Swiss Section, Berne, requesting member countries of the Panel to limit the total catch of seals and to enforce all regulations to ensure humane killing of seals. The Panel agreed to inform the organizations that further measures to protect the seal stocks have been seriously considered and that a limitation of the total catch of harp seals will be recommended for the 1971 season. Regulations already introduced in close cooperation with international organizations for the protection of animals to ensure the efficient and humane killing of seals will be retained. The organization should also be informed that available data do not suggest any decline of hooded seal stocks in the Convention Area.

The Panel adopted the report of an interim meeting of the Panel held in Dartmouth, 25 September 1969, and noted that measures for the 1970 sealing season were agreed by Canada and Norway and differed somewhat from those outlined in the report.

The Panel gave full consideration to a Canadian proposal for conservation of seals and **recommended**, as amended and approved by the Commission,

“That the following proposal for regulation of the 1971 harp and hood seal fishery in the Gulf and Front Areas be transmitted to the Depositary Government for joint action by the Contracting Governments members of Panel A (Seals):

1. That the allowable catch in the ‘Gulf’ and ‘Front’ Areas combined in 1971 be 245,000 harp seals of all ages, including an allowance of 45,000 for the indigenous non-mobile fisheries of these areas;
2. That the open season for the taking of harp and hooded seals commence not earlier than 12 March 1971 and close not later than 24 April 1971.”

The Panel agreed that Canada should provide a representative from ICNAF to help prepare for an ICES/ICNAF/IBP Symposium on Seals proposed for the University of Guelph (Canada) in 1972.

The Panel unanimously elected Mr O. Lund (Norway) chairman for the ensuing two years.

- g) **Joint Meeting of Panels 1-5.** A joint meeting of Panels 1-5 was convened, under the chairmanship of Dr A. W. H. Needler (Canada), to consider items referred to it from the first plenary session. All 14 member countries of the Commission participated in a full discussion of the need for further conservation measures for **Atlantic salmon**. The following joint Panel resolution was **adopted** by the Commission on 6 June 1970 for transmittal to Contracting Governments by Depositary Government; the voting being as follows: for the resolution (10), Denmark, France, Federal Republic of Germany, Italy, Norway, Portugal, Romania, Spain, UK, and USA; against the resolution (4), Canada, Iceland, Poland, and USSR:

“**Recognizing** that the proposal adopted at the 1969 Annual Meeting for the prohibition of the fishery for salmon outside national fishery limits, not having been accepted by all Contracting Governments, has not been fully effective;

Considering that interim measures are desirable in order to avoid the escalation of fishing for salmon throughout the Convention Area pending a more accurate assessment of its effects on coastal and river fisheries and on the stocks; and

Noting that Contracting Governments which have not participated in the fishery have no present intention of so doing;

The Commission also proposes that:

1. That each Contracting Government which has participated in the fishery for Atlantic salmon, *Salmo salar* L., take appropriate action to limit the aggregate tonnage of vessels employed or catch taken by its nationals in the fishery in the Convention Area to a level not exceeding the aggregate tonnage of vessels so employed or catch so taken in 1969;
2. That Contracting Governments which have not accepted the prohibition on fishing for Atlantic salmon outside national fishery limits take appropriate action to prohibit fishing for Atlantic salmon outside national fishery limits in the Convention Area before 31 July and after 30 November.
3. That the use for salmon fishing of any trawl net, any monofilament net or any troll be prohibited throughout the Convention Area provided that Contracting Governments may authorize the continued use of monofilament nets acquired before 1 July 1970.
4. That these measures be in force for the year 1971 subject to review within that period, in the event of substantial changes in the catches of Atlantic salmon in the Convention Area or in home waters or in the fish stocks."

The Panels noted a Canadian proposal concerning the conservation of **herring** in the Convention Area which urged restraint on further expansion of the rapidly expanding herring fishery and pointed to the lack of adequate assessment data to keep abreast of the expansion. The Panels unanimously agreed to **recommend**

"that a working group of the Assessments Subcommittee of STACRES be set up to plan, propose and coordinate interna-

tional research on herring in the Convention Area."

The Panels considered a request from STACREM for an exchange of fishing log book sheets among member countries and for a study by the Panels of the possibility of using a **uniform or standard log book** as part of an effective statistical scheme, an international inspection scheme and the application of a catch quota. The Panels **recommended**

"that national log book sheets be examined by STACRES and the Secretariat with a view to making recommendations regarding the possible use of a uniform or standard log book to the Panels at the 1971 Annual Meeting."

- h) Report of *ad hoc* Working Group on Subarea 5 Fisheries.** This Working Group was set up following a US proposal at the 1969 Annual Meeting and at the January 1970 meeting of STACREM to consider the possible application to haddock of the principles concerning national quotas developed by STACREM. The Working Group met from 27 to 29 May 1970 under the chairmanship of Mr E. B. Young (Canada). Eight member countries and Japan interested in Subarea 5 fisheries attended. A US proposal asked that the Working Group consider both "interim" and "long-term" management schemes for the haddock and yellowtail stocks in Subarea 5 based on the principles discussed in STACREM. During the "interim" or stock recovery period the allowable catch (except incidental catches) would be reserved almost entirely for the USA since the US fishermen are feeling almost the whole impact of the depletion of the haddock stocks. After the resources had recovered, another phase of quota allocation, a "long-term" management scheme, could begin within the frame of reference developed by STACREM. In view of the importance of the issues and the impossibility of reaching definite agreement, the Working Group **agreed** that another meeting be arranged, preferably considerably before the 1971 Annual Meeting of ICNAF, to allow member countries to discuss these matters further.

