INTERNATIONAL COMMISSION FOR  THE NORTHWEST ATLANTIC FISHERIES

REDBOOK 1962 PART I

STANDING COMMITTEE ON RESEARCH AND STATISTICS

PROCEEDINGS FROM THE

1962

ANNUAL MEETING

Chairman: R.J.H.Beverton. Rapporteur: B.B.Parrish

From Serial Number 1030

NOTE: Following a decision by the Commission in its 1962 Annual Meeting this year's Redbook includes in addition to the Proceedings of the Standing Committee on Research and Statistics and Selected Papers from the 1962 Annual Meeting also the Research Reports for the year 1961 (the research reports up to and including the year 1960 are published in the Annual Proceedings Vols. 3-11).
Summaries of Researches hitherto included in the Redbook will now appear in the Annual Proceedings.
Due to this great increase in the volume to be included, the 1962 Redbook appears in 3 parts:

PART I	Proceedings of the Standing Committee on Research and Statistics
PART II	Reports on Researches in the ICNAF Area in 1961
PART III	Selected Papers from the 1962 Annual Meeting

Erik M. Poulsen,
Executive Secretary.

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Chairman's Introduction

Scientific advance usually proceeds in spurts, interspersed with phases of consolidation and reorientation during which new ideas and techniques have to be developed before fresh progress can be made. The work of the Assessment Group, which in broad terms is concerned with measuring, interpreting and predicting man's influence on the abundance of the fish stocks and the success of fishing operations, is now passing through such a phase. The intensive studies undertaken in 1960 and 1961 utilised all the available information up to 1958, with the main purpose of assessing the effects of mesh size. Now the Group is focussing its attention on what is in many respects the more difficult problem of assessing the effects of changes in the amount and distribution of fishing effort.

These kinds of assessments, even in the simplest of situations, make greater demands on both techniques and data than do mesh assessments; but in addition, in many of the ICNAF fisheries, the pattern of exploitation is changing rapidly. Redfish catches, for example, have declined from the exceptionally high levels of recent years, and there has been a shift of emphasis back to cod and haddock, but not in the same pattern as before. The main centres of cod fishing have shifted northwards in Subarea 3 and extended further into the Labrador grounds of Subarea 2 than ever before, and there is a growing tendency for fleets to switch their attack from one size of fish to another and even from one species to another, year by year. There are also signs of the increasing importance of species other than the traditional cod, haddock and redfish, and of new methods of processing and utilising the catches. All these developments present a new challenge to the scientists concerned with assessment, both in terms of the collection of data as well as in its interpretation, and it is unavoidable that some little time may elapse before the changing nature of the ICNAF fisheries can be sufficiently well documented and understood to enable comprehensive assessments of the effects of fishing to be put before the Commission.

Meanwhile, plans are going ahead vigorously to tackle at an international level the complementary problem of the influence of natural causes on the abundance and distribution of fish stocks and on the success of fishing operations. Since last year's meeting, plans for the international environmental survey in Greenland waters have, under the able guidance of Dr. C.E.Lucas, reached an advanced stage, and it is most encouraging to see so many member countries (nine vessels from seven countries are promised) contributing to the survey. It is now becoming accepted that many of the really dramatic changes in abundance of fish stocks which have occurred must be attributed, in the main at least, to natural causes, but we are still far from being able properly to identify the underlying mechanisms and even further from being able to predict future changes of these kinds. What does seem likely, however, is that we often have to deal with systems of such complexity that only by means of a co-ordinated international research effort are their secrets likely to be revealed, and herein lies perhaps the special significance of the ICNAF plans in this field.

Fundamental to both these lines of research, and especially to assessments, is the third main task of the Committee, that of collecting, processing and disseminating the statistical and biological data of the ICNAF fisheries. This does not catch the limilight in the same way as do the first two, but nearly every meeting raises new

and important questions on which decisions are required, and this year has been no exception. Thus the changing nature of the ICNAF fisheries impinges first of all on the requirements of statistical and biological data, and in the reports of the Statistical and Sampling Subcommittees will be found a number of recommendations aimed at improving the effectiveness of the ICNAF statistical and sampling publications and enabling them to keep pace with recent developments in the fisheries. This work, together with that of the Subcommittees concerned with gear selectivity, ageing techniques and tagging, continues to form the basis on which depends the scientific advisory service of the Committee to the Commission.

My introductory remarks would not be complete without recording a special appreciation of the services of two people who have for a number of years contributed a great deal to the work of the Committee. One is Dr. W. R. Martin, who is relinquishing his guidance of the Statistical Subcommittee; Dr. Martin has taken a special interest in this important work from the start of the Commission, and the present high standard of ICNAF statistics is largely due to his efforts. The other is our Executive Secretary, Dr. E. M. Poulsen, who is retiring at the end of the year after ten years of service with the Commission. The task of the Executive Secretary of ICNAF is especially exacting because in addition to administrative duties it includes the editing of the various scientific and technical ICNAF publications and acting as co-ordinator of research work among member countries between annual meetings. Dr. Poulsen has himself made many notable contributions to the scientific work of the Commission, and in my year of office I have received invaluable help and advice from him on many aspects of the work of the Committee. I am sure I am expressing the feelingsof all my colleagues, past and present, on the Research and Statistics Committee in wishing Dr. Poulsen every happiness and success when he returns to research work in his native Denmark.

I. GENERAL AND ADMINISTRATIVE

1. Form of Report

In compiling the 1962 Report of the Committee on Research and Statistics (in the following referred to as RSC) the same general procedure is followed as last year. Parts I and II give an outline of the main activities and decisions of the Committee and its various subcommittees much as they were reported in the first instance verbally by the Chairman to the Commissioners and later in writing to the final Plenary Session. For brevity, actual recommendations are not reported verbatim in Parts I and II but are all contained in Part III in the reports of subcommittees; the latter, apart from minor editorial corrections, are as approved by the full Committee, so that the recommendations therein are effectively those of the RSC itself.

2. Organisation (App. I; 1 and 2)

(a) In order to integrate better the work of the RSC with that of the Scientific Advisers to Panels, it was decided to refer all matters requiring direct reporting to the Commission, in whichever Subarea they arose, to one or other of the specialist

subcommittees of the RSC, and to aim to complete this part of the programme by Friday of the first week. It was arranged for Scientific Advisers to Panels to meet on the Saturday of the first week to prepare and agree (i) summaries of research carried out by countries (ii) summaries of the conclusions and recommendations of the RSC and its specialist subcommittees relevant to the Panel in question.

(b) To provide the necessary continuity of work and leadership, the RSC resolved to keep in being during the coming year and for the 1963 Annual Meeting four of its main specialist subcommittees, namely:

Assessments and Sampling
Statistics
Environmental Studies
Gear and Selectivity

It further resolved to appoint, at this meeting, a Chairman for each of these subcommittees to hold office during the coming year and at the 1963 Annual Meeting.

3. Publications (App. I; 3,4,5 and 6)

(a) The Committee were unanimous in the view that there was now an urgent need for ICNAF to have its own publication in which the results of scientific work of direct importance to the Commission could be published. A recommendation to this effect was put before the Commission and plans were made for editorial arrangements. The proposed title of the new publication is "The Research Bulletin of ICNAF", and its cost is estimated roughly at $5,000 per annum.

