

ANNUAL MEETING - JUNE 1967Report of the FAO Department of Fisheries  
to the Annual Meeting of ICNAF, Boston, 1967

## SUMMARY REPORT ON THE ACTIVITIES OF FAO DEPARTMENT OF FISHERIES

## 1. INTRODUCTION

1.1 General Information

Resolution 8/63 of the Twelfth Session of the FAO Conference was intended to ensure that FAO ... "has in future years the status of being the leading inter-governmental body in encouraging rational harvesting of food from the oceans and inland waters ..." This was followed up during the Thirteenth Session (1965), in which the establishment of a Department of Fisheries in FAO was approved and effected by upgrading and reorganizing the former Fisheries Division. The Department of Fisheries, headed by an Assistant Director-General, came into being in skeletal form on 1 January 1966, having two divisions, viz. the Fishery Resources and Exploitation Division, and the Fishery Economics and Products Division. The Fishery Resources and Exploitation Division (FR) consists of three branches and two sections which cover fish stock evaluation, inland fisheries, marine biology and environment, fishing vessels and engineering, and fishing operations respectively.

The Fish Stock Evaluation Branch consists of a Stock Assessment Section and a Biological Data Section. The Inland Fishery Branch has an Inland Biology Section and a Fish Culture Section. The Marine Biology and Environment Branch is composed of a Marine Biology Section and a Marine Environment Section. It is proposed to bring the Department to full strength over the two subsequent biennia ending 1971.

During the Thirteenth Session of the Conference, approval was also given for the establishment of a Committee on Fisheries under Article V of the FAO Constitution. Its terms of reference are set out in the new rule XXX of the General Rules of the Organization, approved in Resolution 13/65 of the Conference. The Committee consists of thirty Member Nations, elected during the Forty-Sixth Session of the FAO Council immediately after the Thirteenth Conference.

1.2 Committee on Fisheries

The Committee on Fisheries (COFI) held its first session at FAO Headquarters, Rome, from 13 to 18 June 1966, and was attended by representatives of twenty-nine member countries, fourteen observer countries, and six international organizations.

The Committee, besides its principal tasks of reviewing the work program of the FAO Department of Fisheries and promoting international cooperation in fisheries, also considered fishery problems of an international character. These included rational utilization of the pelagic fishery resources of the Indian Ocean, fishery problems of the Middle and South Atlantic, and marine pollution. The COFI had already suggested that the views of the Advisory Committee on Marine Resources Research (ACMRR) on these matters would be valuable.

A Sub-Committee on the Development of Cooperation with International Organizations concerned with Fisheries and a Working Party on the Rational Utilization of the Fishery Resources of the Indian Ocean were also established in accordance with Rule XXX-10 of the General Rules of the Organization and Rule VII of the Committee's Rules of Procedure.

It was noted by the COFI that the ACMRR, established in 1962, is composed of experts appointed annually by the Director-General of FAO and selected

on the basis of their scientific knowledge, after consultations with governments and intergovernmental and other bodies associated with fishery research, account being taken of subject and regional representation. The ACMRR had two functions: (1) to advise the Director-General of FAO on the formulation and execution of the Organization's program concerning marine resources research (the dissemination, interpretation and application of the results of such research), and (2) to advise the Intergovernmental Oceanographic Commission (IOC) under UNESCO on the fisheries aspects of oceanography. The Committee recognized that the terms of reference and work of ACMRR were complementary to its own and that there was no overlapping of functions. In view of the mutual benefits gained by close collaboration of the ACMRR with COFI, the Committee anticipated that there would be many occasions in the future when it might recommend that the Director-General seek scientific and technical advice from the ACMRR on matters with which COFI was concerned. Conversely, the ACMRR might, through the Director-General, indicate problems which could be examined by COFI.

The Director-General was also requested by COFI to arrange for the provision of information, on a continuing basis, on the activities of the ACMRR and its working parties and the Committee also asked specifically that its Sub-Committee on the Development of Cooperation with International Bodies concerned with Fisheries be kept informed about the ACMRR and its relevant work. (See ACMRR/4/67/IP.4).

### 1.3 Conservation of Atlantic Tunas

The FAO convened a Conference of Plenipotentiaries on the Conservation of Atlantic Tunas in Rio de Janeiro, Brazil, from 2 to 14 May 1966.

The Conference had before it for consideration a draft Convention prepared by the FAO Working Party for the Rational Utilization of Tuna Resources in the Atlantic Ocean at its second session held in Rome from 6 to 13 July 1965 and comments thereon submitted by Governments.

The Conference then prepared a Convention which is reproduced in Annex I of the Final Act. The Convention was open for signature by any Member Government of the United Nations or any of the Specialized Agencies, at Rio de Janeiro until 31 May 1966 and now remains open for signature at the FAO Headquarters. On deposit of the instruments of ratification, approval or adherence by seven governments, this Convention will come into force and an International Commission for the Conservation of Atlantic Tunas will then be established. (See ACMRR/4/67/IP.6).

The draft convention has so far been signed by Brazil, Japan, Republic of Korea, Spain and the United States of America. The following countries have already signed the Final Act of the Convention: Argentina, Brazil, Canada, Cuba, Democratic Republic of the Congo, France, Japan, Portugal, Republic of Korea, Republic of South Africa, Senegal, Spain, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, and Venezuela.

## 2. FISHERY RESOURCES AND EXPLOITATION DIVISION

### 2.1 General Documentation

#### (a) Current Bibliography for Aquatic Sciences and Fisheries

Publication of the Current Bibliography for Aquatic Sciences and Fisheries (CBASF) continued without interruption, and Vol.X, Section 1 was the last issue to be distributed. Volume IX and subsequent issues of the CBASF are printed by the photo-offset process, directly from tape-typewriter output. The compilers envisage that the Bibliography will be brought up-to-date by mid-1967. It will then be current in the sense that articles will be selected from periodicals searched regularly, indexed, and printed within a few months of the publication of these periodicals.

Production of CBASF will continue to be computer oriented in principle, although, owing to internal financial problems of the Aquatic Sciences Information Retrieval Centre (ASIRC), collaboration with this Institution has now come to an end. It is hoped that eventually FAO will have access to appropriate computer facilities so that the information now being stored on paper tape can be readily retrieved.

A Resolution of the Scientific Committee on Oceanic Research (SCOR) Working Group in its second meeting (Marseilles, 27 to 29 October 1965) asked that a comparative analysis of the coverage of the CBASG be made. Dr F. Model of the Deutsche Hydrographisches Institut (DHI), carried out this examination and reported his findings to the members of the working group. (See ACMRR/4/67/IP.5 and ACMRR/4/67/IP.8)

Staff of the Smithsonian Institution (Department of Oceanography), USA are translating the Russian titles of fisheries and marine science literature which has been contributed to CBASF by the All-Union Institute of Marine Fisheries and Oceanography of the USSR (VNIRO).

(b) Current Contents in Marine Sciences

In response to a recommendation by the SCOR Working Group on Abstracts and Bibliographies in Marine Science (See ACMRR/4/67/IP.21), the FAO FR Division arranged for the publication of a new monthly periodical entitled Current Contents in Marine Sciences.