16. International Cooperation

The Commission had before it reports from ICES, IOC, NEAFC, and FAO, those international organizations with which a close working relationship is maintained in order to ensure more efficient and effective solution of the many and mutual problems in managing international fishery resources.

17. Acknowledgements and Adjournment

The Chairman thanked the Observers from Japan, FAO, GFCM, ICES, INFEC, and the Commission's

guests, Mr W. L. Molo of the World Data Center A, Oceanography, and Professor W. Burke, School of Law, University of Washington, for their interest in and contributions to the Commission's problems. He expressed the best thanks of the Commission to the Governments of Canada and Newfoundland for their hospitality and to Memorial University of Newfoundland for excellent meeting facilities and congratulated the Commissioners and their advisers for their continuing good efforts in the best interest of the Commission.

There being no other business, the Chairman declared the 20th Annual Meeting of the Commission adjourned at 1230 hrs, 6 June 1970.

APPENDIX I

List of Participants

CANADA

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 Mr R. Straus, United States Consulate General, St. John's, Newfoundland.
 Mr W. L. Sullivan, Jr., Office of the Special Assistant for Fisheries and Wildlife to the Secretary, Department of State, Washington, D.C. 20520.
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APPENDIX II

Agenda

PROCEDURES

1. Opening.
2. Agenda.
3. Publicity.

ADMINISTRATION

4. Panel Memberships.
5. Administrative Report.

FINANCE

6. Auditor's Report (1968-69) (Ann. Proc. 19, p.10-13).
7. Financial Statement, 1969-70 (preliminary).
8. Budget estimate, 1970-71 (Appendix I, Agenda F & A).
9. Budget forecast, 1971-72 (Appendix II, Agenda F & A).

COMMISSION PROPOSALS

10. Status of proposals adopted by Commission.
 - a) for changes in Convention.
 - b) for regulation of fisheries.
11. Consideration of proposed Protocol to the Convention Related to Amendments to the Convention (new procedures for amending Convention).
12. Consideration of Declaration of Understanding Regarding the International Convention for the Northwest Atlantic Fisheries as Amended (application of provisions of Article VIII amended 1969 to harp and hood seals).

TRAWL REGULATIONS

13. Annual Returns of Infringements.
14. Simplification of international trawl regulations.
15. Differentials for mesh materials.

ENFORCEMENT

16. Exchange of national inspection officers.
17. Form of international inspection scheme.

CONSERVATION

18. Principles and problems of limiting fishing as a conservation measure.
19. Conservation of Atlantic salmon.
20. Uniform mesh regulations for Subareas 1, 2, and 3.
21. Review of regulations for haddock in Subareas 4 and 5.
22. Review of regulations for silver and red hakes in Subarea 5.
23. Possible conservation measures for yellowtail flounder in Subarea 5.
24. Conservation of herring stocks in the Convention Area.

INTERNATIONAL COOPERATION

25. Report of Second Meeting of ICES/ICNAF/IOC Coordinating Group for North Atlantic Oceanography, Dublin, 2 October 1969.
26. Reports of meetings of NEAFC, ICES, FAO, IOC, and SCOR

REPORTS OF COMMITTEES AND PANELS

27. Report of Standing Committee on Research and Statistics.
28. Report of Standing Committee on Finance and Administration.
29. Report of Standing Committee on Regulatory Measures.
30. Report of Panels 1-5 and Panel A (Seals).

OTHER MATTERS

31. Date and place of 1971, 1972, and 1973 Annual Meetings.
32. Press statement.
33. Other business.
34. Adjournment.

APPENDIX III

Press Release

1. The Twentieth Meeting of the International Commission for the Northwest Atlantic Fisheries took place in the Arts and Education Building of Memorial University of Newfoundland, St. John's, Newfoundland, from 1 to 6 June 1970, at the kind invitation of the Government of Canada. Dr A. W. H. Needler, Deputy Minister of Fisheries and Forestry for Canada, presided. Delegates from the fourteen member countries, Canada, Denmark, France, Federal Republic of Germany, Iceland, Italy, Norway, Poland, Portugal, Romania, Spain, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America, were present, as well as observers from the Food and Agriculture Organization of the United Nations, the International Council for the Exploration of the Sea, the General Fisheries Council for the Mediterranean, the International North Pacific Fisheries Commission and the Government of Japan.

2. The problems of salmon conservation in the Northwest Atlantic were given long and serious consideration by the Commission. The prohibition of salmon fishing outside national fishery limits recommended by the Commission in 1969 has not been fully effective as it was not accepted by all member governments. To avoid escalation of fishery for salmon, the Commission at its recent meeting also recommended, by the necessary two-thirds majority, that countries limit the aggregate tonnage of vessels used to fish salmon outside territorial waters or their catch to 1969 levels. It also recommended prohibition of the use outside territorial waters of any trawl net, any monofilament net or any troll. It recommended that these measures apply in 1971. Salmon conservation problems will be reviewed again at the Commission's next (1971) Annual Meeting.

3. The Commission also gave serious consideration to the effects of heavy fishing on yellowtail flounder stocks in the Commission's Subarea 5 (the Gulf of Maine-Georges Bank region). It recommended that the total annual catch of yellowtail flounder on the grounds east of 69°W be limited to 16,000 tons and on those west of 69°W to 13,000 tons and also that the minimum mesh sizes now in effect for trawl fishery for cod and haddock apply also to yellowtails.