(b) As it is now impossible, for various reasons, to publish the collected contributions to the 1957 Lisbon symposium as they stand, the RSC recommended:

(i) That the papers on selectivity be published in ICNAF Special Publications No. 2, Vol. 2, which was set aside at the time for this purpose. The estimated cost is $5,000 - $6,000 for the financial year 1962/63.

(ii) That the papers on fishing effort and population dynamics, some of which may be in need of substantial revision, should be returned to authors with the invitation to submit, if they so wish, revised versions for publication in the early numbers of the "ICNAF Research Bulletin", subject to the approval of the editorial board.

(c) Proposals were also made concerning the content and presentation of Reports of Researches submitted annually by countries, among these being that lengthy tables and data which will in due course appear in other ICNAF publications (e.g. the Statistical Bulletin and Sampling Yearbook) should be kept to the minimum, and

that the results of particular investigations should, as far as possible, be reported as Meeting Documents.

4. Co-ordination with other International Organisations

(a) Mr. R.J.H. Beverton was nominated to represent the RSC at the 1962 Annual Meeting of ICES.

(b) The RSC noted that the programme for the International Selectivity Experiment at Iceland being sponsored this summer by ICES includes basic studies on problems of selectivity which are of equal interest to both ICES and ICNAF, and also provides a unique opportunity for comparing the selective action of trawls as used by vessels on both sides of the Atlantic.

(c) Reference is made in paragraph 7 (e) to the possible representation of the Commission at future meetings concerned with fisheries oceanography.

5. Officers for 1962/63

(a) In accordance with the recommendation from the Action Committee (para. 2(b) and App. I, B), the following were nominated to serve as chairmen of the four subcommittees which will continue in existence during the coming year and at the 1963 Annual Meeting:

Assessments and Sampling	- Dr. L.M. Dickie
Statistics	- Mr. R. Hennemuth
Environmental Studies	- Dr. C.E. Lucas
Gear and Selectivity	- Dr. W.F. Templeman

(b) Nominations to the Action Committee for 1963 are:

France, Portugal, Spain and Italy	- Dr. J. Ancellin
Iceland, Norway and U.S.S.R.	- Mr. E. Bratberg
Denmark, Germany and U.K.	- Dr. C.E. Lucas
Canada	- Dr. W.R. Martin
U.S.A.	- Dr. H. Graham

(c) Mr. R.J.H. Beverton was re-elected chairman of the Committee on Research and Statistics for the ensuing year.

II. REVIEW OF SCIENTIFIC WORK

6. Assessments (Apps. II and III)

Following the two years of intensive study by the Assessment Group in 1960 and 1961, during which virtually all the available data up to 1958 were utilised, the past year has been one primarily of consolidation and reorientation. The main questions considered by the Assessment Subcommittee at this meeting were:

(a) Effect of mesh size in fisheries for species other than cod and haddock, particularly those for redfish, in Subareas 3, 4 and 5. Advice on this was specifically requested by the Commission at its 1961 Annual Meeting, and the findings of the Assessment Subcommittee are set out in Appendix II.

(b) Review of events in the ICNAF fisheries since 1958 with special reference to the mesh assessments given in the 1961 Assessment Report.

(c) Development of more refined techniques for calculating transitional mesh effects during each year following a mesh change and until the new equilibrium is reached.

(d) Assessment of effects of changes in fishing effort. This is the most important single problem which the Assessment Subcommittee are tackling, but owing to the rapidly changing nature of many of the ICNAF fisheries no comprehensive assessments are yet possible.

(e) Plans for future work. These were given careful attention and are set out in Appendix II.

The Commission, at its 1961 Annual Meeting, also asked for advice on the fishery for sea scallops in Subarea 5. A separate Working Group was set up to consider this, but owing to the lack of sufficiently precise selectivity data was unable to offer firm advice at this stage (see App. III).

The Committee on Research and Statistics approved a recommendation from the Assessment Subcommittee that the latter should meet for four days in advance of the 1963 Annual Meeting, and urged member countries and FAO to make provision for their representatives to attend so that this work, which is of fundamental importance to the Commission, may proceed effectively.

7. Environmental Studies (App. IV)

(a) Owing to various difficulties experienced in continuing with the original plans to hold the Environmental Symposium in connection with the 1963 Annual Meeting, the Research and Statistics Committee agreed after lengthy discussion to accept the suggestion of the FAO representative that a request be made to FAO for facilities to hold the Symposium in Rome in 1964 (provisional dates, January 27th - February 1st).

(b) With this postponement of the Environmental Symposium until January, 1964, two items of expenditure for which approval was sought at the 1961 Annual Meeting (Ann. Proc. 1961, Part 2, para. 14. b) will now be deferred for one year. These are:

(i) Payment of the subsistence and travel expenses for the chairman or any of the conveners or special lecturers required for the Symposium whose Governments are unable to meet the cost. A maximum estimate is $4,000 dollars, for the financial year 1963/64.

(ii) Cost of publishing the contributions to and proceedings of the Symposium, which will now fall in the financial year 1964/65.

(c) Plans for an international Environmental Survey in Subarea 1 and adjacent waters in 1963 are well advanced. It is expected that seven countries will participate.

(d) ICNAF have been informed of a number of important resolutions from the last IOC meeting concerning the organisation and co-ordination of oceanographic research. The Research and Statistics Committee resolved to keep the IOC informed of its plans for Environmental Research and, in return, to request IOC to keep ICNAF informed in advance of any proposals for oceanographic research, particularly those with fisheries objectives covering or overlapping the ICNAF area. A draft letter to IOC covering these and other points was prepared and circulated for approval (App.IV).

(e) The Research and Statistics Committee was pleased to note that FAO is taking steps to convene a meeting in consultation with national and intergovernmental bodies in accordance with the ICNAF resolution of 1961 (Ann. Proc. 1961, Part 2, para. 19). If it is appropriate for ICNAF to nominate a representative to such a meeting, the Research and Statistics Committee wish to recommend that the Commission ask Dr. C.E. Lucas to be that representative.

8. Statistics (App. V)

To accomplish its tasks, the Statistics Subcommittee set up several Working Groups whose reports are contained in Appendix V. The main points arising are as follows:

(a) Discards

There has been an encouraging increase in the amount of discard information submitted by member countries. A new discard reporting form has been devised, on which provision is also made for reporting the quantities of fish utilised for industrial purposes.

(b) Statistical Bulletin

(i) Several recommendations are put forward for rearranging the Statistical Bulletin, involving a reduction in the number of tables from nine to five and the provision of more complete summary tables (see App. V for the detailed recommendations). It was agreed that the order of species at present adopted in the Statistical Bulletin is the most convenient for ICNAF.

(ii) Concern is again expressed that the Statistical Bulletin is not available for two years following the completion of a year's fishing. It is recommended that when complete statistics cannot be submitted by the May 1st deadline a summary and, if necessary, preliminary estimated statistics by species (and, if possible, by division) should be reported by this date.

(c) Fishing power

Plans have been made to continue and extend the fishing power studies at present being conducted by several member countries and by FAO. It is recommended that a list of vessels for 1962 should be published using the same format as the 1959 list.

(d) Reporting of Statistics

It was not possible at the present meeting to reach a definite conclusion as to whether ICNAF should adopt the joint reporting scheme for fishery statistics recommended at the FAO/ICNAF/ICES/ESTANA meeting at Edinburgh in 1959. It is recommended that a detailed evaluation of the merits and demerits of the scheme as it affects ICNAF should be undertaken by the ESTANA Continuing Working Party and reported to the Research and Statistics Committee at the 1963 Annual Meeting.