Tables of contents relating to about 50 journals covering fisheries biology, oceanography, maritime meteorology and other disciplines in marine sciences are reproduced in this new periodical. The core list of primary journals was originally compiled by the SCOR Working Group, but as this group has been disbanded, further advice on the improvement of the content and format will now be sought from ACMRR and SCOR. At the present time, 8 issues have been printed and distributed through the medium of the UNESCO IMS mailing list and about 10 requests per month have been received for reprints, photo-copies and addresses of authors.

(c) International Marine Science

Publication of the quarterly newsletter, International Marine Science, prepared jointly by the UNESCO Office of Oceanography and the FAO Department of Fisheries has continued during this period and 4 volumes have already been published and distributed.

(d) Index of Hydrobiological and Fisheries Institutions with Training Programs

An Index to the World Directory of Hydrobiological and Fisheries Institutions (R.W.Hiatt, 1963) was prepared in connection with a symposium on fisheries education, convened by the Indo-Pacific Fisheries Council in 1966 (FAO Fish. Circ., (23)).

The response to the questionnaire, sent out together with the index, was most encouraging. This index will be elaborated at a later date by Dr W.P.Royce (Director, Fisheries Research Institute, University of Washington) who will be taking up a short appointment with FAO. A revised version of the index will be published in the FAO Technical Paper series.

(e) A Guide to Marks used for Tunas and an Inventory of Tuna Marking Projects

This loose-leaf Guide (FAO Fish. Circ., (101)) was prepared in response to a recommendation by the FAO Expert Panel for the Facilitation of Tuna Research. It contains information derived from questionnaires distributed to those agencies conducting research on tunas. It is hoped eventually to elaborate the Guide, thus ensuring more complete and readily accessible information.

(f) Research Vessels Data

An up-to-date version of Research Vessel Data, which was originally prepared as a working paper for the FAO Research Vessel Forum (Tokyo, 1961), has been published. It contains data on 50 research vessels from twenty-three different countries. Owners of research vessels, designers, shipyards and government officials, etc., are invited to fill in data forms for their vessels for use in future editions.

(g) Lists of Experts

Revisions of lists of algologists and parasitologists have now been completed and these lists will be printed as revisions to FAO Fish. Tech. Pap. (7) and (11).

Lists of workers associated with shrimp and prawn research (besides those investigating fish behaviour in relation to fishing techniques) are now being compiled. These lists will be contributions to two forthcoming meetings being held in 1967. These are the FAO World Meeting on the Biology and Culture of Shrimps and Prawns, taking place in Mexico City, Mexico, and the FAO Conference on Fish Behaviour in Relation to Fisheries Techniques, being held possibly in Bergen, Norway.

A preliminary list of workers in marine pollution research has also been prepared (see ACMRR/4/67/WP.11). This list will eventually be revised in the form of a contribution to the FAO World Conference on Marine Pollution and its effects on Fishery Resources which will be held in 1969.

(h) Special Bibliographies

A partial bibliography on the bacterial diseases of fish during the years 1870 to 1965, compiled by Dr D.A.Conroy, is being finalized for printing. It will appear as an FAO Fish. Tech. Pap. and it is hoped that this bibliography will be available for general distribution in February 1967.

(i) North Atlantic Bibliography

Scientists in the ICES and ICNAF area on various occasions showed interest in a consolidated North Atlantic Bibliography to facilitate the literature search and retrieval problem that confronts them. FAO, ICES and ICNAF have therefore agreed to prepare a bibliography to include references to papers printed in:

Journal du Conseil  
Rapports et Proces-Verbaux des Reunions  
ICES Co-operative Research Reports A and B  
ICES Unserialized Proceedings  
ICNAF Research Bulletin  
ICNAF Special Publication

The bibliography comprises titles of papers in year and volume order, each serial having its separate pagination and accession numbers to references to facilitate the issuance of annual supplements.

The important feature of the bibliography is the author citation index which is basically a directory of references entered where each reference is accompanied by a list of source documents which cite it. The bibliography is also provided with taxonomic, geographic and subject indexes.

(j) Reference Books

(i) FAO Manuals in Fisheries Science

Part 1. Sampling methods (Chapters 1-4) of the Manual of Sampling and Statistical Methods for Fisheries Biology is now being published in its final version and is expected to be available for sale early this year.

Part 2. A revised tri-lingual version of the Tables of Yield Functions of the Manual of Methods for Fish Stock Assessment has now been printed as FAO Fish. Tech. Pap. (38 Rev.1); it has been distributed to scientists engaged in stock assessment research.

Part 3. The manual Selectivity of Fishing Gear, Part 4 - Marking - has also been printed and distributed to institutions and to scientists specializing in those fields.

(ii) Semi-Popular Booklets

Fishermen and the Weather, first published in the FAO Fisheries Circular series, is now being prepared for publication. Assistance received

from WMO, through a selected number of consultants, was most valuable. The first draft of a new booklet entitled Oceanography for Fishermen has now been completed. Copies of this first version will have limited distribution to selected collaborating scientists and agencies so that their comments may be noted. A revised version of the present draft will be published in the FAO Fish. Circ. series.

## 2.2 Aquatic Resources Appraisal and Management

### (a) Synopses of aquatic forms of economic importance

During the last two years several species synopses on marine and inland water fishes were published and others are in advanced stages of preparation. Some existing synopses have been revised to include additional information and to improve the presentation of data.

The U.S. Bureau of Commercial Fisheries, actively cooperating with FAO in this respect, has initiated the publication of synopses, the first of which appeared in April 1966. Close collaboration has also been maintained with CSIRO, ICES, ICNAF, EIFAC, IPFC, GFCM, CARPAS, and is expected from fisheries experts associated with CSK activities (to enable FAO to meet their new demands).

Recent progress includes the following activities:

Synopses of data on two species are now being revised. They were originally issued as contributions to the ICES Symposium on the Ecology of Pelagic Fish Species in Arctic Waters. The new version will include additional material presented at the above-mentioned symposium.

A final version dealing with three species of West African Croakers was presented to the Symposium on Oceanography and Fisheries Resources of the Tropical Atlantic.

Provisional versions of synopses on freshwater fishes were prepared for the EIFAC meeting and for the FAO World Symposium on Warm Water Fish Pond Culture.

Several species synopses on commercial shrimp and prawn are being prepared in connection with the FAO World Scientific Conference on the Biology and Culture of Shrimps and Prawns (Mexico 1967).

Recently, USSR fisheries research workers and members of the International Pacific Halibut Commission have expressed interest and readiness to prepare further species synopses.

It is intended to consult sponsoring and publishing organizations and agencies on actions for improving, where necessary, the outline guide adopted for species synopses and for advice on priority of species. The criteria for the latter would be its actual importance as a source of food, its wide distribution, the international character of its exploitation and the degree of availability for synoptic current information.

### (b) FAO World Scientific Meeting on the Biology and Culture of Shrimps and Prawns

(See Section 2.7(e))

### (c) FAO Expert Panel for the Facilitation of Tuna Research held in Tokyo from 15 to 21 August 1966

(See Section 2.7(c))

## 2.3 Research Methodology and Techniques

### (a) Fish Tagging

(i) Following recommendations of the FAO/GFCM Seminar on Sardine Tagging (November 1964) and approved during the GFCM Eighth Session (May 1965) standard tag releasing and reporting forms as well as data log sheets were printed and distributed to those laboratories engaged in marking experiments in the Mediterranean area.

