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COORDINATING WORKING PARTY ON ATLANTIC FISHERY STATISTICS

Report of the Ninth Session, Dartmouth, 17-23 August 1977

(being also a FAO Fisheries Report)

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Report of the Ninth Session

COORDINATING WORKING PARTY ON ATLANTIC FISHERY STATISTICS

Dartmouth, Canada, 17-23 August 1977

CONTENTS

1. PROCEDURAL MATTERS

(Agenda Item 1)

1.1 Opening of Session

Mr L. P. D. Gertenbach opened the Ninth Session of the CWP as Secretary and thanked the ICNAF Secretariat for providing the facilities for the CWP Meetings (CWP-9/1B). He then introduced Mr L. R. Day, Executive Secretary of ICNAF, who welcomed the participants to ICNAF Headquarters.

1.2 Election of Officers

The Secretary announced the list of participants (Appendix 1) and invited nominations for the office of Chairman and Vice-Chairman. Mr D. de G. Griffith, Chairman of ICES Statistics Committee, was elected Chairman, and Mr P. M. Hart, ICNAF country representative, was elected Vice-Chairman.

1.3 Adoption of Agenda

The draft agenda (CWP-9/1A) was reviewed and adopted with amendments (Appendix 2). Except for the major sections, the numbered subsections of the agenda may not necessarily correspond with the numbered subsections of the Report.

1.4 Appointment of Rapporteurs

A schedule of work was established and rapporteurs were appointed as follows for the various agenda items:

1	L. P. D. Gertenbach	5	L. P. D. Gertenbach, G. G. Newman and J. P. Wise
2.1	L. P. D. Gertenbach	6	P. Adam
2.2	V. M. Hodder	7	V. M. Hodder and L. P. D. Gertenbach
2.3	V. Nikolaev	8	D. Cross
2.4	P. Miyake	9	L. P. D. Gertenbach, V. M. Hodder, V. Nikolaev, G. G. Newman and P. Miyake
2.5	G. G. Newman	10	L. P. D. Gertenbach
2.6	D. Cross	11	D. de G. Griffith
2.7	L. P. D. Gertenbach	12	L. P. D. Gertenbach and V. M. Hodder
3	E. G. Heyerdahl		
4	L. P. D. Gertenbach		

1.5 Documentation

The full list of documents presented to the CWP is at Appendix 3. A list of acronyms relevant to fishery matters is given at Appendix 4.

1.6 Meetings

Meetings of the CWP held on 17, 18 and 23 August were chaired by Mr Griffith, and on 19, 20 and 22 August by Mr Hart.

2. AGENCY PROGRAMMES AND PUBLICATIONS PRESENTING ATLANTIC FISHERY STATISTICS

(Agenda Item 2)

2.1 FAO Statistical Programme and Publications

2.1.1 The Secretary of the CWP, drawing attention to Document CWP-9/2A, reported that the two main publications in FAO's programme are the two annually published volumes of the FAO *Yearbook of Fishery Statistics*, one volume of which is subtitled "Catches and Landings" and the other "Fishery Commodities". These two annual volumes continue to be supplemented by regionally oriented FAO *Fisheries Circulars*.

2.1.2 Since the Eighth Session of the CWP in September 1974, the last two issues of the *Yearbook* on "Catches and Landings" (Vol. 38 and 40) have been produced from manuscripts derived from a computerized data base, which has also been utilized to prepare the supplementary regional *Fisheries Circulars*. This data base has also been used to prepare for dispatch to reporting offices computer-printed precoded and prefilled questionnaires, custom-tailored for each country to facilitate revisions, additions and retrievals. After the usual difficulties, the new computer system now appears to operate smoothly and very significant benefits will be obtained from 1978 onwards.

2.1.3 The CWP Secretary stressed that the most critical element in this programme remains the prompt retrieval from the national offices of accurately completed forms. Delays in submitting the forms with revisions and additions and the incompleteness and poor quality of some replies adversely effect the timeliness and coverage of the resultant publications derived from the catch data base.

2.1.4 The CWP Secretary also drew attention to the proposals, subject to the approval of FAO's governing bodies, to combine, in a new Fishery Information and Data Service within FAO's Fisheries Department, the Information and Data Centre together with the Fishery Statistics Unit.

2.2 ICNAF Statistical Programme and Publications

2.2.1 The Assistant Executive Secretary presented a review of ICNAF statistical activities since the Eighth Session of the CWP (CWP-9/2B), with special reference to the collection and compilation of catch and effort statistics for use in stock assessments and for publication in the *Statistical Bulletin*. He also noted the Secretariat's involvement in the compilation of fishing fleet statistics (*List of Fishing Vessels*), the processing of a large volume of biostatistical data (*Sampling Yearbook*), updating of fisheries statistics for previous years, as well as the editing and publication of scientific meeting reports and papers (*ICNAF Redbook*, *Research Bulletin* and *Selected Papers* series).

2.2.2 The need for prior information on the status of the stocks under quota regulation in the Northwest Atlantic has led to the requirement, initiated in 1974, for the early annual submission of preliminary monthly catch statistics (together with biological sampling data) for assessment purposes. These preliminary statistics for selected species and stock areas are required very early in each year (February) and are not intended to be a substitute for statistics required to be reported on STATLANT 21A for the Annual Meeting in June or on STATLANT 21B for publication in the *Statistical Bulletin* later in the year.

2.2.3 STATLANT 21A statistics of nominal catch by species and division (deadline 15 April) are used to provide the Commission at its Annual Meeting in June of each year with the first reasonably complete record of the preceding year's catches of all species in the Northwest Atlantic. These statistics are computer-compiled for use at the Annual Meeting and a revised version issued in late June represents the advance release of catch statistics for Fishing Area 21.

2.2.4 Since nearly all member countries of ICNAF have demonstrated their ability to report their final statistics by species in the detail required for STATLANT 21B (deadline 30 June), the ADP system for compiling the various tables of the *Statistical Bulletin* was designed to provide for the direct key-punching of data onto computer cards. Consequently, the introduction of the new STATLANT 21B form, following the 1974 Session of the CWP, has greatly facilitated the work of the Secretariat in preparing the data for computer processing. Except for the addition of a new statistical area off Baffin Island, designated as Statistical Area 0 (*Statistical Bulletin* Vol. 23), the presentation of tabular material in *Statistical Bulletin* Vol. 22 and subsequent issues has generally followed the organization suggested by the CWP (Report of CWP *ad hoc* Working Group on the Contents of Regional Fisheries Statistical Bulletins, Rome, January 1973; also ICNAF Summ. Doc. 73/11). *Statistical Bulletin* Vol. 23 to 25 (for the years 1973-75) have been issued since the last session of the CWP in 1974, and Vol. 26 (for 1976) is expected to be issued in December 1977.

2.2.5 In response to ICNAF's requirement for the reporting of more detailed catch and effort statistics, the CWP at its 1974 Session redesigned the STATLANT 21B form to provide for the reporting of data by twice-monthly time periods and by 30' × 30' unit areas. It was intended that the new form be introduced for the reporting of statistics for 1976, and detailed instructions were prepared to aid in completing the forms. However, as a result of the recent extension of fisheries jurisdiction to 200 miles by all coastal states in the Northwest Atlantic, and because of the current differing requirements of the coastal states for the reporting of fisheries statistics by foreign vessels permitted to fish within the 200-mile zones, the Standing Committee on Research and Statistics at its 1977 Annual Meeting decided to suspend the requirement for reporting data by 30' × 30' unit areas and twice-monthly time periods, pending future coordination of the coastal states' requirements. Consequently, the data for 1976 and 1977 are to be reported in accordance with past practice, i.e. by month and ICNAF division (or subdivision, where applicable).

2.2.6 The updating of national statistics is a continuing programme at the Secretariat in an effort to obtain as complete a historical record as possible of catches from the marine resources of the Northwest Atlantic. Data for 1970-75 have recently been reviewed and it is proposed that the various tabulations for these years be recompiled for the benefit of users of Northwest Atlantic statistics.

2.2.7 The ICNAF *List of Fishing Vessels* continues to be published every 3 years, the last issue being for 1974. However, member countries are now required to update their lists annually, and these are presented each year in an ICNAF summary document.

2.2.8 The ICNAF *Sampling Yearbook*, issued annually during 1956-72, contained detailed sampling data on length and age composition of commercial catches as reported by member countries. In view of the increasing volume of sampling data being made available, it was necessary to computerize the data to facilitate rapid retrieval. Consequently, since 1973, the *Sampling Yearbook* contains only a listing of data available at the Secretariat, and the actual data are supplied to users upon request.

2.2.9 Although the Secretariat has had access to a computer since 1971, the recent acquisition (January 1976) of a remote job entry terminal provided the Secretariat with direct access to an IBM 370/155 computer, which is normally used, and also to a CDC 6400 computer which may be used infrequently for special statistical analyses. The remote job entry terminal is a COMTERM 1000 Series, consisting of a 300 cards-per-minute reader, 300 lines per minute printer and a display console. The transition to the new computer system did not require any changes in the input formats previously developed to facilitate the processing of data from STATLANT 21A and 21B forms.

2.3 ICES Statistical Programme and Publications

2.3.1 The ICES Statistician presented the report on ICES statistical activities (CWP-9/2C) and reviewed various developments which had taken place since the Eighth Session of the CWP.

2.3.2 Publication of the *Statistical News Letters*, containing biological data and catch/effort data by statistical rectangles initiated by ICES in 1956-57, was discontinued by a resolution adopted by the Council at the 1974 Statutory Meeting. Following the recommendation of the Eighth Session of the CWP that the general distribution of biological data should be restricted to the issue of data inventories, the Council resolved that an annual inventory of data previously incorporated in the *Statistical News Letters* should be published as an appendix to the "Advance Release of *Bulletin Statistique*". The Council has also established guidelines for data security in relation to the establishment of the ICES FISHDAT System (previously known as the ICES ADP System (c)).

2.3.3 From January 1975 onwards, ICES has been receiving from the NEAFC member countries monthly submissions of estimated catches of regulated species by statistical subareas or divisions, as appropriate. Since these statistics do not cover all stocks or areas of major concern for the ICES Assessment Working Groups which usually meet early in the year, the Council at its 1976 Statutory Meeting initiated an additional

programme of monthly catch reports, with a time lag of 30 days, on a standard ICES Data Form 5.

2.3.4 Submission to ICES of preliminary annual catch statistics by 1 February of the year following that to which the catch figures apply has become a well established practice by now, following NEAFC Recommendation 12 adopted in 1973. The reporting of statistics was improved by implementing a resolution adopted by the Council in 1974 that these preliminary data for the 14 species in question should be reported by the statistical subareas, divisions and subdivisions by which each country normally reports its catch on the STATLANT 27A Form. These data are also used by the ICES Assessment Working Groups, but their reporting does not interfere with the established STATLANT Programme and deadlines for the submission of STATLANT data.

2.3.5 In 1977, the latest of the triennial reviews of mixed fisheries conducted with small-meshed trawls and the by-catches of protected species, as well as of the human consumption and industrial components of the catches, was submitted to NEAFC by the ICES Liaison Committee.

2.3.6 In accordance with a resolution from the Council, a compilation of the available information on the quantity and value of member countries' harvest of seaweeds and of those marine animals (except mammals) not currently included in *Bulletin Statistique*, but on which catch data are reported on the STATLANT forms, was considered at the 1976 Statutory Meeting. As a result, several marine animals were added to the list of ICES species items and the Ninth Session of the CWP was requested to study the feasibility of publishing data on seaweeds in *Bulletin Statistique* (see Section 4.8).

2.3.7 At its Statutory Meetings in 1974-76, the Council repeatedly stressed the importance (for assessment purposes) of obtaining data by species on the quantities, length and age composition of discarded fish and their rate of survival. Collection of data on discards was considered to be of such importance that the Council approached its Contracting Parties at the diplomatic level on this matter. The ICES Secretariat distributed to national reporting offices a provisional form which was intended to facilitate the collection and submission of data on discards for 1977 and for previous years, if available, pending recommendations from the Ninth Session of the CWP on a standard form for reporting discards (see Section 5.5).

2.3.8 Since 1977, ICES has taken over the preparation and distribution, among its member countries, of the fleet and fishermen form, which is headed "ICES Data Form 6", together with the accompanying notes on its completion based on FAO *Fisheries Circulars*. In preparation for the discussions of the emerging new international fleet categories at the Ninth Session of the CWP, the ICES Secretariat submitted a draft form, incorporating the anticipated changes, to national statistical offices and members of the Statistics Committee for comments on its feasibility. Returns so far received from national offices contained no indications of a negative attitude towards the draft form.