The ICNAF Secretariat were asked to prepare Table 3 of the Statistical Bulletin in two forms, (a) with the present species order and (b) with the FAO species order, so that the Committee could assess the relative merits of the two at their next meeting.

A number of recommendations were put forward concerning improvements in the details of the ICNAF reporting forms (see App. V).

9. Sampling (App. VI)

Comprehensive length and age-composition data are vital as the basis for assessing the effects of fishing on the stocks and for advising the Commission on matters concerning fishery regulation. The growing volume of sampling data, while most welcome, is such that the Sampling Yearbook for 1961, with its present layout, will run to three volumes. The Assessment Subcommittee was therefore asked, as a matter of urgency, to advise how the contents of the Sampling Yearbook could be condensed without loss of essential information.

The Subcommittee put forward a number of recommendations for condensing the Yearbook, together with the recommendations that age-length keys should be deposited with the Secretariat and be made available in mimeographed form to Working Groups and individuals on request. By these means it is expected that the Sampling Yearbook can be kept to a single volume, at least for the time being.

The detailed recommendations and proposals are set out in Appendix VI.

10. Gear and Selectivity (App. VII)

Of the matters considered by the Subcommittee on Gear and Selectivity, three are of immediate interest to the Commission, namely:

(a) Mesh Gauges

"It was agreed to adopt as standard for research purposes in the ICNAF area the new precision mesh gauge adopted by ICES at its 1961 meeting, known as the "ICES Mesh Gauge". The Committee agreed that some experience of the use of this gauge by ICNAF research workers is needed before advising the Commission on its suitability for purposes other than research. "

(b) Chafing Gear

No new advice is offered, beyond noting that both the ICNAF chafer and and the "multiple-flap" type chafer, if properly fitted, are reasonably effective in permitting the escapement of small fish.

(c) Redfish Selectivity

It has been known for some time that cod-end selectivity for redfish tends to be reduced with heavy catches, but for the most part these have not been encountered in experimental work. However, by analysis of all existing data it is hoped during the coming year to establish a general relation between selectivity and catch size which enables better estimates to be made of redfish selectivity in the northern part of the Convention area (see also App. II (a)).

Other matters considered by the Subcommittee include plans for improving and extending the compilation of selectivity data for summary form and of data on weight, length and girth of cod and other species.

11. Tagging (App. VIII)

(a) The report of and contributions to the 1961 Marking Symposium have been edited and sent to the printers. There were a number of appreciations on the value of the Symposium and of the important part that the published proceedings will play in the development of tagging within the ICNAF area.

(b) In order to improve the efficiency of tagging experiments, plans have been made to circulate among member countries through the Secretariat summaries of all releases of tagged fish in the ICNAF area and adjacent waters.

12. Ageing Techniques (App. IX)

(a) At the 1961 Annual Meeting approval was given to hold an Ageing Techniques Workshop in Bergen in the autumn of 1962. Detailed plans for this Workshop, to be convened by Mr. Rollefsen with assistance from a rapporteur and conveners,

have been drawn up at the present meeting. The Workshop is scheduled for November, 1962, to last for one full week.

(b) The tasks set for the Workshop to examine are basically those agreed last year, but with special emphasis on the age-determination of cod in Subareas 3 and 4 where there exist serious discrepancies between the age readings of certain countries.

(c) The Research and Statistics Committee recommends that the Commission urges all countries concerned to send to the Workshop those actually engaged in age-determination work.

III. APPENDICES

REPORTS OF SUBCOMMITTEES AND WORKING GROUPS

APPENDIX I - RECOMMENDATIONS FROM ACTION COMMITTEE

1. ORGANISATION OF WORK OF RESEARCH AND STATISTICS COMMITTEE AND SCIENTIFIC ADVISERS

Owing to the growing difficulties in providing sufficient time for meetings of both the RSC and its Subcommittees on the one hand and the Scientific Advisers to Panels on the other, and to the need for closer integration of the work of the Scientific Advisers and that of the Committee, the following arrangements regarding meetings were agreed:

(a) Provision should be made for all scientific problems of importance both to the Commission and to Panels to be considered during the meetings of the RSC or one or other of its Subcommittees.

(b) That the Reports to Panels from Scientific Advisers should consist of:

(i) surveys of research carried out in each Subarea, prepared and circulated in advance by the Chairman of Advisers on the basis of the Research Reports and other relevant Documents;

(ii) those conclusions and recommendations of the RSC relevant to the problems and fisheries of the Panel in question.

(c) That the RSC should aim to complete its programme of work on Friday of the first week, and that Scientific Advisers should meet on the Saturday to finalize their Reports to Panels.

12. App. I. Action Comm.

2. STATUS OF SUBCOMMITTEES

It is recommended that, in order to achieve continuity in the programmes of work of the RSC from one Annual Meeting to the next, and also to enable work planned for the intervening year to be more effectively co-ordinated, the Statistics, Gear and Selectivity, Assessments, and Environmental Studies Subcommittees shall continue in existence during the coming year and at the 1963 Annual Meeting.

For the same reasons, it is also recommended that the Chairmen of these four Subcommittees be appointed at this Meeting for the ensuing year.

3. PROPOSAL FOR NEW ICNAF SCIENTIFIC JOURNAL

The need for an ICNAF series devoted to the publication of scientific papers has been discussed at several previous Meetings. The Action Committee believes that the increased scientific research in the ICNAF area and the consequent increase in the number of scientific documents at Annual Meetings makes further consideration of the introduction of a new journal, in which the results of this work can be published, a matter of urgency. It is therefore recommended that the following proposals should be put before the Commission:

(a) that ICNAF should initiate a new publication to be called "The Research Bulletin of ICNAF";

(b) that the main purpose of the journal should be for the publication of the results of research carried out in the ICNAF area. It is expected that most of the papers published in the new journal would be selected from texts presented at Annual Meetings, but other papers, either concerning the ICNAF area or outside it, would be accepted, if their contents were of importance to the work of the Commission;

(c) that the editor of the Research Bulletin should be the Executive Secretary, assisted by one or more technical consultants. Editorial policy would be determined, at least for the time being, by the Action Committee who, together with the Executive Secretary, would constitute the editorial board.

As a rough estimate, it is expected that the annual cost of the Research Bulletin would be approximately $5,000.

4. PUBLICATION OF THE LISBON PAPERS

The Action Committee draws the attention of the RSC to the fact that the publication by FAO of the contributions to the joint ICES/ICNAF/FAO workshop in Lisbon in connection with the 1957 Annual Meeting is now impossible. The question therefore arises as to what should be done about the publication of these papers, and it is recommended:

(a) that the papers on effort and population dynamics, many of which, though of real scientific value, may now be in need of substantial revision after this long lapse of time, should be returned to authors or laboratories. These papers would be accompanied by an invitation to authors to submit, if they so wish, revised versions for publication in the early numbers of the "Research Bulletin", at the discretion of the editorial board;

(b) that the papers on selectivity, which consist largely of basic factual material and require little revision, should be published in ICNAF Special Proceedings, No. 2, Vol. 2, which was set aside at the time for the publication of the Lisbon papers.

It is estimated that the cost of this publication would be $5,000 - $6,000.

5. RESEARCH REPORTS

The Action Committee has given some consideration to the form and presentation of Reports of researches conducted by countries, taking into account the decision of the RSC as to the functions of the Committee and of the Scientific Advisers to Panels.