- (ii) A Guide to Marks used for Tunas and an Inventory of Tuna Marking Projects was compiled and published (See Section 2.1(e)).
- (iii) Manual of Methods for Fish Stock Assessment. Part 4 - Marking - has been published and distributed (See Section 2.1(b)).

(b) Acoustic Fish Detection Methods

The ACMRR Working Party on Direct and Speedier Estimation of Fish Abundance is preparing a training manual on acoustic fish detection methods and this will be used for courses to be held on this subject. Inter-calibration tests will be carried out as part of the research programs of the UNDP/SF projects covering the survey and development of pelagic fish resources in West Africa. FAO is the executing agency for these projects.

(c) Evaluation of Marine Fisheries Resources

- (i) The new Fish Stock Assessment Section has begun to promote and, where appropriate, participate in the assessment of fisheries resources and the effects of fishing, with the aim of obtaining estimates of size of stocks, sustainable yields and the effects of fishery regulation measures. Reports have been published on the status of Antarctic whale stocks and the effects of fishing on the Peruvian anchovy.
- (ii) Work to establish the FAO Fisheries Data Center has begun, initially to deal with IIOE fisheries data, but also eventually to include data coming from fisheries projects under UNDP executed by FAO and from other sources. FAO has agreed to act as the depository agency for data from the Guinean Trawling Survey. The Director-General wrote to IIOE participating countries to encourage prompt and full submission of data to the World Data Centers and to ensure that FAO is notified of the type and location of data relevant to fisheries. Some fisheries data from IIOE and all data from GTS have already been submitted. FAO is also acting as the center of submission on sperm whale stocks outside the areas of the North Pacific.

Discussion have begun with NODC Washington on the storage and retrieval of biological data. FAO has contributed to the work of the Joint SCOR/ACMRR Working Group on Biological Data.

- (iii) The Department of Fisheries prepared the background analysis of the status of Antarctic whale stocks and the 1965 Special Meeting of the IWC, called to discuss this question, based its recommendations on a three-year pattern of overall quotas. This was intended to lead, by 1967/68, to a situation in which less than the current sustainable yield would be taken. As a result of this proposal by the members of the 1965 Annual Meeting of the IWC, effort in the 1965/1966 season has been much reduced and the catch for blue whales has been completely prohibited. FAO has now accepted responsibility for continuing assessments on behalf of the IWC and to this end an expert working group, convened by the newly formed FR Division, met in Seattle in January 1966 to review the data. Members of the Group met again in Rome in April 1966 to analyze the results of the 1965/66 season and reported to the 1966 Annual Meeting of the IWC. Nevertheless, a serious situation is developing in the North Pacific where stocks of several species of whales have been seriously depleted. Two IWC Working Groups are studying the problems connected with all species of whales in the North Pacific, and of sperm whales generally. FAO is following their activities closely and will be taking an active part in the sperm whale analysis.
- (iv) Indicative World Plan

A major project in the current FAO Program of Work is the preparation of an Indicative World Plan for Agricultural Development (IWP) under which an attempt will be made to predict and set targets for food production by the years 1975 and 1985. The Department of Fisheries has the responsibility within this project of providing material on potential production of food from the oceans and inland waters, taking into account economic and technological factors, as well as knowledge of the yielding capacity of the resources. Within the Department,

the FR Division is expected to advise on the resource aspects of these problems, which in many instances are of primary importance to fishery development.

Existing information about living marine resources of all types will be summarized for this purpose. To assist the Division in this task, a small informal working group of experts was established. These experts were selected for their knowledge of resource information about various ocean regions and for their interest in this type of methodology of appraisal. The Group has also been selected in such a way that its members, some of whom have detailed knowledge of certain areas and types of resources, supplement FAO staff. The first meeting of the group took place in Rome from 5 to 17 December 1966.

## 2.4 Fishery Oceanography and Environment Research

### (a) Fishery Atlases and Synopses

#### (i) North Sea Synopsis

Further progress has been achieved in this ICES and FAO co-sponsored project. The folios (now completed) will continue to appear in the Serial Atlas for the Marine Environment. The following folios have been completed as at January 1967:

- a) Meteorology (MS delivered for publication)
- b) Water Masses (printed)
- c) Water Temperature (MS delivered for printing)
- d) Salinity (completed)
- e) Major Constituents (MS delivered for printing)
- f) Trace Elements (printed)
- g) Nutrient Salts (printed)
- h) Phytoplankton Populations (MS delivered for printing)
- i) Zooplankton Population (printed)
- j) Commercial Shellfish (completed)

The remaining folios of the synopsis are at various stages of preparation.

#### (ii) Mediterranean Sea Synopsis

Taking advantage of the presence in Rome for the Eighth GFCM Session (May 1965) of some members of the Joint GFCM/CIESMM Working Party engaged on the preparation of the draft plan for the Fisheries Oceanographic Synopsis for the Mediterranean, an informal meeting was held. The group reviewed this draft plan and also the list of scientists in charge of the various synopsis sections. Work planned to proceed by correspondence was retarded by the departure of Dr K. Terada, who had been acting as Technical Secretary to the Working Group. Dr I. Yamanaka, recently appointed as the new Chief of the Marine Environment Section of the Marine Biology and Environment Branch, will now take over these duties.

(iii) The first volume of an Atlas del Instituto del Mar del Peru has been published under the auspices of this Institute, which was set up under the UNDP/SF project executed by FAO. Dr H. Einarsson, the FAO Adviser to the project, guided the preparation of the Atlas, which continues under the editorship of Mr Jordan, the Head of the Biological Department of the IMP. This first volume gives charts of the 1964 data, both physical oceanography and biological observations. Further volumes for other years are in preparation.

(iv) Dr H. Einarsson, now Project Manager of the FAO UNDP/SF Fisheries Project in Aden, was nominated by FAO (on the proposal of ACMRR and at the request of the IOC/IIOE Coordination Group) as the Fisheries Editor for the IIOE Atlases, and he has begun work on this subject.

## 2.5 Education and Training

- (a) FAO/USSR Group Fellowship Study Tour on Fisheries Biology and Oceanography (USSR May-June 1966)

A Group Fellowship Study Tour on Fisheries Biology and Oceanography, organized by FAO under the UNDP/Technical Assistance program in collaboration with the Government of the USSR was held during May and June 1966.

The purpose of the Study Tour was to acquaint senior fisheries scientists with the organization and conduct of marine research, the application of its results to the development and management of marine fisheries and to give participants the opportunity of attending the Second International Oceanographic Congress being held in Moscow from 31 May to 9 June 1966.

A full and interesting study program included lectures given by staff of Soviet Research Institutes, particularly VNIRO, on modern methods and techniques for scientific research in fishery biology and oceanography. Participants also attended the Plenary sessions of the above-mentioned Congress and several Sections and Symposia.

In spite of the limited time at their disposal for travel outside Moscow, participants visited Murmansk, where they inspected the Polar Institute of Fisheries and Oceanography (PINRO), harbour installations, factory ships and fish processing plants. The USSR authorities also organized a visit to Riga and the participants were given information on the activities of the BaltNIRO (the fisheries organization in the region) and inspected another processing plant. A cruise on board the research vessel "Academician Knipovitch" also took place.

A full report on the activities of the Study Tour will be published by FAO.