4. In the Commission's Subarea 1 (West Greenland region) a minimum mesh size of 130 mm (5 1/8 inches) is already in effect for trawl nets used for catching cod and other groundfishes. The Commission is recommending that this same minimum mesh size apply in Subareas 2 (off Labrador) and 3 (off the east and south coasts of Newfoundland) with continued exemption of nets used for fishing ocean perch in the southern part of Subarea 3 for which a small mesh is permissible.

5. To ensure adherence to the Commission's international conservation measures, the Commission gave unanimous approval to the adoption of an international scheme of inspection at sea similar to that already in effect in the northeast Atlantic. The scheme will come into effect in the northwest Atlantic 1 July 1971. Detailed procedures were developed and will be reviewed by a meeting of national enforcement officers after some experience has been gained.

6. There was unanimous agreement to the need for acceleration and coordination of research on the herring stocks of the Northwest Atlantic. The new intensive fishery for herring which has developed in recent years has caused great concern on the part of all member countries of ICNAF for the future of the herring stocks. While analysis of available information by the Commission's scientists did not give evidence

of the need for immediate restrictive measures, a special working party was set up to plan an adequate research program and consider its results.

7. The Commission agreed that the annual catch of harp seals in the Gulf of St. Lawrence and in the "Front" area off Labrador and Newfoundland should be limited in 1971 to 245,000 seals, including an allowance of 45,000 for the indigenous, nonmobile fisheries of these areas, thus making international quota regulations applicable to these herds for the first time.

8. The Twenty-First Annual Meeting of the Commission will be held in Halifax, Nova Scotia, from 27 May to 5 June 1971. At that time, the Commission will welcome the delegation of the Government of Japan which will have become a member of the Commission later in 1970.

St. John's, Newfoundland,
6 June 1970.

PART 3

Summaries of Research and Status of Fisheries by Subareas, 1969

The following summaries were prepared from the research reports and other pertinent documents submitted to the 1970 Annual Meeting of the Commission from each Member Country. The summaries were prepared by the Chairmen of the Groups of Scientific Advisers to the Panels administering the work of the Commission in the Subareas. The Chairmen were:

for Subarea 1 -- A. Meyer (Federal Republic of Germany);
for Subarea 2 -- A. S. Bogdanov (USSR);
for Subarea 3 -- H. A. Cole (UK);
for Subarea 4 -- R. Monteiro (Portugal);
for Subarea 5 -- G. F. M. Smith (Canada).

Subarea 1 and East Greenland

Reports on research in 1969 were submitted by Canada, Denmark, Federal Republic Germany (FRG), Iceland, Norway, Poland, Portugal, Spain, UK, USSR, and USA.

1. Status of the Fisheries

Total catch of all species was 224,000 metric tons, excluding catch by non-member countries which in 1968 was 29,000 metric tons. This is the lowest catch recorded by ICNAF and is only 45% of the best catch in 1962. Catches by countries in 1969, with the 1968 catch in parentheses, were: Denmark (Faroes) 19,000 tons (46,000); Denmark (Greenland) 38,000 tons (33,000 tons); France 25,000 tons (47,000); FRG 83,000 tons (145,000 tons); Iceland 400 tons (300 tons); Norway 19,000 tons (40,000 tons); Poland 400 tons (1,000 tons); Portugal 16,000 tons (33,000 tons); Spain 24,000 tons (22,000 tons); USSR 200 tons (2,000 tons); UK 600 tons (10,000 tons); and non-member countries did not report catch (29,000 tons).

Cod made up 88% of the total catch of 198,000 tons, a decrease of 156,000 tons from 1968. This sharp decline was apparently due to very severe ice conditions and to poor recruitment of young cod.

Redfish catches, mainly by FRG trawlers, decreased by 45% to 4,000 tons, the lowest catch since 1952.

Salmon catches almost doubled to 2,180 tons due to increased fishing effort by Denmark, Faroes, Greenland, Norway, and Sweden.

The East Greenland cod and redfish fisheries, carried out mainly by FRG and Iceland, increased from 40,000 tons in 1968 to about 50,000 tons in 1969.

Deep sea prawn catches by Greenlanders in Disko Bay (Div. 1A) increased from 6,000 to 7,000 tons.

2. Work Carried Out

a) **Canada:** Studies on salmon in West Greenland waters with Danish and UK scientists.

b) **Denmark:** Hydrographic sections by R/V *Adolf Jensen*, February - September in West Greenland waters. Cod egg, larvae and young fish sampling. Cod age and size distribution, cod tagging (2,434 fish). Salmon deep sea prawn and seal studies.

c) **FRG:** Hydrographic observations by R/V *Walther Herwig* March and October over East and West Greenland Banks. Cod sampling for length and age in East and West Greenland waters.

d) **Iceland:** Length and age samples from commercial cod catches in East Greenland.

e) **Norway:** Hydrographic sections (4) by R/V *G. O. Sars*, April - May, between Sukkertoppen and Nunarsuit. Length and age samples of cod from hook selection experiments. Cod egg sampling.

f) **Portugal:** Sampling for length, age and maturity of cod.

g) USSR: R/V *Persey III* occupied hydrographic section 10-A (65°33'N, 53°45'W: 65°03'N: 58°16'W) in September. Length and age samples from cod catches.

h) UK: Plankton recorder sampling 1,333 miles. Salmon studies with Canadian and Danish scientists.

i) USA: Oceanographic surveys from Melville Bay to Disko Island during August. Benthic and sediment sampling.