For the guidance of member countries, it is recommended that the two main functions of Research Reports should be:

(a) to record the various types of research projects and surveys taken in the area during the year, with a brief description of any results which may have emerged;

(b) to give a brief resume and, where pertinent, an appraisal of the main events and developments in the fisheries during the year, with special reference to the exploitation of new resources and the extension of the fisheries to new areas.

It is recognized that supporting evidence may be needed for such reports in the form of both tabular and graphical material, but it is recommended that lengthy tables and data which will in due course appear in other publications, e.g. Statistical Bulletin and Sampling Yearbook, should be omitted where possible from the Research Reports proper.

It is recommended that the reporting of particular studies, concerning both fish and environment would be more appropriate as special Meeting Documents for the attention of the RSC.

It is recommended that the publication in the Redbook of the "Summaries of Researches" by the Chairman of the Panel Advisers should be discontinued.

6. SUMMARIES OF MEETING DOCUMENTS

It is recommended that, in order to assist participants, all reports of scientific investigations, or other similar documents of length exceeding 2 pages submitted to Annual Meetings (but excluding Research Reports), should be prefaced by short summaries giving the principal results and conclusions.

7. PUBLICATIONS IN THE REDBOOK

It is recommended that the following documents be published in the Redbook of the 1962 Annual Meeting:-

12, 14, 24, 40, 15, 16, 20, 21, 22, 19, 23, 61, 25, 28, 37, 38, 39, 44, 48, 59, 79.	Research Reports of Member Countries
17, 29 to 31, 46, 47, 49, 58, 62, 63, 64, 65, 70, 78.	Other Meeting Documents

Several of these documents in their original form are fairly lengthy. Accordingly, having regard to the shortage of funds for publication, the Executive Secretary is asked to shorten them where possible in consultation with the authors.

APPENDIX II - REPORT OF THE ASSESSMENTS SUBCOMMITTEE

Participants: Dickie (Chairman), Hennemuth, Hodder, Holt, Horsted, Marty, Montiero, Paloheimo, Parrish, Beverton, and others.

1. Specific requests for advice arising from the 1961 Annual Meeting

The Commission sought guidance at its 1961 Annual Meeting on four specific questions, listed under Items 12 and 13 of the Agenda for the Plenary Sessions of the present meeting. The Assessments Subcommittee considered these and reported as follows:

(a) ITEM 12.a. Estimates of immediate loss for redfish in Divisions 3NOP have been made for mesh sizes between 3 and 4 inches at intervals of 1/4 inch, and are as follows:

Increase of mesh size from 3 in. to:	Immediate loss, as % of 1958 landings
3 1/4 in.	-3
3 1/2	-9
3 3/4	-18
4	-31

These figures are based on the selectivity values for redfish used in our earlier report, which from present information are appropriate to the 3NOP area. It must be emphasized, however, that there is evidence to show that the selective action of nets in commercial redfish fisheries, where especially heavy catches are obtained, may be substantially lower than is implied by the figures used, so that some of our estimates of immediate loss may be too high. While this is probably true only in redfish fisheries in the northern part of the Convention Area, e.g. in Divisions 3 KLM and Subareas 1 and 2, a re-examination of information for all divisions is being taken up as a matter of urgency.

(b) ITEM 12.b. No information has yet become available on which new assessments can be made for the effect of mesh size in Subarea 4 on species other than cod, haddock and flounders. In particular, no revision of the assessments for Subarea 4 redfish given in the 1961 Assessment Report is called for at this stage.

(c) ITEM 12.c. Provisional assessments have been made for silver hake in Subarea 5, which show that increase of mesh size from the present 2 3/4 inches

up to about 4 inches would result in substantial immediate losses but probably in long-term gains.

(d) ITEM 13.a. (See also App. III). There are indications that increase in the youngest age of shucking in the scallop fishery of Subarea 5 may result in appreciable long-term gains. Owing to the lack of sufficiently precise selectivity data, detailed assessments cannot be offered at this stage, but arrangements have been made to pool and analyse the existing data during the coming year and to plan further experiments if need be.

2. Revision of 1961 Mesh Assessments

The increased fishing effort in some of the ICNAF fisheries has, in certain stocks (e.g. 4T-4V cod), resulted in a continued reduction in the proportion of larger fish in the catches since 1958, but the picture is further complicated by changes in the distribution of fishing. Having reviewed the new data available it is concluded that they do not yet warrant any revisions of substance being made to the mesh assessments given in the 1961 report.

3. Assessment of transitional effects

Hitherto, it has been possible to assess quantitatively the immediate effect of increasing the size of mesh only in terms of the relative loss of catch at the moment the larger mesh is introduced, although it has frequently been stated that from then onwards, even during the first year, catches would progressively recover until the new equilibrium is reached. During the past year, however, Messrs. Gulland and Cadima have developed an extension of the Gulland method of mesh assessment from which the effect on catches during each of the transitional years after the mesh change can be calculated. So far, only some trial calculations have been made, but in the particular examples used (cod and silver hake) it appeared that annual losses disppeared after about three years, and that cumulative losses were balanced by cumulative gains after a further two to three years.

4. Assessment of effect of changes in fishing effort

Two examples of the effect of changes in fishing effort were given in the 1961 Assessment Report, for cod in Subarea 1 and haddock in Subarea 5; in both these cases it appeared that, if the pattern of fishing were to remain unchanged, further increases in effort would be unlikely to cause any substantial increase in long-term landings, and might even reduce them. Since that time the fishing effort on cod has increased in most areas, and especially in Subareas 2 and 3, but here there have also been major shifts in the distribution of fishing which make it impossible at this juncture to put forward any reliable assessments for these Subareas.

5. Plans for future assessment work

The work planned for the coming year falls under three main headings:

(i) Review of mesh assessments under present conditions, including in particular a reassessment of the earlier estimates of immediate loss in the redfish fisheries of the northern part of the Convention Area in the light of revised redfish selectivity estimates.

(ii) Extension to a wider range of fisheries of the calculations of transitional changes during the years following a mesh change.

(iii) Assessment of effort changes. As explained above, this important problem presents special difficulties at the present time owing to the rapidly changing nature of many of the ICNAF fisheries. To interpret these requires further extensions of the theory of fishing which take account of fishing tactics in relation to changes in the abundance and size composition of the stocks, and more detailed information of fishing operations. These questions are being taken up for all Subareas by the members of the Assessment Group concerned, and a detailed pilot study on the cod fisheries of Subarea 4, where these complications are particularly evident, will be undertaken by Portugal and Canada.

It is hoped to report further at the 1963 Annual Meeting on items (i) and (ii) above, but assessment of effort changes is essentially a basic research problem in which progress is governed both by the availability of suitable data and by the rate at which new theoretical techniques can be developed. The question, in all its aspects, is nevertheless being given top priority by the Assessment Subcommittee and the Commission will be informed as soon as any reliable advice can be given.

6. Meeting requirements for the coming year

For the forthcoming year it is not thought necessary to have a mid-year meeting of the Assessment Subcommittee, but it is recommended that the Assessment Subcommittee should meet for four days immediately before the 1963 Annual Meeting, and that the Commission should urge member countries to make provision for their representatives on the Subcommittee to attend. The present composition of the Assessment Subcommittee is as follows: Dickie (Chairman), Beverton, Cadima, Gulland, Hennemuth, Hodder, Holt, Horsted, Marty, Monteiro, Paloheimo, Parrish.