- (b) Training Center on Marine Resources Appraisal in Latin America (Vina del Mar, 5 September to 7 October 1966)

This Center was held at the invitation of the Chilean Government and thirty-two participants from fourteen countries attended.

The Center was intended to provide advanced study of modern stock assessment techniques, including a revision of the basic mathematics needed for this study. The direct estimation of fish abundance, particularly by means of echo-sounding, was given special attention. Dr W. Fincher on behalf of UNESCO, gave lectures on fish egg and larvae studies and their use in investigations on fish abundance. Mr A. Dorfmann representing ECLA, stressed economic aspects of resource assessments.

On termination of the Center, it was agreed that the teaching of its objectives had been most successful and that the contacts made at the Center would greatly facilitate international cooperation in studies on the common fishery resources of the region.

- (c) Symposium on Fisheries Education and Training (Hawaii, October 1966)

The Symposium was held in conjunction with the 12th session of the Indo-Pacific Fisheries Council, which took place in Honolulu from 3 to 17 October 1966. Forty-nine papers were presented and all delegations representing thirteen member countries, took part in the discussions.

It was recognized that the primary objective of an educational program was to develop the proficiency of operatives and personnel connected with the industry, including fishing boat personnel. Training of the secondary industry operatives and the administrative field staff was also considered essential. It was agreed that the teaching of trainees was important in the region and that the potential needs of individual countries should be taken into account in designing and implementing a training program. It was also recognized that whilst the training for many of the varied occupations could be included in the general education and training program of a country, special arrangements are needed for many specialized fishery occupations. Further, it was recognized that although there would be some wastage during and after training, such "drop-out" was valuable to the country generally and should not be regarded as a loss.



Arising from the discussions, FAO was asked to give continuing emphasis to the development of its fishery education and training activities and to appoint a consultant to prepare, after detailed study in one or two countries, a report based on the Symposium. The report was to be in the form of a manual on problems and methods of fisheries education. It was also proposed that a meeting of representatives of countries giving and receiving aid in fisheries education should be convened and that one or more educational centres might be established in the Indo-Pacific region.

- (d) Conference on Fishery Administration and Services (Rome, 21 September-25 November 1966)

(See Section 2.7(i))

- (e) During 1965 Professor G.M.Gerhardsen (Bergen, Norway) visited Ghana, Sierra Leone, Nigeria, Tanzania, Kenya and Uganda as an FAO consultant to make a survey on fishery education and training. During his survey work Professor Gerhardsen assessed the present training systems and identified the future requirements of education and training of fishery scientists and research workers in various disciplines in relation to the fishery development programs of these countries. (See FAO Fish. Rep. (35)). Another FAO consultant is at present carrying out a similar mission in French-speaking African countries. A similar study on fishery education and training for countries in the near East is programmed for the present biennium.

- (f) FAO/USSR Group Fellowship Study Tour on Behaviour in Relation to Fishing Gear (USSR, 1967)

(See Section 2.7(g))

- (g) An FAO UNDP(TA)/USSR sea-going seminar on marine resources research in the Mediterranean is being contemplated for autumn 1967. The seminar will be organized to train about 20 marine research workers from developing countries of the Middle East, Europe and Africa.

It is hoped that the USSR will offer facilities, lecturers and the R/V Academician Knipovitch for the purpose. The project is being negotiated with the USSR authorities at present.

- (h) Index of Hydrobiological and Fisheries Institutions with Training Programs

(See Section 2.1(d))

- (i) Twelve fellowships (UNDP/SF - 8, UNDP/TA - 2, Andre Meyer - 2) on marine fisheries research subjects were awarded and supervised.

- (j) FAO UNDP(TA)/USSR Seminar and Study Tour on Fishermen's Training (USSR, 26 August-17 September 1965)

In the USSR an elaborate system of fisheries training has enabled that country to build up rapidly a modern and effective high seas fishing industry. Lectures on the training given and visits to the training establishments were thought-provoking for the participants and set the stage for a fruitful seminar which then drew up training criteria and curricula to suit different sizes of fishing units and the various technical levels encountered in the developing countries. These training programs and curricula are to be found in FAO/TA report no. TA.2196.

The 23 participants from 14 countries spent the first five days in Moscow hearing lectures which described first the general system of education in the USSR as background to fisheries education and subsequently focused on fishermen's training. Then followed a 10-day Study Tour to Murmansk and Kaliningrad with visits to fisheries schools, research institutions, ships and fishing installations. On return to Moscow, the one-week Seminar commenced with FAO lectures on fishermen's training outside the USSR.

- (k) FAO UNDP(TA)/USSR Seminar/Group Fellowship Study Tour on Instrumentation and Methodology in Fishing Technology (USSR, 3-22 October 1966)

To the Seminar held in Moscow lectures were given by seven USSR lecturers and four FAO lecturers. The lectures and discussions ranged from ocean resources and the USSR fishing industry, the organization of fisheries and the significance of fishing gear research in the USSR, investigation on fishing gear taking place in countries outside the USSR, the training of fishing technologists in the USSR and what required to be done on this score for the developing countries.

The lectures given during the Seminar are in the process of being produced in full as an FAO UNDP(TA) report.

- (1) FAO UNDP(TA) Regional Training Centre on Fishermen's Training for English-speaking countries (Africa, Freetown, 1 November-10 December 1966)

There were 20 participants from eight countries in charge of, engaged in, or slated for work concerning fishermen's training. The Training Centre was held on the premises of the Fisheries Division of Sierra Leone in Kissy, on the outskirts of Freetown. Lectures were given on the organization of fishermen's training centres and schools, on how to decide the need for trained manpower, in what skills training was required, appropriate training programs and curricula to suit different levels of technical development, educational background, etc.; also on techniques of teaching, teaching aids, textbooks, training of teachers, physical facilities, administrative and budgetary problems, etc.

## 2.6 Activities of FAO Councils and Commissions

- (a) General Fisheries Council for the Mediterranean

(See ACMRR/4/67/WP.5 Addendum 1)

- (b) Third Session of the South West Atlantic Fisheries Advisory Commission (CARPAS) (Montevideo, Uruguay, from 25 to 29 April 1966)

Delegations from the three member countries - Argentina, Brazil and Uruguay - participated in this session, as well as representatives of various institutions and fishing industries of the region. Observers from USA, Norway and UNESCO were also present. In addition to the staff from Headquarters and Regional Fisheries Officers, several FAO Experts working in the region on UNDP Special Fund and Technical Assistance projects also attended.

The Commission approved a report submitted by the Working Group on Fisheries Statistics and Biological Sampling, which had held its second meeting a few days before the third session of CARPAS and recommended that this Working Group be enlarged and strengthened. The Working Group will hold its third session mid-1967, possibly at Santos, Brazil.

Many noteworthy recommendations were made by the Commission on the following subjects: standardization of biological sampling in the CARPAS area; planning of CARPAS activities; coordination of the Technical Assistance and Special Fund projects; environment research (oceanography and plankton related to studies on marine fisheries resources) and the training of experts and personnel.

It was also recommended that CARPAS organize in conjunction with its fourth session (1968) a Seminar on the Resources and Exploitation of Shrimp and Related Species in the South-west Atlantic area and that the exploitation of fisheries on a rational basis be promoted by CARPAS member countries.

The Commission also urged that the countries in the CARPAS area intensify the development of inland fisheries and fish culture.