2.3.9 ICES adopted the recommendations on the gear and vessel classifications made by the CWP at its Eighth Session. These, with the use of 3-alpha country codes, 4-digit species codes and uniform codification of the ICES statistical rectangle (1° × 30') system, facilitated further development of the ICES FISHDAT System. Trial runs are being continued with different approaches in order to implement such a system which would cater fully for assessments of any species of fish and for the whole of the ICES area.

2.3.10 Following the Council's decisions, Tables 1-5 of *Bulletin Statistique* Vol. 58 and 59 were produced by ADP methods, using part of the ICES FISHDAT System (batch programmes), as were also the tables in "Advance Release of *Bulletin Statistique*" issued each September for the previous calendar year. In compiling these tables, STATLANT 27A returns are used, since the number of species on them, entered in Table 5, is greater than on STATLANT 27B forms. Modified Tables 7 and 10, containing monthly catch and catch/effort data, will be processed by ADP methods as soon as possible. Changes in the introductory tables of *Bulletin Statistique* proposed by

the ICES ADP Working Group are being implemented for Volume 60. The ICES ADP Working Group recommended that the CWP, at its Ninth Session, consider the feasibility of adopting 3-alpha species abbreviations for Table 5 of *Bulletin Statistique* (CWP-9/4E).

2.3.11 The CWP noted that ICES is submitting time series (10-15 years) of catch data by country and by stock to NEAFC and IBSFC, and that such series on all commercially important stocks were prepared for the 1977 reviews of biology, distribution and state of exploitation of stocks in the Northeast Altantic. It was also noted that additional statistical and biological data for the Northeast Atlantic stocks are contained in Vol. 44, 45, 49, 51, 55, 56, 60, 61 and 65 of the *Cooperative Research Report* series and in Vol. 30, 31 and 32 of the *Annales Biologiques*, published after the Eighth Session of the CWP.

2.3.12 The CWP was informed that ICES prepared a review on the collection and compilation of catch and effort statistics and the extent of fish sampling programmes in ICES member countries in recent years (C.M. Doc. 1976/D:3).

2.4 ICCAT Statistical Programme and Publications

2.4.1 The Assistant Exeuctive Secretary of ICCAT presented a report of his organization's statistical activities (CWP-9/2D). He explained that there are three different data sources:

a) National offices send the data directly to the ICCAT Secretariat.

b) The CWP Secretary sends data to the ICCAT Secretariat for the countries which make minor catches in the ICCAT area.

c) The ICCAT Secretariat collects data directly from industries at fishing ports.

2.4.2 ICCAT's statistical requirements are divided into four different levels:

a) Task I statistics should include total annual nominal catches in round live weight and the number of boats engaged in tuna fisheries throughout the year.

b) Task II statistics should include catch and effort data by fine time-area strata (1° × 1°, monthly), and summarized catch and effort statistics by larger time-area strata corresponding to the biological data.

c) Biological data, including actual sample size frequencies and weighted size frequencies by catch and by time-area strata as agreed to by the Commission.

d) Quick estimates of the catch and catch per effort for the current year.

2.4.3 The *Statistical Bulletin* is published annually and includes all Task I catch and effort statistics. The *Data Record* series is published twice yearly and includes all detailed data presented to the Commission by the national scientists. The *Statistical Series* contains the data collected by the Secretariat directly at the ports.

2.4.4 The Assistant Executive Secretary referred to various other statistical activities being conducted by ICCAT. One of the most important activities is the biostatistical work. The Secretariat is conducting an overall review of the sampling schemes that each national office and the Secretariat employs in the entire Atlantic area for tuna species. He also referred to the data collected by the Secretariat staff at five ports in the Atlantic from the foreign vessels trans-shipping their catches in the Atlantic. It was mentioned that, until the Secretariat started this project, such fleets had not previously been covered by a sampling scheme. He also indicated that the "Field Manual for Statistics and Sampling of Atlantic Tunas and Tuna-like Fishes" has been serving efficiently to improve the national statistics. However, the Commission is considering revising the manual, since some of the instructions included in it are outdated.

2.4.5 ICCAT adopted ADP system for all the data accumulated on tuna and tuna-like species in the Atlantic Ocean. In 1977, the Secretariat contracted for the use of the INFONET system in Madrid, and established four data bases: nominal catch, catch and effort, size frequency, and data inventory. Presently, all the data are being entered into the data bases and all the statistical work has been done by this system.

2.5 ICSEAF Statistical Programme and Publications

2.5.1 The Chairman of the Scientific Advisory Council (SAC) presented a report on the statistical activities of ICSEAF (CWP-9/2E), noting that annual catch and effort information reported by national offices were stratified by species, ICSEAF division, month, type of vessel and gear, target species and unit of effort. Fishing effort is reported preferably as "number of hours", but failing this "days fished" or "days on ground" is provided. The utilization of reporting areas smaller than and ICSEAF division has been considered, but no decision will be taken until more information is available from biologists on stock separation. Much stress has recently been placed on the recording of the "target species" for catch and effort records, to facilitate the allocation of fishing effort to different stocks. At present, seven categories of fishing vessels are recognized, as are 21 different fishing gears.

2.5.2 Catch and fishing effort statistics are reported within the STATLANT system, and it is estimated that well over 90% of the total catch from the Convention Area is reported to the Commission. The submission of effort data is less complete, and it is estimated that the total effort reported is associated with about 40% of the total catch. Whereas effort information, at least for some countries pursuing trawl fisheries, is quite good, estimates of effort expended by purse-seine fleets are generally less adequate.

2.5.3 Computer programmes are used to process the information submitted on STATLANT forms, and six tables are printed, presenting catch and effort information in combinations of year, country, species, species groups, subarea, division, month, target species and fishing effort unit by gear class and vessel category. Final versions of these tables are published annually in the *Statistical Bulletin*, five issues of which are available for 1971 to 1975.

2.5.4 The estimation of discards has received attention, and a form has been circulated to member countries of ICSEAF in an attempt to estimate the quantity of fish discarded. The form is similar to those which have been utilized by ICNAF and ICES, and its effectiveness is to be evaluated at the December 1977 Meeting of the Commission.

2.5.5 At its last meeting, SAC recognized the need to provide provisional estimates of catch to scientists who meet in December of the year for which such provisional information was required. A suitable table, on which data can be reported for at least six months of the current year, has been circulated. This information will be updated as far as possible by national scientists attending the annual assessment meeting.

2.5.6 At the 1976 Commission Meeting, some member countries stated that hake catches reported by their national offices were wrong, as landings had not been correctly converted to nominal catch. Accordingly, a questionnaire was circulated to collect relevant data which were examined at a special meeting of experts in August 1977 (CWP-9/5C). As a result of this meeting, the hake catches of certain nations were revised, but these revisions did not significantly affect the total hake catches reported previously.

2.5.7 Biological data, mainly on length and age composition of important species, are submitted to the Secretariat on BIOLDAT forms. This information is processed by computer to provide basic tables, from which the age composition of removals (in numbers) from the population can easily be calculated. These tables are published each year in the *Sampling Bulletin*.

2.6 Eurostat Statistical Programme and Publications

2.6.1 The Eurostat participant, in introducing Eurostat's statistical programme (CWP-9/2G and 10E), emphasised that it was impossible to give precise details because of the absence of a decision on the EEC fisheries policies. The situation was aggravated by the incomplete establishment of the Directorate-General for Fisheries.

2.6.2 Eurostat had done some preparatory work with FAO and OECD on the development of its programme of fleet statistics (CWP-9/6A and 7H) and requested an opinion on its proposals from the CWP at its Eighth Session (Section 6.3).

2.6.3 It seems inevitable that the establishment of a policy for the management of the EEC's fishery resources would place an additional workload on the statistical services of member states, and Eurostat was actively seeking ways to minimise this by avoiding duplication of demands and by the harmonisation of concepts with other international agencies. It was in this light that the bilateral discussions with these other agencies and, more particularly, participation in the work of the CWP assumed great importance.

2.7 The STATLANT Programme under the Aegis of the CWP

2.7.1 The Secretary of the CWP reported that no significant changes have been made in the inter-agency STATLANT system since the Eighth Session. It was noted that close collaboration and consultation was maintained between all of the participating agencies. The constant exchange of information and the close collaboration in submitting standardized and harmonized questionnaires to national reporting offices are continuing to facilitate the tasks of all parties concerned. This also ensures constant refinements and improvements in the data submitted for publication in regional bulletins and international yearbooks.

2.7.2 The CWP noted that a very significant amount of machine-processable data on nominal catches is now available in FAO, ICNAF, ICES, ICCAT, and ICSEAF. These are made available in various statistical publications, containing multi-purpose tables to facilitate the work of the various users. However, it was felt data tapes could be made available by the various regional agencies which, subject to their own policies, could also make their tapes available to national administrations. The latter could then arrange for the preparation of special tabulations from time to time according to their own individual and immediate needs.

3. CLASSIFICATION AND CODIFICATION OF FISHING AREAS OF THE ATLANTIC AND ADJACENT SEAS

(Agenda Item 3)

3.1 Consolidation of Existing Material, Including Maps of Each of the Major Fishing Areas of the Atlantic

3.1.1 The Secretary of the CWP introduced document CWP-9/3A, which summarized the major fishing areas throughout the world. It was pointed out that the boundaries of some of the major fishing areas had been altered, since they were first introduced, in the light of more detailed information on stock boundaries (e.g. the southern boundary of Area 41 had been moved northwards to approximate more closely to the limit of the Antarctic convergence). Similarly, the Assistant Executive Secretary of ICNAF reported that catches were now being taken off Baffin Island north of Statistical Area 0 and to the west of Subarea 1. The CWP recommended (1)

that ICNAF should extend the northern boundary of Statistical Area 0 to take account of these catches in the Statistical Bulletin and that FAO subsequently extend its Major Fishing Area 21 accordingly to include these waters.

3.1.2 Attempts have been made by FAO, with a certain degree of success, to establish the

boundaries of the major fishing areas throughout the world on a 5° mode. If it were considered to be desirable in the future, the boundaries of other major fishing areas, such as between 21 and 27, between 27 and 34, and between 34 and 47 which do not totally conform to the 5° mode, could be further altered to bring them more into line with this concept without any serious upset to the data bases of the regional agencies involved.

3.1.3 Descriptions of the major fishing areas of the Atlantic Ocean and its adjacent seas are presented in CWP-9/3B to 3H.

3.2 Development of an Atlantic-wide System, Within a World Framework, of a Codification of Areas (Including Small Rectangles) for ADP Processing of Catch and Effort Data

3.2.1 The CWP agreed that, as a possible response to the requirements of new or proposed coastal zone management regimes, the area basis of statistical systems could be small rectangles (30' × 30' or 30' × 60') within 200-mile zones, with 5° rectangles outside these zones.

3.2.2 The need for a finer area breakdown than the standard fishing areas, developed and maintained under the aegis of the CWP, had been highlighted by the requirement of regional commissions and coastal states for catch data arranged by 200-mile zones or other irregular configurations. The CWP noted that data collected by small rectangles could readily be aggregated into such configurations or into the standard areas already in use, but that, if the area used was too small, there would be some difficulty in allocating the catch of individual fishing operations to the appropriate rectangle.

3.2.3 The CWP reiterated its support for the standard system of codification of squares or rectangles put forward by the Seventh and Eighth Sessions (the latitude/longitude graticule system) (CWP-9/2J). It was noted that, in order to simplify the reporting of data on either side of the Greenwich Meridian, ICES has introduced a rectangle coding system which did not conform to that advocated by the CWP (CWP-9/3K). It was agreed, however, that, since the ICES code was used only for input data and since it could readily be translated within the ICES ADP system into the latitude/longitude code for application to output data (for publication), the use of the ICES code in this way did not constitute a departure from the standard procedures recommended by the CWP.

3.2.4 The CWP noted that the extension of national fisheries jurisdictions to 200 miles should be associated with the building up of national statistical systems. Unless coastal states assume responsibility for ensuring that the statistical data reported to them under their management regime is compatible with the standard concepts and principles established by the CWP, the risk of duplicate reporting and of other deteriorations in the overall system will increase. The CWP concluded that the extension of a country's fishing zone brings with it a certain obligation on that country to strengthen its statistical reporting system accordingly. Related problems are considered in Section 5.1.