APPENDIX III - WORKING GROUP ON SEA SCALLOPS

Participants: Graham (Convener), Hennemuth, Dickie, Holt, Birkett, Sprules

The Working Group met on May 29th from 2:15 p.m. to 5:00 p.m. It considered Documents Nos. 18, 56, and 73, and reached the following conclusions:-

(a) In the Georges Bank sea scallop fishery, delaying shucking[1] by one year of life would increase the yield per recruit by 10 to 20 per cent.

(b) Use of a four-inch ring in the scallop dredge would reduce the cull of scallops under 100 mm (the present cull point) by 20%, compared with the three-inch ring now used and without reducing the catch of marketable sizes.

(c) To obtain a delay in the age of first capture, which would increase the shucking age by one year would require a ring size of considerably more than four inches.

(d) Selectivity experiments conducted by Canada and the United States indicate that the effect of linkage[2] on selection is not great.

(e) Analysis of selection data so far made has not been adequate for the construction of selection curves.

The Working Group recommends that:-

(a) further analysis of all available selectivity data should be conducted having in mind particularly the design of further selectivity experiments. It would be helpful if the selection curve of the reference ring size were known;

(b) additional information on fishing effort and relative abundance should be sought from log records of Canadian vessels, already on file;

(c) Canadian and United States biologists should confer during the year regarding the further analysis of data to determine whether further experiments might prove fruitful and, if so, Canada and the United States should design such experiments, and plan to carry them out.

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1 "Shucking" refers to the practice of removing the adducter muscle from the shellfish. Undersized shellfish are returned to the sea probably with low mortality.

2 "Linkage" refers to the links which connect the rings in the dredge.

APPENDIX IV - ENVIRONMENTAL STUDIES SUBCOMMITTEE

Every member country present was represented at the sessions of the Subcommittee, under the Chairmanship of Dr. C. E. Lucas.

1. Plans for an Environmental Survey in Subarea 1 and adjacent waters (See also Annex I)

It is recommended that:

(a) an Environmental Survey in relation to (i) cod eggs and larvae and (ii) redfish larvae be carried out in Subarea 1 and the adjacent waters to the east and south in April-July, 1963, on the basis of the plans outlined in Annex 1;

(b) a Committee be set up under the leadership of Mr. A.J. Lee to co-ordinate the activities of the various participating research vessels: membership of the Committee to be on a national or laboratory basis, with each country informing Mr. Lee of the name(s) of its member(s);

(c) this co-ordinating Committee should meet at the time of the 1962 ICES meeting in Copenhagen in order to decide final details of the survey and of the working-up of the data collected, each country bearing the expense incurred in sending its member(s) to this meeting;

(d) the Commission should aim to publish the results of the survey within about two years after its completion;

(e) France should be informed of the plan for the survey and be invited to participate, both in the survey proper and with the organization of observations from Weather Station A;

(f) ICES should be informed by the Chairman of the Subcommittee that the survey is to take place.

2. Discussion of Environmental Work in the ICNAF Area in 1961-2

(a) ERIKA DAN Survey: The Subcommittee noted with appreciation that Mr. L.V. Worthington of the Woods Hole Oceanographic Institution had offered to make available to ICNAF scientists the station cards relating to the data collected during his recent ERIKA DAN expedition to the Labrador Sea and Davis Strait. It is recommended that:

(i) Mr. Worthington should be asked to provide a chart showing the positions of the stations worked, and to send his data to the ICES data centre and the National Oceanographic Data Centre, Washington, as soon as it is processed;

(ii) this chart should be circulated to ICNAF scientists concerned with the survey with a note saying where the data are to be lodged.

(b) National Research Reports: The Subcommittee studied with interest the national Research Reports for 1961 and wishes to draw the Commission's attention to the rapidly increasing amount of environmental work being carried out in the ICNAF area. Among the interesting features of this work, the evidence for a warming of the waters of the Davis Strait since 1960 and for a warming of the Labrador Current leaving the strait in 1961 is particularly noteworthy.

(c) Continuous Plankton Recorder Programme: The Subcommittee noted with interest the papers giving some of the results obtained from the Continuous Plankton Recorder programme run by the S.M.B.A. Oceanographic Laboratory, Edinburgh (with assistance from Iceland, Canada and the U.S.A.) and commended the plans to extend this programme in the ICNAF area.

(d) Exchange of scientists: The Subcommittee also noted with interest that Mr. McIntyre of the Marine Laboratory, Aberdeen, has been invited to work for two months at the United States Fish and Wildlife Service's Woods Hole Laboratory, carrying out benthos studies in collaboration with Mr. Wigley, and it welcomes this implementation of its earlier recommendation that scientists should be interchanged between laboratories in different member countries.

3. Collection and exchange of hydrographic data

The Subcommittee noted that the collection and exchange of hydrographic data, etc. was proceeding as planned and that the Intergovernmental Oceanographic Commission is to hold a working group on data centres in August, 1962, at which ICES, NODC (Washington) and World Data Centre B will be represented. As the ICNAF system for collecting and exchanging hydrographical data depends on these organizations, and as the deliberations of the IOC working group might affect this system, it is recommended that NODC be asked to supply ICNAF with an account of the recommendations of the IOC working group as soon as possible.

4. Consideration of Document 9: Summary of Resolutions Passed at the First Session of the Intergovernmental Oceanographic Commission

The Subcommittee considered Document 9 and recommends that -

(a) a reply be sent to IOC along the following lines:

"ICNAF appreciates the courtesy of IOC in drawing their attention to the resolutions passed during its First Session in Paris, relating to programmes of intergovernmental and non-governmental organizations. In return, ICNAF wishes to convey

its good wishes to IOC in the important work on which it is engaged and in which ICNAF is inevitably interested. Some of these resolutions are very relevant to the work of ICNAF and, in reply, the Commission has resolved as follows:

IOC RESOLUTION 1: Convinced of the considerable identity of interests of the two Commissions, in their concern with the further understanding of oceanic processes, ICNAF desires to co-operate with IOC to the maximum extent that its essential concern with the well-being of the fisheries will permit. ICNAF accordingly notes the invitation extended by IOC to provide advice on the development of international programmes in oceanography, and hopes to take advantage of it.

IOC RESOLUTIONS 3 and 10A: ICNAF, which some time ago appointed a working group to plan an extensive international oceanographic survey, willingly responds to the IOC request for information on its regional programmes and, in the accompanying document, conveys to the Secretariat of IOC advance information on the international survey planned for the waters extending from the west coast of Iceland round Greenland to Labrador and Newfoundland, in the first place during the spring of 1963.
In so doing, ICNAF wishes to draw the attention of IOC to the extensive programme of environmental research planned for the Commission's area (chart attached) during its meeting in 1961, set out on pages 61-97 of the accompanying copy of the Report of the ICNAF Standing Committee on Research and Statistics. This covers a range of biological and physical marine investigations, several of which have already begun. In particular it includes proposals for the study of water movements, etc., in direct relation to the production and drift of eggs and larvae of commercial fish spawned on the edge of the continental shelf, as is characteristic of most of the ICNAF fisheries. The survey planned for 1963 in the waters around Greenland is the first of these major collaborative studies in fisheries oceanography, details of which are set out in the accompanying document (Annex I of Report of Environmental Subcommittee, 1962 Annual Meeting).
In return, ICNAF would greatly appreciate opportunities to see in advance any proposals for oceanographic research covering or overlapping the ICNAF Area. In particular, they would appreciate an opportunity to advise upon any such programmes which are designed wholly or in part with fisheries objectives.