A further important recommendation of the Commission was made in regard to the revision of the CARPAS statutes and it was decided to request the Director-General of FAO to initiate consultations on the question. This revision would allow Bolivia and Paraguay to become member countries and would also permit other countries (whose fleets operate or carry out fisheries research in the CARPAS area) to participate in the activities of the Commission.

Another recommendation requested FAO to organize a World Congress on Hakes and Related Species.

It was agreed that the fourth session of CARPAS would be held within the next two years in Rio de Janeiro - Brazil acting as Host Government.

The proceedings of the Session and some related papers presented during the meetings will be published by FAO.

- (c) Twelfth Session of the Indo-Pacific Fisheries Council (Honolulu, Hawaii, USA, from 3 to 17 October 1966)

The major highlights of this Session of the IPFC were the Joint IPFC/IOC Meeting on the Fishery Aspects of CSK (7 to 10 October) and the Symposium on Fisheries Education (5 to 6 October)

The former meeting decided on the nature of work to be carried out in respect of the species of fishes selected for study at the Third Meeting of the CSK International Coordinating Group (Tokyo, August 1966) and agreed to provide to the FAO Fishery Data Centre, the required time series data on catch, effort and age composition on a resource basis, thus obtaining a "readout" service. Various measures were recommended to make the best use of CSK oceanographic observations for fishery studies. The Council decided to establish a Working Party on CSK Fishery Aspects with the main task of reviewing the progress of the CSK fisheries studies and maintaining liaison among national institutions engaged in CSK studies and the UNESCO/IOC/CSK.

The Symposium on Fisheries Education laid considerable stress on the training of operatives and personnel required to increase fish production, and also to increase the utilization of fish and fishery products. The Symposium recommended that one or more educational centres be established in the Indo-Pacific Region for the training of extension officers and teaching staff.

The Council devoted considerable attention to the question of the rational utilization of fishery resources in the Indian Ocean. It was recognized that a major sector of the Indian Ocean fishery resources consists of tunas, marlins, sharks and other pelagic fishes of the high seas and that international action is required immediately for the assessment of these resources and the possible management of their fisheries. Different means of programming and coordinating such a program were discussed and the action necessary, if the Council were to undertake this responsibility, was formulated. A group of experts was nominated to assist the Working Party of the COFI which will be studying this problem.

The host country problem discussed at the Session related to the introduction of exotic species in Hawaii. The Council supported the proposal to expand and to internationalize the Tropical Fish Culture Research Institute, Malacca, Malaysia and passed a resolution requesting FAO to appoint a consultant group for the study of the potentialities of the Institute, to recommend a program of work and to present a formula for its continuity, even if the Malaysian Government does not apply for UNDP/SF assistance for the project.

The Council recommended that FAO convene a sub-committee of IPFC Member Governments to review the structure and function of the Regional Fisheries Office. A Working Party on the Economics of Fish Culture and another working party on Rastrelliger were also appointed.

## 2.7 Meetings

- (a) Third FAO Technical Meeting on Fishing Boats (Göteborg, Sweden, from 23 to 24 October 1965)

Discussions were concentrated mainly on techno-socio-economic boat problems, sea kindliness, workability, engineering, materials and boat design under 20 GT besides those between 20 to 100 GT. Special attention was paid to small fishing vessels under 100 GT. The report of the meeting is

being prepared and will be issued in the FAO Fish. Rep. series. Technical papers contributed to the meeting will be published by a commercial firm and will be available at cost.

- (b) Second International Oceanographic Congress (Moscow, USSR, from 30 May to 9 June 1966)

FAO supported this Congress, which was organized through special agreement between UNESCO and the Government of the USSR, and co-sponsored by SCOR, WMO and IAEA. Dr D. Cushing participated in the work of the Scientific Committee as the ACMRR nominee and FAO was represented by Dr M. Ruivo in the Logistics Committee. FAO contributed with an allocation for interpretation and by facilitating the attendance of some invited lecturers and participants.

In conjunction with this meeting, FAO organized, under the UNDP/TA program, and with the cooperation of the Government of the USSR, a study tour on Fisheries Biology and Oceanography, which gave the opportunity to about 30 scientists from developing countries to attend the above-mentioned Congress.

- (c) Second Session of the FAO Expert Panel for the Facilitation of Tuna Research (Tokyo, Japan, from 15 to 21 August 1966)

The Panel considered inter alia the recommendations of various working groups which had been established during its first session. These concerned tuna taxonomy, research on North Pacific albacore, Bluefin tuna and tuna ecology. Other matters under discussion were the subpopulation identification by genetic techniques, the identification of egg, larvae and juveniles, the tuna tagging program, catch and effort statistics, size composition, economics of tuna fisheries and the use of underwater sounding for tuna research. (See ACMRR/4/67/IP.7).

The final report (FAO Fish. Rep. (37)) will be issued in the three official languages and will be distributed to member countries, national laboratories and interested international fisheries bodies.

- (d) UNESCO/FAO/STRC-OAU Symposium on Oceanography and Fisheries Resources of the Tropical Atlantic (Results of ICITA and GTS - Abidjan, Ivory Coast from 20 to 28 October 1966)

UNESCO were responsible for local arrangements for this Symposium, including the contract with the Ivory Coast Government: FAO assisted in the planning and preparation of the meeting and in defraying the cost of attendance of selected lecturers, and OAU/STRC arranged interpretation facilities and secretarial assistance.

The Symposium was concerned not only with the results obtained during the ICITA and GTS, but also with other work carried out in the area during the same period. Some fifty-six papers were presented, covering all aspects of the fields of physical and chemical oceanography, productivity, plankton and pelagic and demersal resources. Of the papers presented, twelve were requested review papers on the principal topics listed above.

The meeting concluded with a discussion on the follow-up of ICITA and GTS, it was considered that a formal Intergovernmental Working Group was not required for this purpose, but recommended (Resolution 5) that UNESCO/IOC and FAO continue to augment cooperative activities. This applied particularly to training, instruction, provision of consultants, standardization and intercalibration, and possible provision of a West African Regional Oceanographic Data Centre.

The Symposium also recommended (Resolution 2) that in view of the importance of the papers presented for the advance of marine science and resources utilization in the area, the proceedings of the Symposium be published as soon as possible by UNESCO and FAO. This Resolution is now being implemented.

- (e) FAO World Scientific Meeting on the Biology and Culture of Shrimps and Prawns (Mexico City, Mexico, from 12 to 24 June 1967)

This meeting, approved during the thirteenth session of the FAO Conference

in 1965, was recommended by the ACMRR, by several crustacea meetings, and by individual scientists engaged in shrimp and prawn research. It will be held in conjunction with the Meeting of the International Shrimp Council, taking place in Mexico City on 10 June 1967.

The Prospectus, which has been prepared in English (ACMRR/4/67/IP.9), French, and Spanish, has been distributed, together with the official invitations, to FAO Member Governments, UN Agencies and other governmental and non-governmental organizations and institutions which are directly concerned. The IBP-PM Sectional Committee was invited to appoint a member to the Consultative Committee.

The important contribution of shrimp and prawn resources to food production from the seas is well known throughout the world, and these resources seem capable of a considerably greater expansion. The above-mentioned meeting is therefore being organized with the hope that it will be instrumental in the effective appraisal of research and coordination of regional and international problems concerning shrimps and prawns.