3.2.5 The CWP noted that some difficulty with statistics in the Mediterranean could arise in some countries where non-standard areas appear to be used in reporting. The CWP agreed that such non-standard procedures should be actively discouraged, and recommended (2)

that FAO (in collaboration with Eurostat and ICCAT where their member countries are involved) should approach the national administrations of Mediterranean countries with a view to ensuring the implementation of common statistical area reporting.

4. CLASSIFICATION AND STATISTICAL CATEGORIES REFLECTING SPECIES, GENERA, FAMILIES AND GROUPS FOR THE WORLD IN GENERAL AND THE ATLANTIC IN PARTICULAR

(Agenda Item 4)

4.1 The CWP Secretary presented document CWP-9/4A which listed, by the "species groups" of

ISSCAAP, the constantly growing number of "species items" identified in the fishery statistics of approximately 230 countries and other territorial entities of the world. For each of these items FAO has to establish English, French and Spanish common names, together with a specification of the item coverage in terms of the scientific name(s) at the species, genus or family level. He indicated that this work on nomenclature is being carried out in close consultation with ICNAF, ICES, ICSEAF and ICCAT, to ensure the elimination of all ambiguities and unnecessary differences.

4.2 The CWP Secretary also drew attention to the change in FAO's use of ADP codes for the various "species items" used in the *Yearbook of Fishery Statistics* ("Catch and Landings" volumes) and the supplementary regionally oriented *Fisheries Circulars*. A three-digit code was originally used to identify these species items. This created various difficulties and it has been decided to eliminate these three-digit codes and to retain only the taxonomic codes for world-wide purposes, as such a system provides for the proper identification of new species items appearing in the constantly expanding structure of national catches reported from all quarters of the world. The CWP Secretary noted that the taxonomic code is not expected to be adopted by regional fisheries agencies which seldom would be concerned with more than 200 species items.

4.3 The CWP noted that modern ADP facilities do not require complete identity in the coding systems used by FAO and the various regional agencies. It was reconfirmed that regional agencies might need to introduce specific regional "species items" codification systems to meet their particular needs and responsibilities for data. FAO, on the other hand, would continue to face the obligation to ensure the detailed development of a steadily expanding list of "species items" on a world-wide basis covering all marine and inland areas.

4.4. In view of the differences in the coding systems of ICNAF, ICES, ICSEAF and ICCAT and also between these and that of FAO, it is important that all of the various "species items" codes be deposited with FAO, and maintained on a current basis. The CWP confirmed that FAO should incorporate all relevant information in the "species items" files of its computer system, permitting the translation of data from one coding system to another. The various coding systems would need to be updated annually to ensure that the users of computer-filed data are fully aware of the differences.

4.5 The CWP welcomed the presentation of detailed information on the coding systems and related matters presented in CWP-9/4B (ICNAF), CWP-9/4C (ICES), CWP-9/4D (ICSEAF), and Appendix 6 of CWP-9/2D (ICCAT). It considered that these, together with the material in CWP-9/4A (FAO), constitute a useful compendium of the information required by FAO to build within its computer system adequate inter-linked species files to facilitate the translation between the different coding systems.

4.6 The CWP was informed that technical and space reasons require ICES, ICSEAF, ICNAF and ICCAT to introduce 3-alpha abbreviations for species in selected tables and similar elements in certain of their tabular presentations. However, since FAO covers a very large range of "species items" on a world-wide basis in several languages, it was considered inadvisable to use similar abbreviations which, in its publications, could result in ambiguities and confusion at this stage.

4.7 The CWP noted that several coding systems might be in use in some countries. It was stressed that users should be warned through proper documentation about the specific ones in use.

4.8 The CWP was informed that ICES was considering the inclusion of annual statistics on the harvesting of seaweeds in *Bulletin Statistique*, but that the data presently being reported are of unsatisfactory quality. The CWP noted that FAO, ICNAF and ICSEAF have been regularly collecting the available information on seaweed production (usually on a wet-weight basis) for tabulation with nominal catch data in the various publications. The CWP considered that further improvements, urgently required, depend mainly on the efforts of national offices to collect and report data on seaweed harvesting. The CWP recommended (3)

that all regional agencies should make a special effort in 1978 and onwards to obtain from the various countries through the STATLANT system better and more complete annual seaweed production data by species on a wet-weight basis.

4.9 The CWP Secretary reported that several requests have been made to regroup certain species items, e.g. capelin. The CWP agreed that there are obviously good arguments in favour of certain changes but considered that it would be best to avoid frequent *ad hoc* adjustments. However, after some discussion, the CWP recommended (4)

that FAO revise the ISSCAAP groups by moving the pure marine salmonoids (e.g. capelin and argentines) from the anadromous group to an appropriate group of marine species.

4.10 The CWP was informed that the now defunct three-digit code for "species items", used previously by FAO in its ADP activities, has been referred to by some countries and regional bodies as abbreviated international "identifiers" for individual species listed, for example, on logbook sheets. The CWP, recognising that any significantly abbreviated code would not satisfactorily serve FAO's ADP needs on a world-wide basis, nevertheless considered it important and urgent that FAO should establish and maintain a global abbreviated species "identifier" code, in addition to its taxonomically oriented code. This could possibly consist of the various 3-alpha codes of the regional fishery agencies preceded by suitably selected 2-digit codes referring to the several major fishing areas.

5. DEFINITIONS OF BASIC CONCEPTS PERTAINING TO NOMINAL CATCHES, LANDINGS AND DISCARDS

(Agenda Item 5)

5.1 Basic Concepts Pertaining to "Nominal Catches" and "Landings"

5.1.1 The CWP agreed that the currently used definitions of such basic concepts as "gross catch", "discarded catch", "retained catch", "nominal catch", "landings", etc. (CWP-9/5A), have stood the test of time and that these should continue to be used. It is expected that recent developments in the extension of national waters might eventually require minor revisions to be made.

5.1.2 The CWP re-emphasized the need for all countries to use the "catch calendar year" for nominal catch statistics and the "landings calendar year" for landings data. Nominal catch statistics should refer to fishing areas and landings statistics should refer to landing places. The CWP noted the need to define "national production" more precisely. Difficulties in the allocation of particular catches and landings to various countries would certainly increase during the next few years. Chartering of foreign vessels (e.g. to fulfill national quotas), joint ventures, concessions to foreign fishing craft, etc., would seriously complicate the identification of "national" catches and landings. Serious problems could also arise from double-counting or under-counting, apart from erroneous assignment of quantities.

5.1.3 The CWP reviewed these issues and discussed at some length the various problems and the proposals for their solution. It was agreed that all catches taken from the rivers, lakes, swamps, dams, fish ponds, etc., are quite clearly to be considered as part of the national production regardless of the nationality of the catchers or the ownership of the equipment used. Similarly, beaches, rocks, harbours, etc., also constitute an integral part of the country in whose territory these beaches, rocks, harbours, etc., are located. Mariculture and other aquacultural activities within the territorial waters of a country should also be classified as the production of the country concerned.

5.1.4 The output of all vessels flying the national flag and operating from home ports and landing their catches in these harbours, regardless of whether their catches were taken in the territorial waters, the extended economic zone or beyond on the high seas, are to be included as part of the national production.

5.1.5 When a vessel is allowed by intergovernmental agreements to fish in the extended economic zone of another country, its catch, when landed in its home ports, should undoubtedly be treated as part of the catch of the flag country of the vessel. Difficulties could arise when a flag vessel is based in a foreign port and operates out

of this port in the extended economic zone of the coastal state concerned. Such catches would be landed in this foreign base or shipped in bond to the vessel's home country. These are merely examples of the configurations that could arise.

5.1.6 The CWP, after a lengthy and thorough debate, decided that in all instances the flag of the vessel should be the determining feature which establishes the country to whose national production the catches and landings should be allocated. The allocation should be made regardless of fishing area or the point of landing. The CWP therefore recommended (5)

the flag of the vessel should, for the time being, be considered as the paramount indication of nationality and should only be overridden when it is obvious that the wording of chartering and joint operation contracts indicates otherwise or when the inter-relationships are too complicated to settle.

5.2 Statistics on Recreational Fishing

The CWP noted that recreational fishing has become a significant aspect of the social and economic life of many countries. Several countries have surveyed the extent of these activities and have noted the large-scale participation in recreational fishing. This participation in certain areas is resulting in substantial removals, especially of certain important species, both in inland and in marine fisheries. The CWP recommended (6)

that the regional agencies request their member countries to draw the attention of their respective fishery administrations and tourist boards to the value of collecting adequate catch statistics and (where possible) fishing effort for recreational fisheries.

5.3 Catch Statistics by Principal Species for Regions According to Major Types of Gear

The CWP reviewed the proposal that annual regional nominal catches by "species item" should also be broken down by groups of gear types. It was noted that this would result in useful tables, but the CWP did not consider that FAO should, at this stage, in view of its other commitments, devote too much effort to the production of these tables. However, the CWP Secretary could consult with the statistical secretariats of regional agencies to ensure some standardization in the patterns of the annual catch tables showing catches by species items according to the major gear types.

5.4 Conversion Factors

5.4.1 The CWP appointed a task force (G. G. Newman, convener, D. Cross, L. P. D. Gertenbach, M. C. H. Wagemans) to review and report on conversion factors in fishery statistics.

5.4.2 The CWP recognized two types of conversion factors. The first consisted of those which are applied to convert landings to nominal catches and which are vital for resource management purposes. The second type relates landings to products processed ashore so that supply balance sheets may be established. These balance sheets are essential for commodity studies.

5.4.3 Noting the increased application of quotas for resource management, the CWP recognized the urgent need, as expressed by the various regional agencies, for an updated and expanded version of the publication by FAO which dealt with factors of the first type for the North Atlantic [FAO (1971) *Bull. Fish. Stat.* Vol. 25. Conversion Factors: North Atlantic species, 1970]. Initially, the review should be extended to cover the whole of the Atlantic Ocean and its adjacent seas. It was clear that absolute uniformity of conversion factors could not be expected because of differences in national processing practices, but the proposed review should identify any serious discrepancies which could be due to inadequate definition of product or other causes. The CWP therefore recommended (7)

that FAO undertake a review of conversion factors, and that Eurostat be requested to collect these factors from EEC member states.

The collaboration of other countries would be sought directly by FAO, and regional

organizations would be consulted and kept fully informed. The CWP also recognized the need for periodic review of these factors.

5.4.4 The CWP was informed that work on various conversion factors are underway in certain countries. It was noted that a detailed study of conversion factors for lumpfish roe at West Greenland has been made (CWP-9/5F).

5.5 Discards

5.5.1 The CWP appointed a task force (J. P. Wise, convener, E. G. Heyerdahl, J. Messtorff, P. Miyake, V. Nikolaev) to review and report on the problems relating to statistics on discarded catches. Subsequently, a second task force (V. M. Hodder, convener, V. Nikolaev, G. G. Newman, L. P. D. Gertenbach) investigated the possibility of improving the degree of standardization and harmonization among the forms now used by ICNAF, ICES and ICSEAF to obtain from national offices information on discards.

5.5.2 The CWP noted that complications in making assessments arise when portions of catches are discarded and that the problems of estimating discards continue to exist. These problems have generated many studies but few, if any, real solutions. The discard problem in the ICNAF Area is presented in CWP-9/5B, and CWP-9/5E calls attention to the problem in shrimp fisheries, where discards may far exceed the landed catch. The current activities of ICNAF, ICES, ICCAT and ICSEAF in attempting to collect statistics on discards are discussed in CWP-9/2B to CWP-9/2E.

5.5.3 Discards and their measurement are important because they represent removals from the total biomass as well as from stocks of particular interest. For this reason, discard estimates will be much more meaningful when they are accompanied by survival estimates, so that more precise estimates of mortality can be made.

5.5.4 Discards may be divided into two groups:

a) Voluntary discards consist of unsaleable species, and fish of economically undesirable sizes.

b) Involuntary discards consist of non-quota species, over-quota quantities, and undersized (by regulation) individuals.

Important quantities of involuntary discards are caused by regulation of fisheries. They can probably be markedly reduced by appropriate modification of regulations to deal more realistically with by-catch and minimum sizes of fish.