IOC RESOLUTION 7: The attention of IOC is drawn to the routine records taken with Continuous Plankton Recorders, by the Edinburgh Oceanographic Laboratory in Scotland, along routes extending from the North Sea to the western Atlantic, including several within the ICNAF Area.

IOC RESOLUTION 9: ICNAF has for some time had a modest hydrographic programme, but it was in anticipation of more elaborate investigations that, in 1961, the Commission also made more formal arrangements for the exchange of hydrographic data (Report of the ICNAF Standing Committee on Research and Statistics, pages 80-82 and 86), through the National Oceanographic Data Centre in Washington (North American Laboratories) and that of ICES (European Laboratories and Woods Hole Oceanographic

Institution). Data from laboratories of the U.S.S.R. are also filed with Data Centre B in Moscow. By these means the data filed are available to scientists of every member country and many others.

IOC RESOLUTIONS 10B and 11: Finally, ICNAF notes with appreciation the concern of IOC with creating an international pool of scientific equipment, as also their request to SCOR regarding standardization and inter-calibration, and considers that satisfactory progress in these directions could be of benefit to all ".

This reply should be accompanied by a brief statement, outlining the ICNAF proposals for research in Subarea 1 and adjacent waters, and including an explanation of the essentially "fisheries environmental" nature of the investigations. These notes might suitably be prepared by the Co-ordinator of the survey.

(b) the Subcommittee was pleased to note that FAO is taking steps to convene a meeting in consultation with national and intergovernmental bodies in accordance with the ICNAF resolution of 1961 (Ann. Proc. 1961, Part 2, para. 19). If it is appropriate for ICNAF to nominate a representative to such a meeting, the Subcommittee wishes to recommend that the Commission ask Dr. C. E. Lucas to be that representative.

5. Plans for an Environmental Symposium (see also Annex II)

Plans to hold the Symposium in 1963, as proposed, have been proceeding energetically. Eight Conveners and four special lecturers have accepted invitations and plans for six of the eight sections of the Symposium are well advanced. So far 54 papers have been promised and nine more are probably to be available. Of these, 44 are from Europe and 19 from North America; others will doubtless be commissioned. While there are no definite plans available for the remaining two sections, it was considered that the plans as a whole were reasonably directed towards the agreed objectives.

It was decided to recommend that:

(a) the Chairman be empowered -

(i) to make any necessary adjustments regarding these two sections, and

(ii) to include an additional section concerning the objectives of fisheries environmental research if circumstances permitted;

(b) the Commissioners be urged to make efforts within their countries to allow as many contributors as possible to attend.

Discussion about the time and place of the Symposium revealed that there were difficulties in adhering to the original plan to hold the Symposium in Halifax at the time of the ICNAF meeting in 1963. The Subcommittee could not reach a decision about an alternative time and place, but at a subsequent plenary meeting of the Committee on Research and Statistics it was agreed to accept the suggestion of the FAO representative that a request be made to FAO for facilities to hold the Symposium in Rome early in 1964 (provisional dates, January 27th - February 1st).

The Committee approved a scheme for the preparation, discussion and publication of papers. This is given as Annex II. It was decided to recommend:-

(a) that funds be made available for the publication of contributions to the Symposium, including any reviews, etc., that may be subsequently thought worthy of publication;

(b) payment of subsistence and travel expenses for the Chairman or any of the Conveners or special lecturers required for the Symposium whose Governments are unable to meet the cost.

6. Recent Publications

The Subcommittee noted with interest two recent publications covering its sphere of interest:-

(a) Fisheries Hydrography by Hela and Laevastu

(b) Atlas of the Marine Environment: Folio 1.

APPENDIX IV - ANNEX I

Plan for the 1963 ICNAF Environmental Survey in relation to cod eggs and larvae and redfish larvae in Greenland waters

1. AIM

The mechanism whereby fish stocks are maintained in areas which are on the borderline of the environmental range of the species has long been of great interest in fisheries research. This applies with special emphasis to the stocks of cod at Greenland; these are characterised by large fluctuations in year-class strength caused presumably by varying environmental conditions, a better understanding of which would be rewarding both scientifically and to the major commercial fisheries based on these stocks. The stocks of redfish in the Northwest Atlantic are subject to increasing commercial exploitation, but again insufficient is known of their life history in relation to hydrographic conditions to enable a proper interpretation of trends in the fisheries to be made.

Thus, the general aim of the survey is to establish the distribution and drift of (i) cod eggs and larvae, (ii) redfish larvae in relation to certain environmental conditions during the period April-July, 1963, in ICNAF Subarea 1 and waters adjacent to it.

2. BIOLOGY

(i) Cod eggs and larvae

(a) Time

It is agreed that a better picture of the cod spawning areas and the drift of eggs and larvae would be obtained by having three surveys with at least three ships in each survey rather than two surveys with four ships each. Surveys in April, May-June and July would sample eggs, early larvae and late larvae respectively. It is proposed that the dates of these surveys should be:-

	West Greenland	East Greenland
I	10th-20th April	10th-20th April
II	25th May-10th June	15th May-1st June
III	1st-17th July	1st-17th July

The timing of the spawning varies throughout the area and is not known in several parts. The mid-April timing of Survey I is chosen as a compromise from various observations already made. The two different sets of dates for Survey II is largely due to difficulty in getting all the ships concerned to the area on exactly the same dates.

(b) Area

The area to be sampled is shown on the accompanying charts. The area originally proposed has been extended to Faxa Bay in the east in order to take account of the drift of larvae from Iceland to Greenland waters. Taking the west Greenland survey to 68° N should account for all larval drift in that area. The continuation of the lines of stations from west Greenland to Labrador would allow the drift of larvae from east to west across the Davis Strait to be examined. If a ship is available to survey the Labrador area during Survey III a station grid will be worked out for that area.

(c) Station Grid

The positions of the proposed stations are shown on the charts. A station list will be drawn up later. The aim is to cover the coastal banks and nearby oceanic water with a grid of stations about 20 miles apart: over known

spawning areas the stations are closer together. In planning the grid some account has been taken of the probable ice limits, but it is recognized that it is impossible to predict the limits in 1963. The question arises as to whether the grids should be worked starting from the downstream or the upstream end. The former is favoured as this ensures that all the larvae are sampled, although this will mean that some larvae are sampled twice; at the upstream end of one grid and the downstream end of the grid next upstream. The larval surveys should be carried out to give as truly a synoptic picture as possible and on each occasion ships should start work on the same day.

(d) Observations required

At each station the following observations should be made for unit volume or under unit surface area (a question to be decided later) of the :-

(i) number of cod eggs and larvae; the larvae by size and condition;

(ii) number of eggs and larvae of other fish;

(iii) quantity of zooplankton; particularly numbers of species/stages on which fish larvae may be feeding, and of the predators of fish eggs and larvae;

(iv) quantity of phytoplankton.

These observations should also be made at stations chosen for redfish larvae and hydrography (see below).

(e) Gear to be used

The following net hauls should be made:-

(i) Vertical hauls from 200 metres to the surface: for fish eggs and small zooplankton: at all stations on all surveys.

(ii) Oblique hauls from 200 metres to the surface: for fish larvae and larger zooplankton: at all stations in Surveys II and III.

(iii) 50 cc water samples from water bottles at the surface for estimation of phytoplankton by sedimentation methods at all stations: at stations at which hydrographic series are worked samples should be taken from 0, 10, 20, 30 and 50 metres.