(f) Second FAO Research Vessel Meeting (Seattle, USA - September 1967)

The agenda of this meeting will include items on space requirements for laboratories, accommodation and power, and the reflection of these requirements on the design and management of research vessels commissioned for oceanographical and biological work, exploratory and experimental fishing, training vessels, etc. New types of vessels such as catamarans and submersibles will also be considered.

(g) FAO Conference on Fish Behaviour in Relation to Fisheries Techniques and Tactics

It has been suggested that this Conference be held in Bergen from 19 to 27 October 1967 and negotiations have begun to find out if the Norwegian Government is willing to act as host. A group fellowship study tour in the USSR on Behaviour in Relation to Fishing Gear, is programmed for 1967, prior to the Conference. This would give some research workers from developing countries the opportunity to attend the Conference immediately after the study tour.

(h) Conference on Fishery Administration and Services (Rome, 21 September-25 November 1966)

This Conference facilitated the exchange of views and experience among participants from both developed and developing countries and also served to identify the various problems and the future course of action in dealing with them, at national and international levels.

Among agenda items discussed were the organization and administration of fishery research, and fisheries education and training. The general aspects of the role, organization and functions of fishery administration were also examined in relation to the position of the fisheries industry in the overall governmental structure. Emphasis was given to the importance of legislation to provide an adequate framework for fishery administration and industry.

The Conference also considered the information required for the purpose of fishery policy and the research programs needed for its collection. Other matters discussed were the allocation of research tasks to various institutions, the coordination of their activities and managerial problems in the review, appraisal and application of research results. The importance of regional and international cooperation in research was emphasized.

The Conference considered in detail the distinguishing features of fisheries education and training and their needs in respect of knowledge and skills as well as the means whereby they can be obtained. In this connection the importance of practical training of intermediate level personnel for countries at a relatively early stage of fisheries development was particularly stressed. The necessity for adequate education planning based on the assessment of manpower requirements was also emphasized and the value of international cooperation in implementing effective training programs was acknowledged.

(i) Symposium on Tropho-Dynamics of Marine Communities

The first session of the ACMRR Working Party on the Symposium was held in Rome from 25 to 28 May 1966 and was attended by staff members of the FAO FR Division. The main topics discussed were: scope of the symposium, titles for sessions, arrangements for meetings, selection of papers, location and dates. During the ICES 54th Statutory Meeting the proposal for the symposium was considered and it was agreed that it should take place concurrently with the ICES meeting in 1968. It was felt that this arrangement would enable a large number of scientists to participate in the symposium.

(j) Other FAO Meetings

- (i) During the next biennium (1968/69) FAO will organize a World Scientific and Technical Conference on Marine Pollution and its Effects on Fishery Resources. The proposal was brought to the attention of some of the ICES committee members during the 54th Statutory Meeting and was endorsed. ICES stressed the importance of promoting research in this field, so vital to the shellfish industry.
- (ii) FAO is considering the organization, in the near future, of a Symposium on Improvement of Marine Resources and the IBP has been invited to act as co-sponsor.
- (iii) At the third session of CARPAS, held in Montevideo during April 1966, it was recommended that FAO organize a World Scientific Conference on Hake, possibly during the next biennium.

2.8 FAO Advisory Committee on Marine Resources Research (ACMRR)

This Committee last met in March 1965, and will meet again in January 1967. During the period under review the working groups of ACMRR on direct and speedier estimation of fish abundance, and on fishermen's charts and utilization of synoptic data, have been active.

2.9 United Nations Development Program

(a) Field Programs

By the end of 1966 the FAO Department of Fisheries had 65 fisheries experts under the United Nations Development Program - Technical Assistance (UNDP (TA)) - working in all parts of the world. Ten of these experts were Marine Fisheries Biologists or Fisheries Oceanographers (see sections 2.9(b) and (c) below).

Under the UNDP Special Fund (UNDP/SF) Scheme the Department of Fisheries is at present responsible for the planning and execution of 28 projects (11 in Africa, 10 in Central and Latin America, 7 in Asia). The total cost for these projects amounts to about 52 million dollars, of which about 24 million dollars are provided by the Special Fund, the rest under government counterpart contributions. In section 2.9(c) a brief outline is given of projects including some research on marine resources and environment: those marked with an asterisk entail a substantial element of marine resources research.

(b) Technical Assistant Program (UNDP/TA)

Brazil - Shrimp Biologist to continue the work of assessing the shrimp resources of the waters of Brazil.

British Honduras - Fisheries Biologist to advise and assist the Government on biological investigations of marine fisheries resources, with particular reference to spiny lobster.

Burma - Fisheries Biologist to advise and assist the Government in research and development of the marine fisheries resources.

Cuba - Fisheries Biologist to work in the field of fish stock assessment, and Shellfish Biologist to work on oyster culture, spiny lobster and shrimp biology.

Federation of South Arabia (Aden) - Turtle Biologist to investigate the stocks of commercial turtles in the Gulf of Aden and northwestern Indian Ocean, mainly the Green Turtle (Cheloma mydas).

India - Fisheries Oceanographer to advise and assist the Government by a study of oceanographical factors influencing productivity of the fishing areas (completed in November 1966).

Sierra Leone - Fisheries Biologist to investigate the magnitude and availability of fish stocks in the coastal waters, in particular those of Bouga (Ethmalosa fimbriata).

Syria - Fisheries Biologist to make a brief survey of the sea fisheries with a view to formulating a long-term marine resources research program.

Venezuela - Fisheries Biologist to advise and assist the Government in investigations of fishery resources, with particular reference to the assessment of stocks.

(c) Special Fund Projects (UNDP/SF)

(i) Projects in operation

\*Argentina - Fisheries Development Project (exploratory and experimental fishing, biological and environmental studies, industrial feasibility studies, development services). 2 Fisheries Biologists already at work. Mar del Plata. Duration 5 years from 15 June 1966.

Caribbean Region - Fisheries Development Project (research and training in the field of fisheries - exploratory fishing, market research and demonstrations). Headquarters at Bridgetown, Barbados. Participating states and territories include Barbados, Guyana, French Guiana, Guadelupe, Martinique, Jamaica, Leeward Islands, Netherlands Antilles, Surinam, Trinidad and Tobago, Grenada, St. Lucia and St. Vincent, Dominican Republic and Puerto Rico. Duration 4 years from 27 August 1965.

\*Central America - Fishery Development Project (survey of fishery resources of the Central American isthmus, development of production and consumption of fish and fish products. 3 Fisheries Biologists. Participating countries: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. Headquarters in San Salvador. Duration 6 years from 28 November 1966.

\*Chile - Fisheries Development Institute (research and development program in the fields of fisheries oceanography, marine resources research, economics and fish processing). 3 Fisheries Biologists, 1 Fisheries Oceanographer. Santiago. Duration 5 years from 13 November 1963.

\*Ecuador - National Fisheries Institute (marine research and development, fishing techniques and fish processing). 1 Fisheries Biologist. Guayaquil. Duration 4 years from 7 May 1961. Extended until the end of 1966 (now completed).

\*Federation of South Arabia - Fishery Development in the Gulf of Aden (survey of fishery resources). 2 Fisheries Biologists. Aden. Duration 3 years from July 1966.