5.5.5 Estimates of the quantities of fish discarded and the sampling of discards are most effective when done at the time of fishing. The CWP noted that, with extensions of jurisdiction and the introduction of other management programs, the placing of log-books and technicians or observers on board of domestic and foreign vessels offers new opportunities for discard measurement.

5.5.6 The ICNAF Subcommittee on Statistics and Sampling had again considered the importance of adequate statistical information on discards at its 1977 Annual Meeting (CWP-9/5B). It recommended that guidelines for improved discard statistics be circulated by ICNAF following this CWP Session, at the same time requesting each member country to appoint a scientist to investigate and report on the discard aspect in its fisheries in the Northwest Atlantic, and to assist in the provision of adequate statistics on discards.

5.5.7 The CWP agreed that statistics on the discarded portions of the total (gross) catches should initially identify all of the regulated species, with the balance shown by broad species groups, for the trawl-net and seine-net fisheries, although it recognized that this problem also exists in other fisheries (e.g. the tuna pole-and-line fishery).

5.5.8 The discarded catch described in the preceding section should, when submitted in provisional form together with preliminary nominal catch data, be further broken down for each major fishing area (21, 27, 34, 37 and 47) by month and by subarea and/or division. It is expected that, at a later stage, these could be supplemented by

(a) target species (main species sought), (b) gear with specifications as appropriate, (c) size categories of the vessels, and (d) types of vessels (e.g. factory trawlers, etc.).

5.5.9 In considering the current requirements (including those that might be requested by coastal states and regional agencies in the near future) for reporting nominal catches and also discarded catches, the CWP expects that the information collected nationally (see Section 8, regarding fishing logbooks) would permit the reporting of statistics on discards in the same format as used now for nominal catch data presented on STATLANT B forms for each of the major fishing areas. The CWP noted that "nominal catch" is the best available estimate of the "retained catch".

5.5.10 Initially, however, the basic requirement for statistics on discarded catches for early assessment purposes would almost certainly be somewhat more restricted in detail than the statistics on nominal catches, pending the expected expansion in national collection, processing and reporting capabilities. The CWP therefore recommended (8)

that priorities should be established for the reporting of discard data by national offices in accordance with the requirements specified in Sections 5.5.7 to 5.5.9.

6. STANDARD CONCEPTS, DEFINITIONS AND CLASSIFICATIONS FOR FISHING FLEET AND FISHING EFFORT STATISTICS

(Agenda Item 6)

6.1 Standard Concepts, Definitions and Classifications for Fishing Fleet Statistics

6.1.1 The recent developments having an influence on fishing fleet statistics were reviewed and this led to the unanimous conclusion that computerization was the only possible solution for the compilation of such statistics.

6.1.2 IMCO has adopted a new definition of vessel length[1] as the unit of measurement for the limits of the different safety regulation categories. This characteristic will now have to be recorded by all statistical offices. As a result of the numerous extensions of national jurisdiction to 200 miles, new regulations may come into force with new kinds of groupings. The marine biologists, in refining their models for fishing effort measurements, are likely to require new tabulations. The same would apply to economists as well as administrators.

6.1.3 Many of these future requests for new statistical arrangements cannot be forecast at present. The only way of responding to such an unlimited number of new and unexpected requests is to build up data bank systems in the form of fleet registers organized on standardized definitions and breakdowns.

6.1.4 The CWP noted that the fleet statistics experiment undertaken by OECD had to be provisionally stopped due to lack of access to the computer. It had, nevertheless, been possible to extend the data collection to vessels above 500 GRT and also to some above 100 GRT, which demonstrated that the required data more often than not existed and could be retrieved without major difficulty. The collection and compilation of data for the relatively small number of vessels over 100 GRT or 24 metres long (less than 20,000 vessels in the world) will not be difficult. The CWP therefore considered it unnecessary for OECD to prolong an experiment which has already served its purpose.

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[1] The length (L) shall be taken as 96 per cent of the total length on a waterline at 85 per cent of the least depth measured from the keel line, or as the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In vessels designed with rake to keel the waterline on which this length is measured shall be parallel to the designed waterline.

6.1.5 With reference to the sections on fishing fleet statistics in CWP-9/6A, the CWP recommended (9)

that FAO issue a new version of Parts C, D, E, F and H of CWP-9/6A, the aim being to make available a collection of the most up-to-date recommendations and proposals concerning fishing vessel characteristics and groupings for statistical purposes, namely:

a) the list of characteristics for all vessels of 500 GRT and over, with the addition of the load line characteristic requested by IMCO;

b) the proposals studied by OECD, FAO and Eurostat for the shorter lists of characteristics to be used for vessels below 500 GRT and also below 100 GRT;

c) the tentative list of vessel types as elaborated by OECD for vessels of 500 GRT and above; and

d) the tentative tabulations as studied by FAO, OECD and Eurostat for boats below 100 GRT which would not be entered into a register.

6.1.6 With regard to the grouping of vessels into broader classes for statistical purposes, the CWP recommended (10)

a) that, in tabulating vessels according to GRT or HP categories, the lists given in Appendices 6 and 7 of the Report should be used in such a manner that the selected tonnage or power divisions or groups could combine several divisions or groups but should never overlap or conflict with them; and

b) that regular fleet tabulations should refer to the end of the calendar year (i.e. 31 December).

The CWP agreed that tabulations of vessels by age were essential, a breakdown by 5-year groupings being considered adequate.

6.1.7 The implementation of data bank systems for fishing fleets must be left to individual countries or groups of countries which have available the necessary data, but this makes it necessary for such undertakings to follow the above recommendations which would allow compatability and interchange between the different national schemes for all vessels 100 GRT and over. For smaller boats, individual countries or groups of countries may feel it necessary to keep a register of vessels down to 50 GRT, but the needs of inter-governmental agencies for the tabulations of fishing vessels below 100 GRT should be normally met by sets of annually updated tables as those mentioned in 6.1.5(d) above.

6.2 Standard Concepts, Definitions and Classifications for Fishing Effort Statistics

6.2.1 The notes on fishing effort measures given in CWP-9/A were reviewed, and two modifications were adopted as follows:

a) The first column entitled "Effort level" should be deleted and replaced by "Level of priority".

b) The previous definition for "Surrounding nets (purse seine)" should be expanded to provide two options for the first level of priority.

An updated version of the definitions for fishing effort measures is at Appendix 8.

6.2.2 The CWP agreed that the list of gear types and their abbreviations (CWP-9/7B) should be supplemented by the following items to be inserted according to their code numbers:

a) Hooks and lines (not specified): abbreviation LX; code numer 09.9.0.

b) Recreational fishing gears: abbreviation RG; code number 25.0.0.

7. STATLANT FORMS AND NOTES FOR THEIR COMPLETION

(Agenda Item 7)

7.1 Review of Forms Used in the STATLANT System

7.1.1 The CWP reviewed the various forms used by the regional fisheries agencies of the Atlantic and by FAO, following the major revision of some of the forms at the Eighth Session of CWP, and noted that the agencies were generally satisfied with the layout of their respective forms. However, some minor revisions were proposed at the present meeting as indicated in the following paragraphs.

7.1.2 The CWP Secretary introduced the computer-compiled, precoded, prefilled questionnaire FISHSTAT NS 1 (CWP-9/11A), which FAO intends to use to collect national fish catches by species items and major fishing areas. This form contains the nominal catch statistics for the preceding six years, with space for the insertion of catches for the most recent year and for the updating of data preprinted on the form. The CWP considered this form to be suitable for the collection of statistics required for publication in the *FAO Yearbook of Fisheries Statistics*.

7.1.3 On reviewing the STATLANT A forms of the various regional agencies (CWP-9/11B), the CWP recommended (11)

that the following changes be made:

a) *STATLANT 21A: deletion of the defunct 3-digit FAO species code in column B.*

b) *STATLANT 27A: (i) deletion of the defunct 3-digit FAO species code in Column B; (ii) listing of the subareas and divisions in the column headings in numerical and alphabetical order; (iii) separate columns for divisions XIVa and XIVb.*

c) *STATLANT 34A: deletion of the defunct 3-digit FAO species code in Column B.*

d) *STATLANT 47A: (i) deletion of the defunct 3-digit FAO species code in Column B; (ii) correction of the ICSEAF species codes for two species on lines 48 and 49.*

7.1.4 On reviewing the STATLANT B forms of the various regional agencies (CWP-9/11B), the CWP recommended (12)

that the following changes be made:

a) *STATLANT 21B: (i) deletion of the defunct 3-digit FAO species code in Column B; (ii) deletion of heading in Box (i); (iii) deletion of the three numbered squares in the heading of Column D; (iv) deletion of the half-monthly entries in the headings of columns E to P; (v) addition of the reference to the appropriate Fisheries Circular on the line FISHING EFFORT MEASURES; (vi) deletion of the reference to "kilograms" and "30' × 30' unit areas" on the line NOMINAL CATCHES.*

b) *STATLANT 27B: (i) deletion of the defunct 3-digit FAO species code in Column B; (ii) standardization of the print type of the box headings; (iii) the heading in box (g) should be FAO MAJOR FISHING AREA 27.*

c) *STATLANT 34B: (i) deletion of the defunct 3-digit FAO species code in Column B; (ii) addition of the reference to the appropriate Fisheries Circular on the line FISHING EFFORT MEASURES.*

d) *STATLANT 47B: (i) deletion of the defunct 3-digit FAO species code in Column B; (ii) standardization of the print type of the box headings; (iii) the heading in box (g) should be FAO MAJOR FISHING AREA 47; (iv) correction of the ICSEAF species codes for two species on lines 59 and 60.*

7.2 Review of Notes for the Completion of STATLANT Forms

7.2.1 The CWP reviewed documents CWP-9/7A to 7G, which present the *Fisheries Circulars* covering the instructions for the completion of FISHSTAT NS 1 and STATLANT A and B forms. The CWP considered that it should be the responsibility of the secretariats of the various regional agencies for ensuring that the notes for completing their respective STATLANT forms are updated annually, where necessary, to reflect decisions taken within their organizations. Consequently, the CWP recommended (13)

that the secretariats of the various regional agencies should carefully scrutinize the forms and notes for their respective areas and advise the CWP Secretary of any amendments by 31 October of each year.

This would enable the CWP Secretary to incorporate any changes to the forms and notes in time for their dispatch to national statistical offices in January of each year. It should be recognized that failure on the part of one agency to meet this deadline could result in serious delays in the dispatch of the forms and notes of all other agencies.

7.2.2 In response to a request by Eurostat, the CWP agreed that the notes should be amended so that EEC member states would be requested to send to Eurostat photocopies of all STATLANT and FISHSTAT forms which they complete for FAO and regional fisheries agencies.

7.3 Procedures for the Distribution and Collection of STATLANT Forms

The CWP reviewed the procedures for the dispatch of the STATLANT forms and notes to national statistical offices by the CWP Secretary, and recognized that the completion of the form and their submission to the various regional agencies and to FAO depended on the significance attached to performing this task by national offices in order to meet the clearly stated deadlines for the submission of data. Except for the dispatch of frequent reminders to national offices, it was considered that little more could be done by the agencies to ensure the prompt return of completed forms. Consequently, the CWP urges all national administrations to ensure that internal procedures are established to expedite the completion and return of forms, and also to ensure the compatability of the fisheries statistics reported by them to the various inter-governmental agencies at the regional and international levels.

7.4 Improvement of the Coverage, Composition and Quality of Data

7.4.1 The CWP confirms its earlier recommendation that the regional agencies continue their close collaboration in checking the quality of the nationally reported data and the screening of revisions in time series. Where national authorities request substantial revisions to previously reported data, or report time series of data which differ significantly from data previously reported to and published by regional agencies, such requests or reports should be thoroughly investigated before the data are formally accepted and incorporated into the data bases of the regional fisheries agencies.

7.4.2 The CWP noted that the increased use of ADP systems facilitates the exchange of data through computer printouts or magnetic tapes. In this regard, the ICCAT representative requested that the CWP Secretary expeditiously provide ICCAT with photocopies or printouts of the appropriate FISHSTAT NS forms received from selected countries, relating to the species items of ISSCAAP Group 36 (Tunas).

8. STANDARD ELEMENTS FOR FISHING SHEETS AND LOGBOOKS[1]

(Agenda Item 8)

8.1 The CWP appointed a task force (D. Cross, convener, V. M. Hodder, J. Messtorff, P. Miyake, G. G. Newman, M. C. H. Wagemans) to report on the feasibility of standardizing the elements

[1] Throughout this Section 8, the word "logbook" is used in the same context as "fishing sheet".

of fishing sheets and logbooks.