3. Hydrography

Hydrographic observations covered the period from March to October. The year 1969 was one of the most severe ice years in this century. Normally the polar ice which is transported by the East Greenland Current around Cape Farewell in winter extends only to Cape Desolation (60°45'N). However, in 1969 the ice front extended to Noname Bank (62°N) in March, reached Fyllas Bank (64°N) in May and eventually about 66°N, blocking the whole coast and most of the area of the banks. Winter cooling brought temperatures in the upper 50-75 m to lower than -1.5°C. Below 100 m temperatures were 1°C higher than in 1968. The water layer above 100 m remained unusually cold, being below -0.5°C in August and below 0°C in October over Fyllas Bank. Below 200 m temperatures were about normal or higher than in 1968.

4. Cod

a) **Eggs and larvae:** Although the ice hampered sampling, it can be assumed that the 1969 year-class will probably be a poor one.

b) **Young fish:** Cod of the 1968 year-class were absent in all samples. The 1967 year-class was only of minor importance in the northern divisions and of no importance in the southern divisions. The 1966 year-class was of some importance in Div. 1D to 1B.

c) **Commercial stock:** The 1965 year-class was predominant on the northern banks especially in Div. 1C and in coastal waters but was more or less absent in the southern Div. 1E and 1F and off East Greenland. In the southern divisions, the East Greenland 1963 year-class was predominant but was not as strong as the 1961 and 1960 year-classes. The very strong 1961 year-class was of great commercial importance, especially off South and East Greenland, during its spawning migration and spawning. There is reason to believe that in 1968 a substantial part of these 8-year-old cod emigrated to Iceland and spawned and were therefore lost to the Greenland stock. On the other hand, the severe ice conditions in 1969 seem to have resulted in a reduction of the fishing mortality on the mature stock especially during its postspawning phase.

5. Atlantic Salmon

In the West Greenland salmon fishery catches were good from the beginning of August to late October especially in the offshore areas. Inshore catches varied greatly being very poor in southern Greenland and the Godthaab areas but more normal in the other districts. Further tagging and biological studies were carried out on the Greenland salmon stock in attempts to determine its origin and the effects of the West Greenland fishery on home-water fisheries. These studies were planned and carried out jointly by ICNAF and ICES scientists through the Joint ICES/ICNAF Working Party on North Atlantic Salmon. In the Labrador-West Greenland area, 385 salmon were tagged. Recaptures to 30 December 1969 totalled 14, of which 13 were from West Greenland and 1 from Northeast Newfoundland. The latter is the fifth Canadian recapture of a Greenland-tagged salmon. In addition, 44 salmon were tagged in the Holsteinsborg and 15 in the Godthaab districts. At least 307 salmon tagged in Europe-North America have been recaptured in Greenland waters in 1969.

Subarea 2

Reports on research in 1969 were submitted by the following countries: Canada, FRG, Poland, Portugal, Spain, USSR, UK, and USA.

1. Status of the Fisheries

Total catch of all species, excluding catches by non-member countries, was 438,000 metric tons com-

pared to 426,000 tons in 1968. Catches by countries in 1969 with the 1968 catches in parentheses were: Canada 5,000 tons (19,000 tons); Denmark (Faroes) 2,000 tons (nil); France 30,000 tons (39,000 tons); FRG 72,000 tons (55,000 tons); Norway 7,000 tons (16,000 tons); Poland 65,000 tons (74,000 tons); Portugal 66,000 tons (60,000 tons); Spain 33,000 tons (33,000 tons); USSR 154,000 tons (119,000 tons); UK 2,000 tons (12,000

tons); and non-member countries not reported for 1969 (64,000 tons).

Cod catches made up 91% of the total catch of all species, increasing slightly from 406,000 tons in 1968 to 409,000 tons in 1969. Larger offshore catches were made by USSR (104,000 to 131,000 tons); FRG (54,000 to 72,000 tons); and Portugal (60,000 to 66,000 tons). Decreases in offshore catches were reported by Poland (70,000 to 62,000 tons); Norway (16,000 to 7,000 tons); and France (39,000 to 30,000 tons). Catches by Spain remained the same (33,000 tons). The Canadian inshore fishery again decreased dramatically from 18,000 to 5,000 tons, the poorest catch recorded since 1930.

2. Work Carried Out

a) **Canada:** Standard hydrographic section off Seal Island, southern Labrador early August. Inshore (Div. 2H and 2J) cod sampled July - August.

b) **FRG:** February and October hydrographic cruises R/V *Walther Herwig*. Cod sampling for length and age.

c) **Poland:** Sampling for length and age of cod in Div. 2H, of redfish and American plaice in Div. 2J and for length of Greenland halibut.

d) **Portugal:** Cod sampling for length, age and stage of maturity in Div. 2J in March and April.

e) **Spain:** Cod sampling for length, age and stage of maturity in September, October, November and December.

f) **USSR:** Hydrographic section across Hamilton Inlet Bank, July and November, by R/V *Persey III*. Sampling for length and age of cod, redfish, and grenadier. Cod tagging (2,338 fish).

g) **UK:** Sampling with plankton recorder (2,172 miles).

3. Hydrography

In July the temperature of the cold component of the Labrador Current in the 0 to 200 - m layer was lower than the mean long-term temperature by 0.49°C and continued to decrease through November. During the

summer, there was more cold water (below -1°C) than usual. Water layers below the cold core were warmer than usual. The temperatures of the core of the cold Labrador Current were higher than in 1968 indicating a weakening in the intensity of the Current. On the slope of Hamilton Bank, cold waters were found down to 200 m with bottom temperatures in 400 m still below 3°C. Areas of optimal temperature for cod were limited and favoured the formation of dense concentrations. Here, in October; the cold component of the Labrador Current had lower temperatures and volume.