\*Ghana - Fishery Research Unit (marine resources research, mainly on Sardinella and other pelagic fish, improvements in fishing techniques). 7 Fisheries Biologists. Accra. Duration 5 years from 18 October 1966.

India - Central Institute of Fisheries Education (for training of fisheries officers at district level). 1 Fisheries Biologist. Bombay. Duration 3 years from 1 September 1964.

Korea - Deep-Sea Fisheries Centre (training of qualified skippers and engineers). Pusan. Duration 5 years from 1 December 1964.

\*Nigeria - Fisheries Survey in the Western and Mid-West regions, especially fish stock survey and exploratory experimental fishing. 2 Fisheries Biologists. Lagos. Duration 4 years from 23 May 1963.

\*Philippines - Deep-Sea Fishing Development (exploratory and experimental fishing and training program in deep-sea fishing operations, fish processing and marketing, to advise on technical and economical planning). 1 Fisheries Biologist. Manila. Duration 5 years from 18 May 1965.

(ii) Projects approved but not yet operational

Brazil - Fisheries Development Project (assistance in strengthening the Brazilian fisheries administration, training of key personnel). Rio de Janeiro. Duration 2 years.

\*Colombia - Marine Fisheries Development Project (advisory services for marine fisheries development, marine resources research, training of fisheries biologists and fishermen, experimental fishing). 3 Fisheries Biologists. Bogota. Duration 4 years.

\*Congo (Brazzaville) - Survey and Development of Pelagic Fish Resources (studies on distribution and biology of pelagic coastal fish, in particular Sardinella, stock assessments, experimental fishing, training. Work to be coordinated with similar activities in Senegal, Sierra Leone, Ivory Coast and Ghana). 4 Fisheries Biologists, 1 Fisheries Oceanographer.

India - Pre-Investment Survey of Fishing Harbours (economic and technical studies to identify priority sites for fishing harbours, preliminary construction plans). New Delhi. Duration 5 years.

\*Ivory Coast - Survey and Development of Pelagic Fish Resources (similar work as in Congo (Brazzaville), supplemented by a Regional Fisheries Survey by means of a charter vessel to operate between Senegal and Congo river). 2 Fisheries Biologists, 1 Fisheries Oceanographer, 3 Technicians. Abidjan. Duration 5 years.

\*Pakistan - Survey for Development of Fisheries in East Pakistan (fish location, abundance, fishing methods, development of fishing industry and marketing). 1 Fisheries Biologist, 1 Fisheries Oceanographer. Dacca. Duration 5 years.

\*Peru - Fishery Research and Development Project (additional assistance to the Instituto del Mar del Peru for further study of anchovy stocks and survey of other fishery resources, experimental fishing, economic studies and advice). 2 Fisheries Biologists and Consultants in population dynamics. Callao. Duration 4 years.

\*Senegal - Survey and Development of Pelagic Fish Resources (similar work as in Congo (Brazzaville) supplemented by a Regional Fisheries Survey (see Ivory Coast)). 2 Fisheries Biologists. Dakar. Duration 5 years.

\*Sierra Leone - Survey and Development of Pelagic Fish Resources (similar work as in Congo (Brazzaville), supplemented by a Regional Fisheries Survey (see Ivory Coast)). 1 Fisheries Biologist. Freetown. Duration 5 years.

\*Venezuela - Fishery Research and Development Project (evaluation of marine resources, especially coastal pelagic fish stocks, exploratory and experimental fishing, consultant services in processing technology, marketing and infrastructure). 4 Fisheries Biologists. Caracas/Cumana. Duration 5 years.

(iii) Projects in preparation, not yet approved

\*Mexico - Fishery Research and Development Project (advisory services for fisheries development, resources surveys off Baja California, lower mainland Pacific coast, and Gulf of Mexico coast, shrimp research, experimental fishing, fish processing). Mexico City. Duration 5 years.



\*Viet-Nam - Fishery Development Project (exploratory and experimental fishing in offshore waters). Saigon. Duration 4 years.

A number of other projects are being considered and studied.

### 3. FISHERY ECONOMICS AND PRODUCTS DIVISION

#### 3.1 Fishery Statistics and Economic Data Branch

##### 3.1.1 Summary of Activities

The Fishery Statistics and Economic Data Branch is responsible for the preparation of the Yearbook of Fishery Statistics and other statistical publications, as well as for the assembling of data required for the assessment of fishery resources (Fish Stock Evaluation Branch) and for economic appraisals (Fishery Economic and Development Branch). It is also vitally concerned with the improvement of fishery statistics at national, regional and international levels, which it strives to attain (a) through the increased standardization and extension of reporting systems, and (b) through direct assistance in improving the methods of collecting and collating fishery statistics, especially in developing countries.

##### 3.1.2 Program of Work

The Program of Work of the Fishery Statistics and Economic Data Branch encompasses three principal activities:

- (i) Statistical services rendered to national offices, either directly under FAO's Regular Program, or through the United Nations Development Program (UNDP) implemented by country experts, group country or regional fishery statisticians and, to a lesser extent, through seminars, training centres and symposia.
- (ii) The development and establishment of international statistical standards in the field of fishery statistics - standard classifications, definitions and methods. This work, of course, is closely linked with the activities falling under (1).
- (iii) The preparation and publication of statistics in the form of Yearbooks, Circulars and Bulletins, either as an information service of FAO, or on behalf of and/or in cooperation with regional fishery bodies, such as FAO-sponsored fishery commissions and committees, or non-FAO fishery entities.

The relevant details falling within the scope of these three major activities are subsumed below:

##### 3.1.3 Inter-agency Collaboration on Fishery Statistics in the North Atlantic

Close collaboration is maintained with the International Commission for the Northwest Atlantic Fisheries (ICNAF) and the International Council for the Exploration of the Sea (ICES). In addition to working papers and current statistics to be prepared for future meetings of these bodies and for the Continuing Working Party (established to develop and coordinate the statistical activities of both), several Bulletins of Fishery Statistics and Fisheries Circulars will be issued covering the North Atlantic fisheries for the years 1965 and 1966 respectively.

The work undertaken on behalf of and in collaboration with ICNAF and ICES involves the processing of catch and effort statistics by countries, with details according to classes of fishing units, species and fishing areas within the North Atlantic. Collaboration with these international entities is maintained on a permanent basis through the activities of the Continuing Working Party on Fishery Statistics in the North Atlantic.

##### 3.1.4 Fishery Statistics in other Fishing Regions

Efforts are continuing in collaboration with the Marine Biology and Environment Branch of the Fishery Resources and Exploitation Division to extend the type of cooperative statistical arrangements successfully

developed with ICNAF and ICES in respect of the North Atlantic to FAO-sponsored regional bodies in other areas, for example: the Indo-Pacific Fisheries Council (IPFC), the Regional Fisheries Commission for Western Africa (FCWA), the European Inland Fisheries Advisory Commission (EIFAC) and the Regional Fisheries Advisory Commission for the Southwest Atlantic (CARPAS). It is also envisaged that the Fishery Statistics and Economic Data Branch will be closely concerned with the statistical program of the proposed International Commission for the Conservation of Atlantic Tuna (ICAT). The objective of these endeavours is to achieve standardization and improvement of reporting and tabulating procedures in these areas, not only respecting local fisheries but also concerning the operations of distant water fleets.