8.2 With the extension of national jurisdiction, it is anticipated that increasing use will be made of logbooks in the management of fisheries. The CWP thought it useful to identify components of a logbook which are necessary for the retrieval of data essential for management purposes. No proposal for a standard logbook would be made since national considerations could greatly affect the format. In addition, different fisheries might well require different forms of logbooks. In considering the essential elements of a logsheet, the CWP studied the examples of logbooks collected in document CWP-9/11C and the ICNAF notes in CWP-9/11E.

8.3 Logbooks were recognized as having two main functions: as a tool in the enforcement of fishing regulations, and as a method of collecting primary fishery statistics. In certain circumstances, these two functions may not be reconcilable within a single format but it was believed that this generally should present no great problem.

8.4 Where universal application of logbooks is not possible, it was considered that "time away from port" should be the criterion determining the use of a logbook, and it was recommended that logbooks should be used for all vessels being away from port for more than one day. This was to be preferred to a criterion based on the size of the vessel (length or tonnage) or the type of fishery conducted (e.g. near-, middle- or distant-water). These latter terms are poorly defined and would lead to confusion. Naturally, logbooks could well be introduced for vessels making daily trips, especially where the alternative methods of collecting the basic data (e.g. by port interviews) are considered inadequate.

8.5 Recording on a haul-to-haul (set-to-set) basis was thought to be an essential requirement. Much of the basic data is already recorded by the master and the remainder would cause a minimum of extra work.

8.6 Both the retained and the discarded catch should be recorded. The breakdown of discards by species may present difficulties but this information was considered important. The unit for recording the catch should be the kilogramme.

8.7 The species should be recorded using an alpha code. With the large number of vessels moving between the ICNAF and ICES areas and the common fish species involved, it was desirable that a single code should be developed for the North Atlantic area. At the request of the CWP, the Secretariat representatives from ICNAF and ICES studied the possibility of establishing an alpha species code for this area, based on the proposed 3-alpha code developed for ICES (CWP-9/4E). The resultant 3-alpha code, including English and scientific names of the North Atlantic species is at Appendix 5. It was suggested that the CWP Secretary should prepare a multi-lingual glossary of these species for presentation to the Tenth Session of the CWP. It was noted that the species in the more southerly waters and the Mediterranean are very different, and the relatively minor movements of vessels between these areas and the North Atlantic will permit separate species codes to be established with little inconvenience.

8.8 The position of a haul (set) should be recorded as latitude and longitude (degrees and minutes). The most representative position of the haul (set) should be recorded.

8.9 The logbook should be accompanied by instructions detailing such items as the classification and coding of the fishing gear and the appropriate unit of fishing effort to be used. These should be the concepts and definitions established by the CWP.

8.10 The CWP noted that pair fishing vessels may pose a problem. A vessel may commence a trip with one partner and then continue fishing with a second partner while the first lands the joint catch. It is suggested that the logbook should record the details of catching partners and that separate pages should be used to record the fishing activity of each different pair of vessels.

8.11 The CWP considered that the following items are essential requirements for the head of each page in the logbook:

a) Vessel name
b) Vessel nationality

c) Vessel registration number
d) Trip number (where appropriate)
e) Master's name
f) Name of partner vessel (where applicable)
g) Nationality of partner vessel
h) Registration number of partner vessel
i) Type of gear (a separate page to be used for each gear)
j) Gear specifications (e.g. mesh size)
k) Port of landing (or name, nationality and registration number of vessel to which catch is trans-shipped)
l) Date of landing

8.12 The CWP considered that the following items are essential requirements for the body of the logbook page, on which data would be recorded on a haul-to-haul basis:

a) Date of haul (day, month, year)
b) Haul number (consecutive)
c) Position (latitude preceding longitude)
d) Depth of fishing gear, and depth of bottom
e) Time (start of fishing)
f) Effort (unit as specified in accompanying instructions)
g) Catch retained and discarded by species

8.13 At the end of each day, the retained and discarded catches should be totalled. Days not fishing, due to bad weather, loading, unloading, repairs, steaming, etc., should be recorded on the page in chronological order. A space should be left for the insertion of remarks, which could be used to record certain specified items (e.g. weather, sea state).

8.14 Each completed page should be signed by the master.

8.15 After consideration of the above-mentioned items, the CWP recommended (14)

that the design of logbooks should be based on the principles given in Sections 8.5 to 8.10 and should incorporate the requirements specified in Sections 8.11 to 8.14

9. PROCESSING OF CATCH AND EFFORT DATA BY THE VARIOUS REGIONAL AGENCIES

(Agenda Item 9)

9.1 Processing of Fishery Statistics by FAO

FAO is now using ADP for virtually all of its catch data, except those for whales and seals (given in numbers and not in metric tons). The catch statistics now incorporated in the computerized data base are published in (a) the "Catch and Landings" volumes of the *Yearbook of Fishery Statistics*; (b) regionally oriented summaries shown in *Fisheries Circulars*; and (c) the national summaries (FISHSTAT NS 1 and/or NS 2) used as questionnaires submitted annually to countries for revisions and additions. ADP has also been used recently to produce statistical bulletins for Major Fishing Areas 34 and 37. Manual processing techniques might continue to be used for several more years to produce tabulated statistics on fleets, fishermen, and fishery commodities (production, imports, exports, etc.). Food and feed balance (utilization accounts) for individual countries on an internationally comparable basis would be done by ADP.

9.2 Processing of Fishery Statistics by ICNAF

The CWP was informed of ADP systems development that has taken place within ICNAF, noting that nearly all of the tables in the ICNAF *Statistical Bulletin* have been reproduced directly from computer printouts since 1971. More recently, the Secretariat has acquired a remote job entry terminal which provides direct access to an IBM 370/155 computer, used for practically all of the Secretariat work, and to a CDC 6400 computer which is used infrequently for special statistical analyses. All fisheries statistical data from 1970 have now been compu-

terized and a wide variety of programmes have been developed to meet the needs of working groups and to cater for the many requests for data. The exchange of data on magnetic tapes has been in effect for the past 3 years between the Secretariat and several national offices. an ADP system for the organization and retrieval of biological data (length and age compositions and age-length keys) has been developed and should be fully operational before the end of this year. The computer facilities of the Secretariat have in recent years been used during meetings of assessment scientists to provide catch predictions based on simulation techniques.

9.3 Processing of Fishery Statistics by ICES

The CWP reviewed the ADP system development taking place within ICES. It noted that the ICES FISHDAT System is being developed in steps, with the ultimate purpose of creating a number of batch programmes to produce statistical publications and data requested by member countries, and of inter-active programmes applicable to stock assessment work with access to a comprehensive data bank of the most detailed statistical and biological data (based on monthly data broken down by statistical rectangles).

9.4 Processing of Fishery Statistics by ICCAT

The CWP noted that data processing by ICCAT is now completely automated. The ICCAT Secretariat is receiving catch and effort and biological data from national sources, and sometimes directly from fishing vessels, in various forms of magnetic tapes, written reports, field notes, etc., which are entered into the data bases developed by the Secretariat and are available for exchange. A detailed description of the data processing system and codings used is found in CWP-9/2D.

9.5 Processing of Fishery Statistics by ICSEAF

The analysis of statistical and biological data received by ICSEAF is discussed in Sections 2.5.3 and 2.5.7 of this Report.

10. COUNTRY NOMENCLATURE AND SYMBOLS IN FISHERY STATISTICAL PUBLICATIONS

(Agenda Item 10)

10.1 The CWP Secretary, referring to document CWP-9/9A, pointed out that further rapid progress is being made by ISO and the various UN agencies, in particular the Statistical Office of the United Nations, to complete and maintain an up-to-date list of country names, abbreviations, codes, etc. The CWP recommended (15)

that its Secretary should keep all participating agencies fully informed of all current developments in this field, which have an important bearing on names, abbreviations and codes, which the various agencies might wish to select for their specialized uses.

10.2 The CWP noted that the secretariats of the various participating agencies are fully aware of the advantages of using, wherever possible, standardized tabular symbols, standard footnote indicators, etc.

10.3 The CWP confirmed that the very useful list of acronyms relevant to fishery matters should be repeated as an appendix to this Report (see Appendix 4).

11. FUTURE STRUCTURE AND ACTIVITIES OF THE CWP

(Agenda Item 11)

11.1 The CWP discussed the suggestion of an extension of its membership and area of activity to cover the world's seas, in the light of the need for such a body which had been expressed by the Indo-Pacific Fisheries Council. It was pointed out that the CWP had achieved a wide measure of standardization of practices and concepts and that the basis for a world-wide

organization already existed. However, several participants felt that, if the CWP were to make such a change in its structure, the consequent diversification would overload it to the point where it could not continue to function effectively.

11.2 The CWP agreed, however, that there was a need for a world-wide coordination of agencies responsible for tuna fisheries, having regard to the very high mobility of both the fishing fleets and the resource. The CWP suggested, therefore, that a coordinating working party on tuna statistics should be set up on a world basis, noting that the achievements and experience of ICCAT would provide a valuable foundation for the new organization.

11.3 Notwithstanding the reservations of the CWP about the value of a global body, expressed in 11.1 above, it was agreed that it would be very desirable to have two-way communication between the Atlantic CWP and other relevant bodies throughout the world (i.e. existing agencies and regional CWPs which may be established). The most appropriate way to achieve this communication would be through participation by the Secretary of the Atlantic CWP in meetings of other bodies. Individual representatives of these other agencies or regional CWPs could participate in meetings of the Atlantic CWP from time to time (or vice versa) to deal with mutual problems that might arise.

11.4 It was recognized that the recommendations and advice drawn up by the CWP stood little chance of implementation by any regional agency which lacked the services of a full-time statistician. The resulting poor statistical coverage of large areas of the Atlantic was particularly significant for the tuna fisheries, and, in response to a proposal by the ICCAT representative, the CWP recommended (16)

that FAO be requested to reinforce its regional statistical activities.

11.5 The need for reorganizing the structure of the CWP was discussed. It is difficult to see precisely what the position of an inter-agency organization (such as the CWP) will be in the future, having regard to the inevitable changes in membership and functions of international commissions resulting from extensions and realignments of areas of jurisdictions. It was agreed, however, that the future role of the CWP will increase in importance, in view of the necessity to avoid the introduction of a multiplicity of different statistical practices by coastal states. Recognizing the need for restructuring within its existing geographical context into a truly inter-agency body of experts providing technical advice to the participating agencies and to national governments on request, the CWP recommended (17)

that the CWP Secretary, in consultation with FAO, ICES, ICNAF, ICSEAF, OECD and Eurostat, redraft the rules of procedure and circulate them for comment prior to approval.

11.6 The CWP noted that one coastal state had already adopted the STATLANT B form for its own management purposes, and that data are being collected according to certain standards established by the CWP. It was recognized that this reflected the usefulness of the STATLANT B form as well as the achievement of the standardization objectives of the CWP, but it was agreed that this development brought a risk of confusion. The CWP therefore suggested that, when any STATLANT format is adopted by a coastal state for collecting data in connection with its own management regime, the state should (a) clearly identify its form to avoid confusion with the STATLANT forms used by the regional agencies, and (b) inform the CWP Secretary who shall keep a register of such forms and their titles.

12. PUBLICATION AND DISTRIBUTION OF REPORT

(Agenda Item 12)

12.1 It was agreed that a final version of the Report of the Ninth Session, together with all appendices, would be prepared at the ICNAF Secretariat within two or three weeks of the closing date of the Session.

12.2 The ICNAF Secretariat will initially print a sufficient number of copies (possibly without covers) for dispatch to ICES for its 1977 Statutory Meeting, with two copies being sent to each participant at the Ninth Session. Additional copies, with an FAO-designed cover, will be printed by ICNAF for its own use and for distribution to North American requests.

12.3 FAO will subsequently print copies (with covers) in English, French and Spanish for distribution to addresses elsewhere than in North America.

12.4 All participating agencies should inform the CWP Secretary by 30 September of the number of copies that they require in English, French and Spanish.

13. TIME AND PLACE OF TENTH SESSION OF CWP

(Agenda Item 13)

13.1 In view of the recent developments in national and regional regimes relating to the management of fishery resources it was agreed that the Tenth Session of the CWP should be held not later than 1979.