4. Cod

Cod were extremely scarce in the inshore area. Here the mean length decreased from 59 and 58 cm in 1960 - 64 to 56 and 53 cm in 1965 - 69 in July and August sampling. On Hamilton Bank in February, the FRG offshore commercial fishery took 5 to 8-year-old cod (1961 - 64 year-classes) of a mean length of 57 cm. In October the fish were mainly 3 - 4 years old (1965 and 66) and 39.8 cm mean length. Larger but less abundant cod were found to the north at the same time. Polish trawlers found older and larger cod with increase in depth. Age varied from 2 to 18 years and length from 24 to 86 cm. Portuguese catches on Hamilton Inlet Bank in March - April consisted predominantly of cod 53 - 55 cm long and 7 - 8 years average age. In the USSR trawler catches, cod aged 6 - 8 years of the strong 1961 - 63 year-classes predominated.

5. Redfish

In the period January - March on Hamilton Inlet Bank, USSR commercial catches of redfish (*Sebastes mentella* Travin) consisted of two sizes of fish, one of small immature fish 10 - 11 years of age and the other of large mature fish 20 and more years of age. Polish commercial catches consisted mainly of fish 30 - 34 cm in length and 9 to 14 years of age.

6. Roundnose Grenadier (*Macrurus* sp.)

USSR catches in October consisted of fat individuals 67.1 cm average length in the north Labrador area and of less fat individuals 58.6 cm average length in the central Labrador area.

Subarea 3

Reports on research in 1969 were submitted by Canada, FRG, Poland, Portugal, Spain, USSR, and UK.

1. Status of the Fisheries

Total catch of all species, excluding catches by non-member countries, was 983,000 tons, a decrease of 152,000 tons from 1968. Catches increased for Canada 23,000 tons to 409,000 tons; for Denmark by 1,000 tons to 19,000 tons; and for Norway by 15,000 tons to 27,000 tons. Catches decreased for France by 26,000 tons to 39,000 tons; for Poland by 6,000 tons to 25,000 tons; for Portugal by 20,000 tons to 99,000 tons; for Spain by 33,000 tons to 173,000 tons; for USSR by 83,000 tons to 189,000 tons; and for UK by 22,000 tons to 3,000 tons. Non-member countries took 9,000 tons in 1968; catch figures are not available for 1969.

Cod catches made up about 59% of the total catch of all species and decreased from 731,000 tons in 1968 to 576,000 tons in 1969. Catches by Canada remained about the same as in 1968 while increases were reported by Denmark and by Norway. Substantial decreases were reported by France from 62,000 tons to 36,000 tons; Poland from 18,000 tons to 14,000 tons; Portugal from 119,000 tons to 99,000 tons; Spain from 201,000 tons to 171,000 tons; and USSR from 132,000 tons to 57,000 tons. USSR catches fell more sharply due to diversion of effort to grounds outside the Convention Area.

Haddock catches again declined from 6,000 tons in 1968 to 4,000 tons in 1969 although Canadian landings in Div. 3P almost doubled.

Redfish catches increased substantially from 48,000 tons in 1968 to 87,000 tons in 1969, mainly due to better catches in Div. 3N, 3O, and 3Ps.

Herring catches, all taken by Canada mainly along the southern coast of Newfoundland by purse seine, remained at 145,000 tons.

Flounder catches decreased by about 9,000 tons to 123,000 tons in 1969. Catches of American plaice increased by over 30% to 71,000 tons while catches of non-specified flounders decreased by 29,000 tons to 37,000 tons.

The catch of harp seals in the "Front" area (Div. 2J, 3K, and 3L) in March and April 1970 totalled 165,000 animals of which 115,000 were taken by Norway and 50,000 by Canada. Total catch in 1969 was about 170,000 animals.

2. Work Carried Out

a) Canada: Five oceanographic sections across the Continental Shelf and Labrador Current in July - August. Thirteen hydrographic stations from Fortune Bay to Port-aux-Basques occupied periodically between October 1968 and February 1969. Bathysonde observations along a north - south oceanographic section across the Newfoundland Basin running south into the Sargasso Sea. Plankton surveys in Cabot Strait, on St. Pierre Bank and along the south coast of Newfoundland. Charting surveys off southern Newfoundland. Biological studies of inshore and offshore cod and offshore haddock, redfish, American plaice, and Greenland halibut. Further investigations of herring, capelin, Atlantic salmon, and pink salmon.

b) FRG: R/V *Walther Herwig*. Two hydrographic sections across the Grand Bank in February. Samples of cod and haddock for length and age.

c) Poland: Biology of cod, redfish, American plaice, witch, Greenland halibut, and roundnose grenadier.

d) Portugal: Length, age, and sexual maturity of cod.

e) Spain: Length, age, and sex ratio of cod.

f) USSR: Five standard hydrographic sections over the south and eastern part of the Grand Bank including Flemish Cap Bank. Young cod and haddock surveys. Tagging of cod (2,341), American plaice (541) and yellowtail flounder (1,048). Biological studies of redfish and roundnose grenadier.

e) UK: Continuous plankton recorder survey (15,664 miles).

3. Hydrography

Temperature conditions in July - August were variable; in some areas, depths and months they were higher and in others lower than the average. On the southern

Grand Bank, temperatures near bottom were lower than in 1968. In the spring of 1969, the North Atlantic Current seems to have been more intensive than in the spring of 1968.

4. Plankton

The spring bloom of phytoplankton was extremely abundant on the Grand Bank with a maximum in April, a month later than in 1968. *Calanus* was abundant, particularly in March. Young stages of redfish were abundant in the shelf and slope waters and to the east of Grand Bank in April and June.