Work is proceeding with the development of a new series of fishery statistics including (a) statistics of tuna and other species in the Eastern Central Atlantic, and (b) worldwide statistics of crustaceans, fishing fleets and fishermen. Sample tables will first be prepared and presented in a Fisheries Circular for discussion with the various international and national agencies interested, to be later published in Bulletins or Yearbooks.

Close collaboration is being maintained and will continue with the Fish Stock Evaluation Branch regarding the compilation of data for the purpose of resources assessment. Work in this field is closely related to the activities of that Branch, undertaken in cooperation with regional fisheries councils, commissions and committees, as well as with the administrations of Special Fund Projects and national fishery programs.

### 3.1.5 Publications

The publications of the Fishery Statistics and Economic Data Branch appear in the following three series: Yearbook of Fishery Statistics, Bulletin of Fishery Statistics and Fisheries Circulars.

#### (a) Yearbook of Fishery Statistics

Until the end of 1963 the volumes of the Yearbook covering fishery production and fishing craft were published annually, while those dealing with international trade were released bi-annually. Since 1964, however, two volumes of the Yearbook have been published annually. One is entitled "Catches and landings" and gives data on quantities and values of fish caught and landed by countries, species and fishing areas. The other is entitled "Fishery commodities" and gives the disposition of catches, as well as production and international trade by types of fishery commodities.

During the biennium 1966/67 the following volumes of the Yearbook were or will be published:

Vol.20 ("Catches and landings, 1965") October 1966  
Vol.21 ("Fishery commodities, 1965") December 1966  
Vol.22 ("Catches and landings, 1966") October 1967  
Vol.23 ("Fishery commodities, 1966") December 1967

#### (b) Bulletin of Fishery Statistics

This is issued from time to time in limited numbers to supplement the Yearbook. It presents statistics of regional interest and on selected topics (species groups, fishing craft, conversion factors, etc.), or for special purposes such as for conferences, commissions and committees.

The following numbers of the Bulletin of Fishery Statistics are of particular interest to individuals and institutions concerned with the fisheries of the North Atlantic:

No.10 - "Catches in the North Atlantic, 1964"  
No.11 - "Tunas, Bonitos, Skipjacks, 1964".

Data for 1965 similar to those contained in Bulletin No.10 will be published in the early part of 1967.

(c) Fisheries Circulars

These documents, which are given very restricted distribution, consist mostly of short notes, instructions for the completion of statistical forms and questionnaires, lists on various topics, or provisional versions of documents intended for subsequent publication in final form in one of the previously mentioned series. For example, some circulars consisting of statistical tables of preliminary data are prepared as papers for conferences, committees, commissions and working parties; and these, following revision, may eventually be issued in the Yearbook or in a Bulletin of Fishery Statistics.

The following Fisheries Circulars are of particular interest to individuals and institutions concerned with the fisheries of the North Atlantic:

- No.78 - "Proforma of Proposed ICES List of Fishing Craft Based on the ICNAF Pattern"
- No.81 - "Nominal Catches in the Northwest Atlantic by Species, Countries and Divisions, 1966"
- No.82 - "Summaries of Nominal Catches in the Northwest Atlantic, 1965"
- No.83 - "Report on National Definitions of Fishing Effort Measures"
- No.84 - "Lists on National Classes of Fishing Units used in Catch/Effort Statistics"
- No.86 - "Summaries of the 1965 Nominal Catch in the Northeast Atlantic"
- No.87 - "1965 Nominal Catch by Species and Countries in the Northeast Atlantic"
- No.90 - "ICNAF Comments (1966) on Proposed List of Fishing Craft for the North Atlantic"

3.1.6 Development of Fishery Statistical Standards

The Branch is devoting increasing efforts to improve the collection, processing and publication of fishery statistical data, including participation in a feasibility study respecting the application of electronic processing systems to meet the requirements of the Department of Fisheries. Particular attention is being given to the international coding of fish species and fishing areas. It is also planned to prepare a Bulletin of Fishery Statistics on international and regional statistical standards in order to encourage the wider adoption and use of standard concepts, definitions and classifications of fishing activities and fishery commodities.

3.1.7 Fishery Economic Statistics

Greater emphasis than was possible in the past is to be given to the collection and tabulation of fishery economic data - prices at the various stages of fishery production, type and cost of inputs, capital investment and other statistics related to the economics of fishing operations. This is dictated by the growing demand for such statistics, whose varied uses are now being increasingly recognized, and especially to provide a basis for: (1) evaluating the economic implications of fishery management and (2) identifying investment opportunities in undeveloped or developing fisheries and formulating programs for development. To the end of better serving these growing needs, a new Economic Data Section is to be created in 1969 within the Fishery Statistics and Economic Data Branch.

3.1.8 Register of World Fishing Craft

Exploratory studies have been undertaken relative to carrying out a survey of world fishing craft in order to meet the many needs for information on the characteristics of the various types of vessels which constitute the world's fishing fleet. This project is receiving the collaborative support of the Statistical Committee of OECD and the Statistical Office of the European Communities.

A meeting is being organized by OECD, to be held in Paris early in 1967, to review the statistical characteristics of common interest to the many users of fishing fleet data, as well as to discuss the standard concepts and methods to be employed in the collection and processing of such information. The conclusions and recommendations of this OECD meeting will be made known and reviewed at the Fifth Session of the Continuing Working Party (April 1967).

## 3.2 Fishery Economics and Development Branch

### 3.2.1 Indicative World Plan

The contribution of the Department of Fisheries to the work of the Indicative World Plan (IWP) is coordinated by the Fishery Economics and Development Branch.

The main aim of the IWP is to outline the nutritional problems likely to arise in the next two decades and to suggest possible means by which these may be solved. On the basis of the situation which existed during the period 1961/63, demand projections have been made by the Commodities Division of FAO for the years 1975 and 1985; and it is the assessment of the production possibilities for these years which constitutes the main work of the Plan.

For the purposes of the Plan, the world has been divided into three zones - "Developed", "Centrally Planned" and "Developing", the latter zone consisting of eleven geographical regions. It is the intention to prepare a study for each of these regions. To this end, statistical information is supplied by the various technical departments and divisions of FAO, including Fisheries, to a Central Executive Unit responsible for the preparation of the basic statistical framework around which each study is or will be compiled.

The information supplied by the Department of Fisheries covers the current pattern of production, processing and trade in fish and fishery products, and an estimate of changes in these magnitudes in the next ten and twenty years. Reflecting the nutritional basis of the Plan, a five-fold product division has been adopted, viz., freshwater species, marine pelagic, marine demersal, molluscs and crustaceans. The Department is also supplying information for a study on long-term trends in trade.

For current data, the basic sources are the FAO Yearbook of Fishery Statistics and the Trade Yearbooks of the countries being studied, although these frequently have to be supplemented by reference to other publications. Supply projections, which constitute the major work of the Plan, are based on a study of the biological and economic data available. In this connection, it is relevant to note that the Fishery Resources and Exploitation Division is carrying out a major survey of the magnitude of the world's fish resources, both those at present exploited and those which may be exploited in the near future.

It is worth stressing that the statistical exercise of the IWP is a very serious attempt by FAO to present a unified and consistent picture of the production of and trade in agricultural products, including fish. It will be of considerable value to the Department of Fisheries, in that it will facilitate the identification of development needs and opportunities and, by the same token, provide a background against which technical assistance projects may be better assessed.