13.2 The participants from ICCAT and ICSEAF extended a joint invitation to the CWP to organize its Tenth Session in Madrid at a locality to be provided by these two agencies. The CWP welcomed and expressed its appreciation for this invitation and agreed that Madrid should be selected as the site for the Tenth Session.

13.3 The CWP reviewed the time that would be required, and considered that the most convenient dates for the Tenth Session would be the period 26 June-4July 1979.

13.4 It was agreed that the CWP Secretary should, before 30 June 1978, solicit from regional agencies and others interested in the activities of the CWP comments on draft agenda items and documentation for the Tenth Session. These could then be included in a draft prospectus for circulation to possible participants in the Tenth Session early in 1979 for further comments. The final version of the prospectus for the Tenth Session should be circulated not later than 15 March 1979.

14. OTHER MATTERS

(Agenda Item 14)

14.1 The CWP noted with great interest the provisional tabulation of the statistical activities of various regional fisheries agencies prepared by ICCAT and presented in CWP-9/2D. It was agreed that this was a very useful summary of activities to November 1976, and that it should be included in the report of this Session (see Appendix 9).

14.2 The CWP Secretary and the ICCAT participant (P. Miyake) were requested to investigate the possibility of updating the material in Appendix 9 and of extending the coverage to include other fisheries agencies. It is hoped that an updated version will be available as a document for the Tenth Session.

15. CLOSE OF SESSION

(Agenda Item 15)

15.1 At the close of the Ninth Session, Mr M. C. H. Wagemans expressed, on behalf of the participants, their gratitude for the excellent services provided by the ICNAF Secretariat and for their kind hospitality.

APPENDIX 1

List of Participants[1]

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[1] Including observers

APPENDIX 2

Agenda: Ninth Session of the CWP

1. Procedural Matters

   1.1 Opening of session
   1.2 Election of officers
   1.3 Adoption of agenda
   1.4 Appointment of rapporteurs
   1.5 Documentation

2. Agency Programmes and Publications Presenting Atlantic Fishery Statistics

   2.1 FAO statistical programme and publications
   2.2 ICNAF statistical programme and publications
   2.3 ICES statistical programme and publications
   2.4 ICCAT statistical programme and publications
   2.5 ICSEAF statistical programme and publications
   2.6 Eurostat statistical programme and publications
   2.7 The STATLANT programme under the aegis of the CWP

3. Classification and Codification of Fishing Areas of the Atlantic and Adjacent Seas

   3.1 Consolidation of existing material, including maps of each of the major fishing areas in the Atlantic
   3.2 Development of an Atlantic-wide system, within a world framework, of a codification of areas (including small rectangles) for ADP processing of catch and effort data

4. Classification and Statistical Categories Reflecting Species, Genera, Families and Groups, for the World in General and the Atlantic in Particular

   4.1 Improvements needed in the FAO classification of statistical categories reflecting recommendations of regional bodies
   4.2 A review of the FAO classification and its possible modification for particular regions
   4.3 Consideration of a worldwide codification of statistical categories for use in an ADP system

5. Definitions of Basic Concepts Pertaining to "Nominal Catches", "Landings" and "Discards"

   5.1 Basic concepts pertaining to "Nominal Catches" and "Landings"
   5.2 Statistics on recreational fishing
   5.3 Catch statistics by principal species for regions according to major types of gear
   5.4 Conversion factors
   5.5 Discards

6. Standard Concepts, Definitions and Classifications in the Field of Fishing Fleet and Fishing Effort Statistics

   6.1 Standard concepts, definitions and classifications for fishing fleet statistics
   6.2 Standard concepts, definitions and classifications for fishing effort statistics

7. STATLANT Forms and Notes for their Completion

   7.1 Review of forms used in the STATLANT system
   7.2 Review of notes for the completion of STATLANT forms
   7.3 Procedures for the distribution and collection of STATLANT forms
   7.4 Improvement of the coverage, composition and quality of data

8. Standard Elements for Fishing Sheets and Logbooks

9. Processing of Catch and Effort Data by the Various Regional Agencies

10. Country Nomenclature and Symbols in Fishery Statistical Publications

    10.1 Standardization of country nomenclature and country codification
    10.2 Standardization of symbols, definitions, and standard footnotes

11. Future Structure and Activities of the CWP

12. Publication and Distribution of Report

13. Time and Place of Tenth Session of the CWP

14. Other Matters

15. Close of Session

APPENDIX 3

List of Documents

Doc. No.	Title
CWP-9/1A	Prospectus
1B	General Information for Participants Attending the Ninth Session of the CWP
1C	Information on Distribution of Documents and on Participants
2A	Report on FAO Statistical Programme and Publications in General and Specifically for the Atlantic and for the GFCM, CARPAS, CECAF and WECAFC
2B	Report on ICNAF Statistical Programme, Publications and ADP Processing
2C	Report on ICES Statistical Programme, Publications and ADP Processing
2D	Report on ICCAT Fishery Statistical Programme, Publications and ADP Processing
2E	Report on ICSEAF Statistical Programme, Publications and ADP Processing
2F	*Document not issued*
2G	Report on the Eurostat Fishery Statistical Programme, Publications and ADP Processing
3A	World Chart: Major Fishing Areas for Statistical Purposes (FAO Fish. Circ. 420 Rev.2)
3B	Northwest Atlantic (Major Fishing Area 21): Description of Major Fishing Area for Statistical Purposes (FAO Fish. Circ. 430)
3C	Northeast Atlantic (Major Fishing Area 27): Description of Major Fishing Area for Statistical Purposes (FAO Fish. Circ. 440 Rev.2)
3D	Western Central Atlantic (Major Fishing Area 31): Description of Major Fishing Area for Statistical Purposes (FAO Fish. Circ. 450)
3E	Eastern Central Atlantic (Major Fishing Area 34): Description of Major Fishing Area for Statistical Purposes (FAO Fish. Circ. 460 Rev.1)
3F	Mediterranean and Black Sea (Major Fishing Area 37): Description of Major Fishing Area for Statistical Purposes (FAO Fish. Circ. 470 Rev.3)
3G	Southwest Atlantic (Major Fishing Area 41): Description of Major Fishing Area for Statistical Purposes (FAO Fish. Circ. 480 Rev.1)
3H	Southeast Atlantic (Major Fishing Area 47): Description of Major Fishing Area for Statistical Purposes (FAO Fish. Circ. 490 Rev.2)
3I	Western and Eastern Indian Ocean (Major Fishing Area 51 and 57): Description of Major Fishing Areas for Statistical Purposes (FAO Fish. Circ. 520 and 530)
3J	Notes on an International Standard Classification of Fishing Areas for Statistical Purposes
3K	ICES Statistical Rectangle Coding (ICES C.M. 1977/Gen:3)
4A	FAO Yearbook of Fishery Statistics: List of Aquatic Animal and Plant Species Items (Statistical Categories) Arranged by ISSCAAP Groups (FAO Fish. Circ. 421 Rev.4)

Doc. No.	Title
CWP-9/4B	Northwest Atlantic Species Items: Statistics for Major Fishing Area 21
4C	Northeast Atlantic Species Items: Statistics for Major Fishing Area 27
4D	Southeast Atlantic Species Items: Statistics for Major Fishing Area 47
4E	ICES Notes on a Three-Alpha Code for Species Items
5A	"Nominal Catches" and "Landings" Definitions and Notes (FAO Fish. Circ. 428)
5B	ICNAF Notes Concerning Statistics on Discards
5C	Notes on Conversion Factors in the Southeast Atlantic Catch Statistics
5D	Diagrammatic Presentation of FAO "Catch" and "Landings" Concepts
5E	Notes on Discards in Shrimp Fisheries
5F	Conversion Factor for Lumpfish (*Cyclopterus lumpus*) from Roe to Whole Fish at West Greenland (ICNAF Res. Doc. 76/VI/94)
6A	Notes on International Classifications and Definitions used in Fishing Fleet, Fishing Gear, Fishing Effort and Fishermen Statistics (FAO Fish. Circ 429 Rev.2)
6B	OECD Notes on Fishing Fleet Statistics
6C	ICES Notes on Fishing Fleet Statistics
6D	ICNAF Notes and Tabulations on Fishing Vessels for the Northwest Atlantic (FAO Fish. Circ. 429 Rev.2)
6E	IMCO Notes and Statistical Tables on World Fishing Fleets
6F	Report of the Joint Technical Sessions on Methods for Measuring Fishing Effort (ICES C.M. 1976/B:9)
6G	Comments by ICES Gear and Behaviour Committee on Fishing Effort Measures, 1976
6H	Proposed Eurostat Questionnaire for Fishing Fleet Statistics
6I	Effort Measures for Gillnet Fisheries
7A	Notes for the Completion of Form STATLANT NS "National Summary: Annual Nominal Catch Statistics by Species and Fishing Areas" (FAO Fish. Circ. 422 Rev.2)
7B	Notes for the Completion of Forms STATLANT 21A and 21B (FAO Fish. Circ. 432 and 433 Rev.1)
7C	Notes for the Completion of Forms STATLANT 27A and 27B (FAO Fish. Circ. 442 Rev.1 and 443 Rev.1)
7D	Notes for the Completion of Forms STATLANT 34A and 34B (FAO Fish. Circ. 462 Rev.1 and 463 Rev.1)
7E	Notes for the Completion of Forms STATLANT 37A (FAO Fish. Circ. 472 Rev.1)
7F	Notes for the Completion of Forms STATLANT 41A (FAO Fish. Circ. 482 Rev.1)
7G	Notes for the Completion of Forms STATLANT 47A and 47B (FAO Fish. Circ. 492 Rev.1 and 493 Rev.1)

Doc. No.	Title
CWP-9/ 7H	Notes for the Completion of Forms FISHSTAT 51A and 57A (FAO Fish. Circ. 522 Rev.1 and 532 Rev.1)
9A	Country Names and Codes for Fishery Statistical Purposes (FAO Fish. Circ. 426 Rev.5)
10A	Report of the Sixth Session Coordinating Working Party on Atlantic Fishery Statistics Copenhagen, Denmark, 3-7 February 1969 (FAO Fish. Report No. 70)
10B	Report of the Seventh Session Coordinating Working Party on Atlantic Fishery Statistics Rome, Italy, 10-16 November 1971 (FAO Fish. Report No. 121)
10C	Report of the Eighth Session Coordinating Working Party on Atlantic Fishery Statistics Paris, France, 12-20 September 1974 (FAO Fish. Report No. 156)
10D	Report of the Fourth Session of the IPFC/IOFC Joint Working Party of Experts on Indian Ocean and Western Pacific Fishery Statistics Colombo, Sri Lanka, 25-28 October 1976 (FAO Fish. Report No. 189)
10E	Report of EUROSTAT Working Group on Fishery Statistics Luxembourg, 13-14 July 1977
11A	Sample of Statistical Form "FISHSTAT NS 1"
11B	Examples of Forms STATLANT A and B for Major Fishing Areas 21, 27, 34, 37, 41 and 47
11C	Samples of Logbooks used in the Atlantic
11D	Classification of a Fishing into Subsectors for Statistical Purpose
11E	Notes on Development of Standard Logbook Format in ICNAF

APPENDIX 4

List of Acronyms

CWP	Coordinating Working Party on Atlantic Fishery Statistics (formerly known as the "Continuing Working Party on Fishery Statistics in the North Atlantic Area")
STATLANT	(previously STANA) Statistical Programme for Atlantic Fisheries
ACC:SCSA	Administration Committee on Coordination - Sub-Committee on Statistical Activities (UN)
ACMRR	Advisory Committee on Marine Resources Research (FAO)
BIWS	Bureau of International Whaling Statistics
CARPAS	Regional Fisheries Advisory Commission for the Southwest Atlantic
CECAF	FAO Fishery Committee for the Eastern Central Atlantic
CICAR	Cooperative Investigations of the Caribbean and Adjacent Regions
CIFA	Committee for Inland Fisheries of Africa (FAO)
COFI	Committee on Fisheries (FAO)
EIFAC	European Inland Fisheries Advisory Commission
Eurostat	Statistical Office of the European Communities
FAO	Food and Agriculture Organization of the United Nations
FIPS(FAO)	Fishery Statistics Unit, Department of Fisheries, FAO
GFCM	General Fisheries Council for the Mediterranean
IAFMM	International Association of Fish Meal Manufacturers
IASI	Inter-American Statistical Institute
IATTC	Inter-American Tropical Tuna Commission
IBRD	*See World Bank below*
IBSFC	International Baltic Sea Fishery Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
ICNAF	International Commission for the Northwest Atlantic Fisheries
ICSEAF	International Commission for the Southeast Atlantic Fisheries
ICSEM	International Commission for the Scientific Exploration of the Mediterranean Sea
ICSPRO	Inter-Secretariat Committee on Scientific Programmes Relating to Oceanography
ICSU	International Council of Scientific Unions
ILO	International Labour Office