5. Cod

a) **Young fish:** USSR sampling showed that 3- and 4-year-old cod of the 1966 and 1965 year-classes were prevalent on the northern Grand Bank. The 1966 and 1967 year-classes were stronger than average. On the southern Grand Bank, the 1966 year-class was a little stronger than previous year-classes, except that of 1964, but the 1967 year-class was poor. The 1968 year-class will probably be of great importance to the fishery. It is also numerous on St. Pierre Bank.

b) **Commercial stock:** Cod were abundant in the northern part of the subarea. Increased Canadian trap-net catches were provided by the 1964 year-class;

longline and gill-net catches by the 1961 and 1962 year-classes. In Canadian research vessel catches in May - June on the eastern Grand Bank the 1966 year-class was predominant. Polish catches in June off Northeast Newfoundland were dominated by the 1962, 1963, and 1964 year-classes as were the Spanish catches from the Grand Bank. Portuguese trawlers and dory vessels fishing mainly the northern Grand Bank had the 1963, 1964, and 1965 year-classes predominating, particularly in the trawl catches. USSR catches on the Grand Bank consisted mainly of the 1961, 1962, 1963, and 1964 year-classes in March, April, and May.

6. Haddock

Canadian investigations show that survival from the 1967 and 1968 year-classes on the Grand Bank is extremely low. However, USSR investigations suggest that the young haddock of local origin which appeared on the southern slopes of Grand Bank in 1968 may be the first sign of a recovery of the southern Newfoundland haddock stock.

7. Roundnose Grenadier

USSR investigations show that these fish grow very slowly. The males are of medium size (500 - 700 g and 65 - 70 cm) at 12 to 14 years of age. The females are slightly longer and heavier. Males are predominant in the commercial catches.

Subarea 4

Reports on research in 1969 were submitted by Canada, FRG, Poland, Spain, USSR, and USA.

1. Status of Fisheries

Total catch of all species, excluding catches by non-member countries, increased 47,000 tons from 954,000 tons in 1968 to 1,001,000 tons in 1969, the highest catch on record. The considerable increase in catches of silver hake and herring by USSR and FRG more than offset the sharp decrease in Canadian cod catches. Canada took 727,000 tons (754,000 tons in 1968); France 20,000 tons (26,000); FRG 24,000 tons (10,000); Poland 13,000 tons (1,000); Portugal 2,000 tons (7,000); Spain 48,000 tons (63,000); USSR 151,000 tons (66,000); and USA 16,000 tons (26,000). Catches by non-member countries were not available for 1969 (8,000).

Cod catches decreased by 41,000 tons to 206,000 tons, due mainly to diversion of Canadian effort from the Nova Scotia Banks to the Gulf of St. Lawrence and Cape Breton areas.

Haddock catches continued to decrease, due to poor year-classes after 1963, to 41,000 tons from 46,000 tons in 1968.

Redfish catches continued to increase, mainly from the Canadian fishery in the Gulf of St. Lawrence, to 109,000 tons from 103,000 tons in 1968.

Herring catches continued to increase to 422,000 tons from 362,000 tons in 1968, due mainly to increased catches by Canada in the southern Gulf of St. Lawrence and by USSR and FRG on the northern part of the Nova Scotia Banks (Div. 4Vs and 4W). Canadian

catches off Southwest Nova Scotia (Div. 4X) decreased by almost 50%.

Silver hake catches, all made by USSR, increased markedly to 46,000 tons from 3,000 tons in 1968 due mainly to the incoming successful 1966 and 1967 year-classes in the central part of the Nova Scotia Banks (Div. 4W).

Increased catches were also reported for argentine from 2,000 to 4,000 tons, for white hake from 5,000 to 7,000 tons and for sea scallops from 12,000 to 14,000 tons. Considerable decrease was reported, especially by USSR, for flounder species.

The catch of harp seals in the "Gulf" area (Div. 4T) in March and April 1970 by Canada was 90,000 animals. Catch in 1969 was about 83,000 animals.

2. Work Carried Out

a) Canada: R/V *A. T. Cameron*, *E. E. Prince*, and other research vessels. Studies of tidal streams, heat budget and gyres in the Gulf of St. Lawrence, surface circulation studies from Bay of Fundy - Gulf of Maine to Labrador continued. Productivity studies in St. Margaret's Bay continued. Zooplankton surveys Scotian Shelf and Cabot Strait. Cod egg and larval surveys in the southern Gulf of St. Lawrence. Groundfish surveys on Scotian Shelf. Abundance of sea scallops in the southern Gulf of St. Lawrence and Bay of Fundy. Biology of silver hake, sand lance, argentine, and witch flounder. Mackerel sampling. Tuna behaviour. Herring abundance, morphometric, meristic, and egg and larval studies. Salmon smolt tagging and serological and electrophoretic studies. Further trial fishing with acoustic echo-counting equipment.

b) FRG: R/V *Walther Herwig*. Two hydrographic sections across Cabot Strait and two across Emerald Bank, February and October. Herring sampling on St. Pierre (Div. 3Ps) in November, Misaine and Banquereau (Div. 4Vs) in January, March, and December and Sable Island (Div. 4W) in September. Sampling cod, haddock (February), and silver hake (October).

c) Poland: Biological studies of herring and argentine.

d) Spain: Biological studies of cod.

e) USSR: Four seasonal hydrographic surveys. Studies of silver hake, herring, and argentine. Joint USSR-US groundfish surveys.

f) UK: Continuous plankton recorder sampling 4,476 miles.

g) USA: US Coast Guard hydrographic surveys. Co-operative studies with Canada on haddock in Div. 4X.