It is important that the observations made by all ships should be comparable and therefore it is necessary that standard nets and hauls should be used and that methods are intercalibrated. As far as the oblique hauls are concerned it is agreed

that the 2m stramin net will be used as far as possible by all countries, but any country, if it so wishes, can use additional sampling gear such as high speed tow nets. Iceland will be unable to use 2m stramin nets and will use her own high speed tow nets. Other countries will try to use these Icelandic nets at the same time as 2m stramin nets in order to calibrate one type of net against the other. The 2m stramin net should be hauled from 200m to the surface in 30 minutes whilst towing at a speed of two knots.

As far as vertical hauls are concerned the Helgoland Larva Net and the Nansen Closing Net have both been suggested and a choice between them is yet to be made, but the need for studies of the vertical distribution of eggs and larvae adds considerable weight in favour of the Nansen Closing Net.

Further measures to be taken in order to ensure comparability of results are (a) the meeting of pairs of ships during the survey to make comparative hauls, (b) the issue of nets from one source to all ships, (c) study of the SCOR report on plankton nets for the International Indian Ocean Expedition.

(f) Spawning cod

In order to locate the main spawning areas of the cod and to sample the fish, ships should carry out surveys with trawls and long lines on Survey I.

(ii) Redfish larvae

For sampling redfish larvae in the area between the east coast of Greenland and the Reykjanes Ridge, Survey II should begin with a redfish larval survey in conjunction with the second hydrographic survey during the period 1st-14th May. The areas should be divided between two ships as shown on the chart for Survey II. The gear to be used would be as in (e) above.

Besides this intensive survey, hauls for redfish larvae should be made during the working of the hydrographic sections in Survey III (see below) and at other times when the ships are on passage through the area.

3. HYDROGRAPHY

For the understanding of the drift of fish eggs and larvae the following basic observations are needed:-

(i) Direct measurements of currents over the banks and continental slope.

(ii) An assessment of the geostrophic circulation.

(iii) Observations of temperature in the surface layers at all stations.

It would also be desirable to have observations of other properties, such as nutrient salts and turbidity.

(a) Hydrographic Sections

In order to determine the oceanic circulation in the area it is proposed that the sections shown on the charts should be worked on each survey. The working of the sections would allow three synoptic pictures of the circulation to be obtained and would be of great value in that they would allow the assessment of the effects of the atmospheric circulation on the oceanic circulation during the period March-June. The repeated working of the section along the Iceland-Greenland Ridge during the period of the surveys will help to throw light on the frequency of cold water overflow of the ridge and would be a helpful preliminary to proposed future ICES work in the area.

At each station the usual standard depths would be worked. The maximum depth of sampling would be such as to be greater than the usual level of no motion (1200-1500 m), but it is not considered necessary to survey the water between 2000 and 3000 m depth.

The section running south-westwards from Cape Farewell should be along the line of the regular section worked by the International Ice Patrol.

The minimum amount of hydrographic work to be carried out on the sections shown in the plan will be the working of those stations given in the list of standard sections for the Greenland area drawn up by the Working Group on Environmental Research.* All countries should, however, endeavour to work as many full length sections as possible.

(b) Current Measurements

Direct current measurements over the banks around Greenland should be made in key positions: Denmark, U.K. and U.S.S.R. are all able to do this to some extent already; Germany and Norway report that they may be able to do so after the hydrographers in those countries have been consulted. The possibility of using Portuguese fishing vessels and/or the Portuguese ship GIL EANNES to make measurements when they are at anchor will be examined by Denmark, U.K. and Portugal. Denmark and/or U.K. will endeavour to provide the observers and the instruments for this project.

* Except on Survey II when the standard sections off East Greenland should be extended to cover the area of the redfish larvae survey.

Current measurement is regarded as being one of the most difficult parts of the whole survey. It is suggested that towed electrodes (GEK) be used as much as possible to determine surface current despite the difficulties described by Weidemann (1961). It is also suggested that four days be set aside after the cod egg/larvae survey for surface layer current measuring at key points. Moored current meters might be used in areas free from ice and where the current velocities are not so great as to cause the loss of marker buoys. The drogue-tracking technique of Jennings and Schwartzlose (1960) could also be used in areas where there is good Loran coverage or where a convenient geographical reference point can be kept within radar range. Bottom currents might be assessed in ice-free areas where there is heavy fishing and a suitable bottom topography by using sea-bed drifter. The liberation of surface drifters riding deep in the water might be considered in areas where they are likely to be sighted by fishermen.

(c) Nutrient Salts

It is suggested that, as it is taking place over the season when phytoplankton production is important, the survey would be a suitable opportunity of following up the chemical work of Kalle (1957) and the work of Joseph (1959) on turbidity, and in particular to examine the importance of upwelling to the west of the Reykjanes Ridge. If nutrient salt work is to be carried out, then methods must be standardized and this can only be done by the chemists concerned carrying out intercalibration tests. It is proposed that phosphate, nitrate, nitrite, silicate and dissolved oxygen should be surveyed.

4. OBSERVATIONS AT OCEAN WEATHER STATION A

Ocean Weather Station A is situated conveniently in the redfish area to be investigated and the station is occupied by British and French Weather Ships throughout the period of the survey. It is suggested that the possibility of making regular observations from these vessels be investigated: water bottle casts, bathythermograph lowerings, solar radiation measurements, plankton sampling, and lining for redfish might all be considered.

5. SHIPS AND ORGANISATION

(i) Denmark, W. Germany, U.S S.R., Canada, U.K., Iceland and Norway have all agreed to participate in the surveys. The areas which will be worked by these countries are shown on the attached three charts.

It is hoped that a ship from France will also take part.

Iceland and Germany may need to change the station network in their sectors on Survey II to conform to the needs of their redfish research work. The U.S.S.R. wishes to extend its area of investigation towards Flemish Cap and will provide details of the station network in this area later.

(ii) Owing to navigational difficulties and to the ice hazard, it is recommended that all ships be equipped with radar and Loran-A.

(iii) Spain will try to provide a biologist to take part in the survey and sail in a research vessel of another country.

(iv) The offer of the Oceanographic Laboratory, Edinburgh, to combine its Continuous Plankton Recorder survey with the Environmental Survey is gratefully accepted and measures are to be taken to co-ordinate the results of the plankton recorder survey with those of the full Environmental Survey.

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APPENDIX IV - ANNEX II

Environmental Symposium

Scheme for preparation, discussion and publication of contributions

There will be an organising group to manage the Symposium, with the assistance of the Secretariat, comprising the Chairman and topic Conveners: when writing to Conveners and contributors the Chairman will include the following information:-

1. Papers should be submitted not later than 1st September, with a view to their being circulated by 1st November to all contributors, whether or not they can attend.

2. Papers should not exceed 5,000 words plus tables and figures.

3. A day should be set apart for the larger sections and half a day for the shorter.

4. Each Convener should prepare a digest of the contributions, as an introduction to his section of the Symposium. This should be followed by a discussion in which arrangements would be made for contributors to introduce (say within 5-10 minutes) salient features of their papers in relation to others. This discussion in time should be followed by a review made by reporter(s). The question of publishing the digests and reviews should be decided when their value has been appraised.