IMCO	Intergovernmental Maritime Consultative Organization
INPFC	International North Pacific Fisheries Commission
IOC	Intergovernmental Oceanographic Commission
IOFC	Indian Ocean Fishery Commission
IPFC	Indo-Pacific Fisheries Council
IPHC	International Pacific Halibut Commission
IPSFC	International Pacific Salmon Fisheries Commission
ISO	International Standards Organization
ISSCAAP	FAO International Standard Statistical Classification of Aquatic Animals and Plants
ISSCFG	FAO International Standard Statistical Classification of Fishing Gear
ISSCFV	FAO International Standard Statistical Classification of Fishing Vessels
IWC	International Whaling Commission
MCBSF	Mixed Commission for Black Sea Fisheries
NEAFC	North-East Atlantic Fisheries Commission
NPFSC	North Pacific Fur Seal Commission
OECD	Organisation for Economic Cooperation and Development
SAC(ICSEAF)	Scientific Advisory Council, ICSEAF
SCAR	Scientific Committee on Antarctic Research
SEAFDEC	Southeast Asian Fisheries Development Centre
SPC	South Pacific Commission
SPPC	Permanent Commission for the Conference on Use and Conservation of Marine Resources of the South Pacific
STACREM(ICNAF)	Standing Committee on Regulatory Measures, ICNAF
STACRES(ICNAF)	Standing Committee on Research and Statistics, ICNAF
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
Unesco	United Nations Educational, Scientific and Cultural Organization
UNSO	United Nations Statistical Office
WECAFC	Western Central Atlantic Fisheries Commission
World Bank	Previously known as IBRD - International Bank for Reconstruction and Development

APPENDIX 5

3-Alpha Code for Various North Atlantic Species Items

ICES	ICNAF	COMMON NAME	SCIENTIFIC NAME
ALB	ALB	ALBACORE	THUNNUS ALALUNGA
-	ALE	ALEWIFE	ALOSA PSEUDOHARENGUS
-	PLA	AMERICAN PLAICE	HIPPOGLOSSOIDES PLATESSOIDES
ANG	ANG	ANGLER (MONKFISH)	LOPHIUS SP.
ARG	ARG	ARGENTINES	ARGENTINA SP.
BON	BON	ATLANTIC BONITO	SARDA SARDA
-	BUT	ATLANTIC BUTTERFISH	PEPRILUS TRIACANTHUS
COD	COD	ATLANTIC COD	GADUS MORHUA
HAL	HAL	ATLANTIC HALIBUT	HIPPOGLOSSUS HIPPOGLOSSUS
HER	HER	ATLANTIC HERRING	CLUPEA HARENGUS
MAC	MAC	ATLANTIC MACKEREL	SCOMBER SCOMBRUS
-	MEN	ATLANTIC MENHADEN	BREVOORTIA TYRANNUS
RED	RED	ATLANTIC REDFISH	SEBASTES SP.
SAL	SAL	ATLANTIC SALMON	SALMO SALAR
-	SAU	ATLANTIC SAURY	SCOMBERESOX SAURUS
-	SRA	ATLANTIC SEAROBINS	PRIONOTUS SP.
-	BSB	BLACK SEABASS	CENTROPRISTIS STRIATA
WHB	-	BLUE WHITING (POUTASSOU)	MICROMESISTIUS POUTASSOU
BLF	BLF	BLUEFIN TUNA	THUNNUS THYNNUS
-	BLU	BLUEFISH	POMATOMUS SALTATRIX
BLL	-	BRILL	SCOPHTHALMUS RHOMBUS
CAP	CAP	CAPELIN	MALLOTUS VILLOSUS
CAT	CAT	CATFISHES (WOLFFISHES)	ANARHICHAS SP.
-	CHR	CHARS (NS)	SALVELINUS SP.
SOL	-	COMMON SOLE	SOLEA SOLEA
COE	COE	CONGER EEL	CONGER SP.
USK	USK	CUSK (TUSK)	BROSME BROSME
DAB	-	DAB (COMMON)	LIMANDA LIMANDA
DGH	DGH	DOGFISHES (NS)	SQUALIDAE
PLE	-	EUROPEAN PLAICE	PLEURONECTES PLATESSA
FLE	-	FLOUNDER (EUROPEAN)	PLATICHTHYS FLESUS
FLX	FLX	FLOUNDERS (NS)	PLEURONECTIFORMES
FRF	-	FRESHWATER FISHES	...
GAR	-	GARFISH	BELONE BELONE
-	GRC	GREENLAND COD	GADUS OGAC
GHL	GHL	GREENLAND HALIBUT	REINHARDTIUS HIPPOGLOSSOIDES
	GRO	GROUNDFISH (NS)	...
GUR	-	GURNARDS	TRIGLIDAE
HAD	HAD	HADDOCK	MELANOGRAMMUS AEGLEFINUS
HKE	-	HAKE (EUROPEAN)	MERLUCCIUS MERLUCCIUS
HOM	-	HORSE MACKEREL	TRACHURUS TRACHURUS
LEM	-	LEMON SOLE	MICROSTOMUS KITT
LIN	LIN	LING	MOLVA MOLVA
MEG	-	MEGRIM	LEPIDORHOMBUS WHIF
MUL	MUL	MULLETS	MUGILIDAE
NOP	-	NORWAY POUT	TRISOPTERUS ESMARKII
-	OPT	OCEAN POUT	MACROZOARCES AMERICANUS
-	PEL	PELAGIC FISH (NS)	...
PIL	-	PILCHARD	SARDINA PILCHARDUS
POC	POC	POLAR COD	BOREOGADUS SAIDA
POL	-	POLLACK	POLLACHIUS POLLACHIUS
POK	POK	POLLOCK (SAITHE)	POLLACHIUS VIRENS
-	POR	PORBEAGLE	LAMNA NASUS
-	HKR	RED HAKE	UROPHYCIS CHUSS
EEL	EEL	RIVER EEL	ANGUILLA SP.
-	RNG	ROUNDNOSE GRENADIER	MACROURUS RUPESTRIS
SAN	SAN	SANDEELS	AMMODYTES SP.
-	SCU	SCULPINS	MYOXOCEPLALUS SP.
-	SCP	SCUP	STENOTOMUS CHRYSOPS
SBM	-	SEA BREAMS	SPARIDAE
SHD	SHD	SHADS	ALOSA SP.

ICES	ICNAF	COMMON NAME	SCIENTIFIC NAME
-	SHA	SHARKS (NS)	SQUALIFORMES
-	HKS	SILVER HAKE	MERLUCCIUS BILINEARIS
SKA	SKA	SKATES AND RAYS	RAJA SP.
-	SKJ	SKIPJACK TUNA	KATSUWONUS PELAMIS
SME	SME	SMELTS	OSMERUS SP.
DGS	DGS	SPINY (PICKED) DOGFISH	SQUALUS ACANTHIAS
-	SPT	SPOT	LEIOSTOMUS XANTHURUS
SPR	-	SPRAT	SPRATTUS SPRATTUS
-	STB	STRIPED BASS	MORONE SAXATILIS
STU	STU	STURGEONS	ACIPENSERIDAE
-	FLS	SUMMER FLOUNDER	PARALICHTHYS DENTATUS
-	SWO	SWORDFISH	XIPHIAS GLADIUS
-	TIL	TILEFISH	LOPHOLATILUS CHAMAELEONTICEPS
-	TRO	TROUTS (NS)	SALMO SP.
STR	-	TROUTS AND CHARS	...
-	TUN	TUNAS (NS)	SCOMBRIDAE
TUR	-	TURBOT	PSETTA MAXIMA
-	HKW	WHITE HAKE	UROPHYCIS TENUIS
WHG	-	WHITING	MERLANGIUS MERLANGUS
-	FLW	WINTER FLOUNDER	PSEUDOPLEURONECTES AMERICANUS
WIT	WIT	WITCH FLOUNDER	GLYPTOCEPHALUS CYNOGLOSSUS
-	YEF	YELLOWFIN TUNA	THUNNUS ALBACARES
-	YEL	YELLOWTAIL FLOUNDER	LIMANDA FERRUGINEA
VMS	-	VAR. MACKEREL-LIKE SCOMBRIFORMS	...
VCL	-	VARIOUS CLUPEOIDS	...
VDP	-	VARIOUS DEMERSAL PERCOMORPHS	...
VDF	-	VARIOUS DIADROMOUS FISHES	...
VFF	VFF	VARIOUS FINFISHES (NS)	...
VGF	-	VARIOUS GADIFORMS	...
VCF	-	VARIOUS NON-TELEOST FISHES	...
VPP	-	VARIOUS PELAGIC PERCOMORPHS	...
VTS	-	VARIOUS TUNA-LIKE SCOMBRIFORMS	...
MUS	MUS	BLUE MUSSEL	MYTILUS EDULIS
-	CLA	CLAMS (NS)	...
COC	-	COCKLE (COMMON)	CARDIUM EDULE
-	CRA	CRABS (NS)	...
CRN	-	CRANGONID SHRIMP	CRANGON SP.
CTL	-	CUTTLEFISHES	SEPIA AND SEPIOLA SPP.
CRB	-	EDIBLE CRAB	CANCER PAGURUS
SCE	-	ESCALLOP	PECTEN MAXIMUS
LOB	LOB	LOBSTER	HOMARUS SP.
PRA	PRA	NORTHERN DEEPWATER PRAWN	PANDALUS BOREALIS
NEP	-	NORWAY LOBSTER	NEPHROPS NORVEGICUS
OCT	-	OCTUPUSES (POULPS)	POULPES SP.
OYC	OYC	OYSTER (CRASSOSTREA)	CRASSOSTREA SP.
OYF	-	OYSTER (FLAT)	OSTREA EDULIS
PAL	-	PALAEMONID SHRIMP	PALAEMON SP.
PAN	PAN	PANDALID SHRIMP (PINK SHRIMPS)	PANDALUS SP.
PEN	-	PENAEID SHRIMP	PENAEUS SP.
PER	PER	PERIWINKLES	LITTORINA SP.
QSC	-	QUEEN SCALLOP	CHLAMYS OPERCULARIS
-	SCA	SEA SCALLOP	PLACOPECTEN MAGELLANICUS
URC	URC	SEA URCHINS	STRONGYLOCENTROTUS SP.
CRW	-	SPINY LOBSTERS (CRAWFISH)	PALINURUS SP.
-	SQL	SQUID, LONG-FINNED (LOLIGO)	LOLIGO PEALEI
-	SQI	SQUID, SHORT-FINNED (ILLEX)	ILLEX ILLECEBROSUS
SQU	SQU	SQUIDS (NS)	...
STF	-	STARFISHES	ASTEROIDEA
WHE	-	WHELK	BUCCINUM UNDATUM
ECH	-	VARIOUS ECHINODERMS	...
CRU	CRU	VARIOUS MARINE CRUSTACEANS	...
INV	INV	VARIOUS MARINE INVERTEBRATES	...
MOL	MOL	VARIOUS MARINE MOLLUSCS	...