3. Hydrography

Canadian studies of the surface-bottom waters over the Continental Shelf from Bay of Fundy - Gulf of Maine to Labrador showed an exceptionally strong surface southwesterly drift (7 - 9 miles per day) in the Gulf of Maine intensified by strong easterly winds in the winter and subsiding by spring. In the deep waters of the Gulf of Maine, the intrusion of relatively warm and high saline waters which started in the late winter of 1968 persisted until the beginning of 1969 but had regressed by spring. Accumulated data from the lower Laurentian Channel indicate northerly bottom drift along the western slopes of St. Pierre Bank (Div. 3P). The temperature of the warm, deep layer in Cabot Strait increased from about 4.3°C in 1966 to 5.4°C in 1969. Surface temperatures along the Atlantic coast were generally warmer than in 1968 and above the long-term averages at all seasons. FRG studies in the Laurentian Channel showed a well-developed constant horizontal thermocline at about 150 m separating the deeper warm water of relatively high salinity from a cold layer above. In February this cold water occupied the whole upper layer and was coldest at the surface which increased in temperature from 0.1°C off Cape Breton Island to about 2°C over the southeastern slope of Banquereau Bank but remained stable at about 1°C along the western slopes of Burgeo and St. Pierre Banks. By October the cold layer had become an intermediate layer due to the formation of a second thermocline separating it from a warm surface layer. USSR observations show that in 1969 the water temperature was higher than in 1968. Bottom temperatures in the Nova Scotia Channel ranged from 5° to 10°C, 2° to 3°C higher than in 1968.

4. Plankton

Continuous plankton recorder surveys showed that young stages of *Calanus* were abundant in the coastal waters in June, slightly later than normal.

5. Cod

Cod of the 1964 and 1965 year-classes were dominant in the commercial catches in the Gulf of St.

Lawrence. Tagging experiments by Canada confirmed that cod move from the Magdalen Shallows in the summer to the Laurentian Channel in winter. The 1962, 1963, and 1964 year-classes were dominant in the Spanish catches on the Nova Scotia Banks.

6. Haddock

Canadian research on the southern part of the Nova Scotia Banks indicates that recruitment to the fishery remained low and that the 1968 year-class is poor. Studies of the stocks in the Gulf of St. Lawrence and the northern part of the Nova Scotia Banks indicate poor recruitment in 1970-72 which means that stock abundance will decline substantially by 1972 unless further regulatory measures are put into force.

7. Herring

Studies indicate that the recently expanded summer-autumn fishery conducted off southwest Nova Scotia (Div. 4X) has caused a marked reduction in the availability of adults. Racial studies of southern Gulf of St. Lawrence (Div. 4T) and southwest Newfoundland (Div. 3P) herring indicate that these are derived from the same stock complex. The strong 1959 and 1960

year-classes were again dominant in Div. 4T with the 1964 and 1965 year-classes also strong. Herring in Polish catches from Misaine Bank (Div. 4Vs) averaged 32.3 cm in length and ranged in age from 3 to 13 years. USSR herring from Banquereau Bank (Div. 4Vs) averaged 34.6 cm and ranged in age from 4 to 12 years with the 9-year-olds predominant.

8. Silver Hake

Age composition of fish from the successful USSR fishery in Div. 4W showed that the 3- and 4-year-olds were predominant. The numbers of 2- and 3-year-olds was higher in autumn than in the spring suggesting that the newly recruited 1966 and 1967 year-classes was better than those of 1964 and 1965 and the silver hake stock may be expected to remain at the 1969 level.

9. Atlantic Salmon

Canadian serological and electrophoretic studies indicate that there are some distinct populations of Atlantic salmon occurring in North American Atlantic rivers. Studies, by sonic tracking, of adult salmon entering rivers indicate much slower progress in estuarine areas with substantial industrialization and shipping activity as compared to undeveloped areas.

Subarea 5

Reports on research in 1969 were submitted by Canada, FRG, Poland, USSR, UK, and USA.

1. Status of the Fisheries

Total catches of all species, excluding catches by non-member countries, changed little from 835,000 tons in 1968 to 838,000 tons in 1969. Decreased catches were shared by Canada (from 100,000 to 61,000 tons); Poland (from 80,000 to 56,000 tons); and USA (from 281,000 to 237,000 tons). Little change was shown in catches by FRG (from 71,000 to 74,000 tons) and Spain (from 18,000 to 16,000 tons). USSR catch increased by 98,000 tons (from 282,000 to 380,000 tons). Non-member countries' catches were not available for 1969 (71,000 tons in 1968).

Cod catches declined for Canada from 9,000 to 6,000 tons; for Poland from 3,000 to 1,000 tons; and for Spain

from 15,000 to 14,000 tons; while catches increased for USA from 21,000 to 24,000 tons. The total catch in the subarea has thus declined from 127,000 tons in 1966 to 45,000 tons in 1969.

Haddock catches again decreased drastically from 44,000 tons in 1968 to 25,000 tons in 1969 due to decreased stock abundance. The decrease was shared mainly by Canada and USSR.

Identification of yellowtail flounders in the USSR catches for the first time in 1969 has resulted in a significant increase in the catch reported for this species to 53,000 tons, 33,000 tons by USA and 20,000 tons by USSR. USA also took 33,000 tons in 1968.

Silver hake catches increased from 81,000 tons in 1968 to 87,000 tons in 1969 due to an increase of about 30% in the USSR catch to 67,000 tons with a decrease of over 40% in the US catch to 36,000 tons. Red hake

catches more than doubled to 50,000 tons due to an increased catch of 38,000 tons by USSR in Div. 5Zw.

Sea scallop catches remained stable at about 48,000 tons.