APPENDIX 6

International Standard Statistical Classification of Fishing Vessels (ISSCFV) by GRT categories

DIVISION				GROUPS		
Division code	Lower limit GRT	Upper limit[1] GRT		Group code	Lower limit GRT	Upper limit[1] GRT
01	0	0.9	=	010	0	0.9
02	1	24.9	{	021	1	4.9
				022	5	9.9
				023	10	14.9
				024	15	19.9
				025	20	24.9
03	25	49.9	=	030	25	49.9
04	50	99.9	=	040	50	99.9
05	100	149.9	=	050	100	149.9
06	150	249.9	{	061	150	199.9
				062	200	249.9
07	250	499.9	{	071	250	299.9
				072	300	349.9
				073	350	399.9
				074	400	449.9
				075	450	499.9
08	500	999.9	{	081	500	599.9
				082	600	699.9
				083	700	799.9
				084	800	899.9
				085	900	999.9
09	1 000	1 999.9	=	090	1 000	1 999.9
10	2 000	3 999.9	{	101	2 000	2 999.9
				102	3 000	3 999.9
11	4 000	9 999.9	{	111	4 000	4 999.9
				112	5 000	5 999.9
				113	6 000	6 999.9
				114	7 000	7 999.9
				115	8 000	8 999.9
				116	9 000	9 999.9
12	10 000	99 999.9	{	121	10 000	19 999.9
				122	20 000	29 999.9
				123	30 000	39 999.9
				124	40 000	49 999.9
				125	50 000	99 999.9

[1] ".9" is understood to be recurring

APPENDIX 7

International Standard Statistical Classification of Fishing Vessels by HP Categories

Division code	Lower limit[1] HP	Upper limit[1] HP
01	1	29.9
02	30	99.9
03	100	199.9
04	200	499.9
05	500	799.9
06	750	999.9
07	1 000	1 499.9
08	1 500	1 999.9
09	2 000	2 999.9
10	3 000	4 999.9
11	5 000	and above

[1] ".9" is understood to be recurring

APPENDIX 8

Fishing Effort Measures by Gear Categories

Level of priority	Fishing gear	*Effort measure descriptors*	Definition
A. FIRST	Surrounding nets (purse seines)	*No. of sets*	Number of times the gear has been set or shot, whether or not a catch was made. This measure is appropriate when school size and packing density is related to stock abundance or sets are made in a random manner.
		or	
		Searching time	This represents time on the grounds less time spent shooting net and retrieving the catch as well as time hove to. This measure is complicated by the use of aircraft sporting as well as by the dissemination of information from vessel to vessel. The measure is appropriate when school size and packing density is unrelated to stock abundance and a set is only made when a school has been located.
	Beach seines	*No. of sets*	Number of times the gear has been set or shot, whether or not a catch was made.
	Boat seines (Danish seine, etc.)	*No. of hours fished*	Number of hours during which the seine was on the bottom and fishing.
	Trawls	*No. of hours fished*	Number of hours during which the trawl was in the water (midwater trawl), or on the bottom (bottom trawl), and fishing.
	Boat dredges	*No. of hours fished*	Number of hours during which the dredge was on the bottom and fishing.
	Gillnets (set or drift)	*No. of effort units*	Length of nets expressed in 100-metre units multiplied by the number of sets made (= accumulated total length in metres of nets used in a given time period divided by 100).
	Gillnets (fixed)	*No. of effort units*	Length of net expressed in 100-metre units multiplied by the number of times the net was cleared.
	Traps (uncovered pound nets)	*No. of effort units*	Number of days fished times the number of units hauled.
	Covered pots and fyke nets	*No. of effort units*	Number of lifts times the number of units (= total number of units fished in a given time period).
	Longlines (set or drift)	*Thousands of hooks*	Number of hooks fished in a given time period divided by 1000.
	Handlines (pole, troll, jig, etc.)	*No. of line-days*	Total number of lines used in the given time period.
	Harpoons	-	(Report effort levels B and C only).
B. SECOND	All gears	*No. of days fished*	The number of days (24-hour periods, reckoned from midnight to midnight) on which any fishing took place. For those fisheries in which searching is a substantial part of the fishing operation, days in which searching but no fishing took place should be included in "days fished" data.

Level of priority	Fishing gear	*Effort measure descriptors*	Definition
C. THIRD	All gears	*No. of days on grounds*	The number of days (24-hour periods, reckoned from midnight to midnight, in which the vessel was on the fishing ground, and includes in addition to the days fishing and searching also all the other days while the vessel was on the ground.
D. FOURTH	All gears	*No. of days absent from port*	The number of days absent from port on any one trip should include the day the fishing craft sailed but not the day of landing. Where it is known that fishing took place on each day of the trip the number of "days absent from port" should include not only the day of departure but also the day of arrival back in port. Where on any trip a fishing craft visits more than one "fishing area" (as defined for statistical purposes) an appropriate fraction of the total number of days absent from port should be allocated to each "fishing area" in proportion to the number of days spent in each, so that the total number of days absent on the trip will be the sum of the number of days allocated to all of the different "fishing areas" visited.
E. FIFTH	All gears	*No. of trips made*	Any voyage during which fishing took place in only one "fishing area" is to be counted as one trip. When in a single trip a craft visits more than one "fishing area" an appropriate fraction of the trip should be apportioned to each "fishing area" in proportion to the number of days spent fishing in each, so that the total number of trips for the Statistical Area as a whole will be the same as the sum of trips to each "fishing area".

APPENDIX 9

Table of Statistical and Sampling Schemes of Various International Fisheries Organizations (as in November 1976)

	ICCAT	IATTC	ICNAF	ICSEAF	IPHC	IPSFC	ICES
1 No. of member countries	15	8	18	13	2	2	18
2 Official language(s)	E/F/S	E/S	E	E/F/S	E	E	E/F
3 Budget (US $)	293,000	789,950	370,000	175,500	770,000	...	534,500
4 Total number of staff	9	35	14	6	21	55	18
5 No. of scientists working in statistics and sampling	1 + 1*	3	2	1	5	2	1
6 No. of technicians working in statistics and sampling	2 + 5*	7	5	3	3 + 15*	3 + 1	2
7 Convention area	All Atlantic + Med. Sea	Eastern Pacific	Northwest Atlantic	Southeast Atlantic	N Pacific and Bering Sea	Fraser R and adj. Pacific	Northeast Atlantic
8 Convention species	All tuna and tuna-like species	Tropical tuna and baitfish	All finfish and invert. (+ seals)	All living resources, (ex. tunas and whales)	Pacific halibut	Two species of Pacific salmon	All living resources
9 a) Catch statistics collect	Nat. off. + Comm. staff	Commission staff	National offices	National offices	Commission staff	National offices	National offices
b) Biological data collect	Nat. off. + Comm. staff	Commission staff	National offices	National offices	Commission staff	Commission staff	National offices
10 In practice, who makes data analyses?	National scientists (SCRS)	Commission staff	National scientists (STACRES)	National scientists (SAC)	Commission staff	Commission staff	Nat. scientists (Assess. Work. Groups)
11 Who originates recommendations for population management?	National scientists	Commission staff	National scientists	National scientists	Commission staff	Commission staff	Nat. scientists and ICES Liaison Cmtee
12 Nominal catch							
a) Data collection							
1) Weight unit	Live round (MT)	Round (lbs)	Live round (MT)	Live round (MT)	Head-off gutted (lbs)	Round or dressed (lbs)	Live round (MT)
2) Area unit	6 areas in Atlantic	...	35 divisions of NW Atlant.	Subareas	...	15 areas for Fraser R and adjacent sea	25 areas of NE Atlantic
3) Time unit	Annual	Annual and weekly	Yearly, sel. Spec. monthly	Yearly	By trip, month	Yearly	Yearly, sel. Spec. monthly
4) Adequacy	95-100%	Annual 100% Weekly 80%	95-100%	95%	Nearly 100%	100%	100%
5) Time lag	4-7 months	Instant	4-6 months	5-14 months	1-5 months	1-8 weeks	8 months
b) Archive at Headquarters	Computerized	Computerized	Computerized	Computerized	Computerized	...	Computerized
c) Publication of data							
1) Weight unit	Live round (MT)	Round (lbs)	Live round (MT)	Live round (MT)	Data not published until analyzed by staff	...	Live round (MT)
2) Area unit	6 areas in Atlantic	...	35 divisions of NW Atlant.	Divisions		...	25 areas of NE Atlantic
3) Time unit	Annual	1)Annual 2)Bimonthly	Annual and monthly	Month		...	Annual and monthly
4) Adequacy	100%	80-100%	95-100%	95%		...	100%
5) Time lag	9 months	1)7 months 2)1 month	10-12 months	14 months	6 months	...	12 months
6) Title	Statistical Bulletin	1)Ann. Report 2)Bimonthly Report	Statistical Bulletin	Statistical Bulletin	Annual Report	...	Bulletin Statistique
7) Type of printing	Offset of computer printout	Typeset printing	Offset of computer printout	Photocopy	...	...	Offset of (a) computer typeset (b) typescript
13 Catch and effort statistics							
a) Collection of data							
1) Unit	MT/days fished; No./1000 hooks, etc.	ST/days fished (standardized)	MT/hours fished, days fished, days on ground	MT/hours fished, days fished, days on ground	Lbs head-off gutted; No. of effort units/ day fished	Lbs round or dressed; No. of boats	MT/hours fished, days fished, etc., for 58 selected species

* Temporary

	ICCAT	IATTC	ICNAF	ICSEAF	IPHC	IPSFC	ICES
2) Area unit	1° × 1° or 5° × 5° area	1° × 1° area	34 divisions of NW Atlant.	Subdivisions	60 miles square	15 Stat. areas for Fraser R. and adj. seas	25 fishing areas of NE Atlantic (30' × 60' stat. rectangles)
3) Time Unit	Month, qtr.	Day	Month	Year	Trip, month	Year	Month
4) Adequacy	40-70%	80%	80%	20-25%	50-100%	100%	...
5) Time lag	2-9 months	Instant	6-8 months	5-14 months	1-5 months	...	12 months
b) Archive system at HQ	Partly by computer; mostly as documents	Computerized	Computerized	Computerized	Computerized	...	Partly computerized
c) Publications							
1) Unit	As a(1) above	Raw data are not published. Analyses are published with summary data	As a(1) above	As a(1) above	Raw data are not published. Summary data are published with analyses	Only summary data published	As a(1) above
2) Area unit	As a (2) above		As a(2) above	As a(2) above			25 fishing areas of NE Atlantic
3) Time unit	Month, qtr.		Month	Month			Month
4) Adequacy	40-70%		80%	...			...
5) Time lag	7-12 months		12 months	14 months			12 months
6) Title	Data record or national publications	Bulletins	Statistical Bulletin	Statistical Bulletin	Scientific Reports	Annual Report	Bulletin Statistique
7) Type of printing	Offset	Printing	Offset of computer printout	Photocopy			Offset of typescript
14 Biological data							
a) Collection of data							
1) Unit	FL or LDl to cm; weighting to catch requested	FL to mm; data grouped later	1)% freq. of TL or FL (cm) 2)Actual no. in length/age key (cm)	1)Length freq. 2)Length/age distribution (weighted)	FL measured; ageing by otoliths	FL in mm; wt in ounces; ageing by scales	Actual length frequencies in cm
2) Area unit	1° × 1° to 10° × 20° or gen. areas	14 areas in E Pacific	34 divisions in NW Atlant.	Divisions	...	25 areas for conv. waters and spawning grounds	25 areas of NE Atlantic and 30' × 30' rect.
3) Time unit	Month and quarter	Month	1)Month 2)Quarter	1)Month 2)Year, qtr.	Month	Day and week	Month and quarter
4) Adequacy	40-60%	All major fisheries	For regulated species, (1)= 70% and (2)=50%	Inadequate	...	Adequate for major fish. and spawning stocks	...
5) Minimum standard	Under study 30-50 fish/sample; 10 samples per time/area stratum	50 fish per sample	200 fish/samp 1 sample/1000 MT/division/quarter/gear	Varies according to member states	200 fish/landing at major ports; every 3rd landing over 5000 lb, and every 10th landing of 1000-5000 lb	115 samples/day for PS; 120 samples/day for gillnets	200 fish/1000 MT landed (since 1973)
6) Time lag	2-12 months	Instant	8 months	8-15 months	1-5 months	...	...
b) Archive system at HQ	Partly computerized, most in doc. files	Computerized (cards and magnetic tape)	Computerized (cards and magnetic tape)	Computerized	Computerized	...	Partly computerized
c) Publications							
1) Unit	FL or LDl	Raw data not published; summaries are published with analyses	Data not published since 1973 but available to scientists on request. Only listing of available data published	See a(1)above	Raw data are not published; only summaries of data published with analyses	Data are not published	Summary of sampling program by each country is presented at Annual Meeting
2) Area unit	1° × 1° 5° × 5° 10° × 20°			Divisions			
3) Time unit	Month and quarter			Various			
4) Adequacy	40-60%						
5) Time lag	6-16 months		10 months	15 months			
6) Title	Data Record or national publications	Bulletins	Sampling Yearbook	Sampling Bulletin	Scientific Report		
7) Type of printing	Offset	Printing	Offset of typescript	Photocopy	...		

APPENDIX 10

List of Recommendations