Herring catches decreased from 341,000 tons to 258,000 tons due mainly to decreases in catch by Canada from 35,000 to 8,000 tons; Poland from 63,000 to 32,000 tons; USSR from 127,000 to 100,000 tons; and USA from 42,000 to 31,000 tons. Increases were reported by FRG from 71,000 to 72,000 tons and by Iceland from less than 1,000 to 13,000 tons. Norway entered the fishery for the first time taking over 1,000 tons.

Mackerel catches increased from 49,000 tons to 64,000 tons due to improved catches by Poland from 10,000 to 13,000 tons and by USSR from 34,000 to 48,000 tons. Alewife catches also increased from 23,000 to 26,000 tons.

2. Work Carried Out

a) **Canada:** Collaborative studies on sea scallop with US scientists. Herring larval abundance and distribution. Biology of swordfish and blue sharks.

b) **FRG:** Sampling of herring for length and age, Georges Bank (Div. 5Ze), Gulf of Maine (Div. 5Y) and Block Island (Div. 5Zw). Hydrographic sections across eastern and western Georges Bank by R/V *Walther Herwig* in January and November.

c) **Poland:** Length, age and fecundity studies of herring on Georges Bank and in the region of Cape Cod. Observations on redfish on Georges Bank.

d) **USSR:** Four standard hydrographic surveys in January, April, August, and October. Zooplankton and ichthyoplankton sampling. Studies of herring spawning. Joint USSR-US groundfish surveys. Length and age studies on silver hake, haddock, red hake, herring, and mackerel.

e) **UK:** Continuous plankton recorder sampling 744 miles.

f) **USA:** R/V *Albatross IV* and Coast Guard vessels. Hydrographic cruises. Quarterly hydrographic and zooplankton cruises in coastal waters of Gulf of Maine. Collaborative experiments with USSR to develop quantitative plankton gear. Haddock and yellowtail flounder

population dynamics. Joint USSR-US groundfish surveys. Herring population studies. Coordinated USSR-USA herring spawning survey on Georges Bank. Offshore lobster studies, including tagging.

3. Hydrography

Mean surface sea temperature in coastal waters at Boothbay Harbour, Maine, was 8.9°C continuing the upward trend that began in 1967 and was 8.1°C in 1968. Temperatures in the Fundian Channel and in the deep part of the Gulf of Maine were generally higher than in 1968. Temperatures over the central part of Georges Bank were close to the 1968 level, while over the southern Georges Bank they were lower. In the area south of Nantucket Island, temperatures were similar to those in 1968.

4. Haddock

Abundance of the haddock stock on Georges Bank reached an all-time low providing commercial catches about 45% less compared with the 44,000 tons taken in 1968. The fishery was still dependent mostly on the 1963 year-class (6-year-olds) but the 1966 year-class (3-year-olds) was significant. The autumn research vessel survey indicated that the 1969 year-class was as poor as the preceding five. If the proposed regulations on limitation of catch to 12,000 tons from the subarea become effective in 1970, some improvements are expected in the stock abundance by 1972, depending on the strength of the 1970 year-class.

5. Herring

Available data suggest that the groups of adult herring exploited on Georges Bank (Div. 5Z), in the Bay of Fundy (Div. 4X), and in Newfoundland (Div. 3P and 4R) - Gulf of St. Lawrence (Div. 4T) are distinct from one another and can be treated separately for assessment purposes. Also the Georges Bank herring seem to be distinct from adult herring spawning in the Gulf of Maine (Div. 5Y) and over the Scotian Shelf (Div. 4Vs and 4W), whereas the distinction between the latter groups and the Bay of Fundy spawners is less clear. Most information available suggests that few, if any, of the juvenile herring stocks off the Canadian and US coasts are derived from the recruit to the Georges Bank stock. Since 1964 herring catches from Georges Bank have been based on the 1960 and 1961 year-classes, with subsequent year-classes all weak. Reduced fishing intensity here will not reduce yield-per-recruit and will increase catch-per-unit-effort and probably recruitment.

6. Yellowtail Flounder

Increased catches on the two yellowtail flounder stocks in Div. 5Z, one on Georges Bank (Div. 5Ze) and the second along southern New England (Div. 5Zw), has produced a high level of total mortality. Density of mature fish has become relatively low and a decline in recruitment since 1967 will lead to further reduction in stock abundance. A reduction in effort and increased mesh size would lead to benefits to the stock and to the fishery.

7. Silver Hake

The major part of the catch was represented by 3- (33%), 4- (31%), and 5- (14%) year-olds which refer to weak 1964, 1965, and 1966 year-classes. Preliminary data suggest more plentiful 1968 and 1969 year-classes.

8. Red Hake

Improved recruitment (or availability) has been responsible for the intensification of the red hake fishery by USSR large trawlers. The bulk of the catches was

represented by 4- to 6-year-olds (average of 75%). Red hake stocks in 1970 and 1971 could increase slightly as compared to the 1968 - 1969 level.

9. Mackerel

An increase in stock abundance of mackerel in recent years following the decline in herring concentrations on Georges Bank has intensified the fishery for mackerel by USSR and Polish fleets. Bulk of the catches consisted of fish 24 to 37 cm in length. Summer and autumn mackerel were smaller than in spring. The relatively abundant 1966 and 1967 year-classes (2- and 3-year-olds) made up more than 95% of the catch which suggested that in 1970 the stock will remain at the 1969 level.

10. Joint USSR-US Groundfish Surveys

In October and November the USSR *Ecliptica* and the US *Albatross IV* carried out joint studies of the abundance of groundfish on Georges Bank and the Gulf of Maine. Abundance of silver hake was slightly lower and that of red hake higher than in 1968.