5. Papers should be prepared in English, on a reasonably heavy quality paper of quarto size, in double-spaced typing with ample margins. The title, name and laboratory of the contributor, and the list of contents should be on the cover page. Tables, other than very short ones, should be set out at the end of the paper, following the references, which should be compiled according to the FAO convention. Each figure and photograph should be set out on a separate sheet, preferably the same size as the text pages, and in any case not demanding a reduction to less than one-third. Legends should be brought together on the text pages following the references and before the tables. All numbers should be given as numerals, using the metric system as far as possible. Major section headings should be in capitals and side headings in ordinary type. Paragraphs are to be numbered.

6. An abstract should be included with each paper. It should precede the text and should not exceed one side of one page.

7. When a paper covers more than one of the main topics the organising group may, if necessary, divide it between different sessions.

APPENDIX V - STATISTICS SUBCOMMITTEE

1. INTRODUCTION

All member countries except France were represented at the meetings of the Statistics Subcommittee, under the Chairmanship of Dr. W. R. Martin. Working Groups were set up to deal with the following topics: division of stocks, discards, Statistical Bulletin, fishing power, and statistical reporting procedures. The conclusions and recommendations from these Working Groups, as amended and endorsed both by the Statistical Subcommittee and later by the full RSC, are summarised below.

2. DIVISION OF STOCKS

(a) Dr. Templeman's paper on cod stocks (Doc. 47) and Mr. Grosslein's paper on haddock stocks (Doc. 17) are considered to be adequate reviews of the present status of knowledge on the division of stocks in these species for the ICNAF area.

(b) In the light of these reviews it was agreed that there is no need at this time to make any changes in the plan of statistical divisions.

3. DISCARDS

(a) The increased reporting on discards at sea by member countries is noted with satisfaction, but it is considered that the present discard form used by ICNAF should be redesigned to provide more information.

(b) In order to ensure the collection of total catch statistics, and in anticipation of future trends in the fisheries, it is considered that data on industrial fish, such as fish meal, are required in addition to discard data, by species and divisions. Such statistics should eventually appear in the Statistical Bulletin to provide a complete record of catches rather than of landings only.

(c) It is therefore recommended that the new form for reporting discards and industrial fish, as set out in Annex I, should be used by all member countries during the coming year and that the results should be reviewed at the 1964 Annual Meeting.

4. STATISTICAL BULLETIN

The Working Group on the Statistical Bulletin undertook a comprehensive study of the content and format of the Bulletin in relation to present and future requirements. The following conclusions and recommendations were adopted:

(a) To improve the usefulness of the Statistical Bulletin it is recommended that the following changes be made, which will reduce the number of tables from nine to five:-

(i) Table 1 to be extended to include all species listed in former Table 7, with species and Subarea totals printed in bold face, and with all data referring to a single species printed between horizontal guide lines.

(ii) Table 2 to be similar to Table 1, but showing only the main species of former Table 8 by month and Division.

(iii) Table 3 to be identical to former Table 7.

(iv) Table 4 to be similar to former Table 8, but with the deletion of "method of propulsion", the addition of "herring" and "other pelagic fish" as new categories, and the substitution of "other groundfish" for "other fish".

(v) Also in the new Table 4, the description "main species sought" should be substituted for "main species", since this information is intended to show the species to which the effort was primarily directed and not, necessarily, the predominant species in the catch (although the two will often be the same). When the species truly sought is not known, the entry "unknown" should be made; where more than one species are roughly equally sought during a trip, the notation "mixed" should be used.

(vi) In connection with the new Table 4, the attention of those countries concerned is drawn to an apparent misinterpretation of the effort category "dory hours". What is required here is the product "....." number of hours the dory fleet is absent from mother vessel times number of dories", but it seems that sometimes only the former may have been given. It is proposed that past statistics should accordingly be reviewed and any corrections brought to the notice of the Secretariat.

(vii) Table 5 to be identical to former Table 9.

(b) It is recommended that the reporting of redfish catches by 50 fathom depth zones should be continued, and countries with redfish fisheries who have not hitherto provided such statistics are urged to make every effort to do so. Countries reporting redfish statistics by depth zones are asked to make an analysis of them, by comparing statistics of catch and effort and size composition of fish in relation to depth zone, with a view to assessing their usefulness and the possible need for alternative depth stratification.

(c) Member countries are urged to break down miscellaneous gear statistics by categories as far as possible. This is particularly important for cod traps and Danish seine (see Doc. 4).

(d) The order of species now adopted in the Statistical Bulletin is the most convenient to ICNAF and should not be changed unless there are strong reasons for doing so. This is noted for the guidance of the Continuing Working Party in connection with the recommendation of paragraph 6.

(e) It is noted with regret that summary statistics for the previous year are not available from all countries in time for the Annual Meeting, and that the Statistical Bulletin is not published for two years following the completion of a year's fishing. It is accordingly recommended that:-

(i) when complete statistics cannot be reported by the May 1st deadline a summary and, if necessary, preliminary estimated statistics by species and subarea (and, if possible, by division) should be reported by this date;

(ii) to achieve earlier distribution of the Statistical Bulletin the mechanics of its production, including processing methods, design of prescribed forms, and staff requirements, should be examined.

5. FISHING POWER

The proposals and recommendations of the Working Group on Fishing Power were considered and adopted as follows:-

(a) Having reviewed the fishing power studies initiated in 1961, it is recommended that these be continued and expanded, under the guidance of the Chairman of the Assessments Subcommittee, with special reference to the following projects:-

(i) The study of the relation between thrust indices (propeller characteristics), as developed by Mr. Traung of FAO, and fishing power for vessels or groups of vessels of similar design.

(ii) Mr. Gulland's analysis of relative fishing power from catch and effort data of the Statistical Bulletin.

(iii) A co-operative study by Mr. Hodder and Mr. Monteiro of Canadian and Portuguese fisheries in Subarea 3.

(b) There is not considered to be, at present, any basis for changing the existing gross tonnage classification. It is emphasized that ICNAF Statistics Form 3

provides for the reporting of the average gross tonnage within tonnage categories, and all countries are urged to enter such data on this form. The ICES Comparative Fishing Committee should be informed of this proposal.

(c) It is recommended that the List of Fishing Vessels for 1962 should be published with a format identical to that published for 1959. In this connection the Secretariat is requested to correspond directly with appropriate people and laboratories, emphasizing that:-

(i) more complete data on RPM and propeller characteristics, for more vessels, are needed, and that

(ii) the RPM data should be based on actual fishing practice and be the RPM used for trawling in calm weather.

6. JOINT FAO/ICNAF/ICES REPORTING PROCEDURES

A Working Group was set up by the Subcommittee to examine the problems confronting ICNAF countries and the Secretariat in introducing the scheme of reporting ICNAF statistics on the "prescribed, common reporting forms", devised by the Continuing Working Party for implementing the appropriate recommendations of the FAO/ICNAF/ICES "ESTANA" Meeting in Edinburgh in 1959. A comprehensive document, prepared by Mr. L.P.D. Gertenbach of FAO, setting out the features of the scheme relating to the reporting of ICNAF statistics, was examined and Mr. Popper of FAO also participated in the discussions of the Group.

Lengthy and full discussions of the scheme, and especially of the effects of its adoption on reporting statistics to ICNAF revealed that, while the introduction of standardised reporting forms was favoured by the European countries present, it raised difficulties for Canada, which currently supply the largest bulk of statistics for the Convention Area.

The greatest difficulty for ICNAF arises from the adoption of the particular species order and grouping, prescribed for the reporting forms, which differs from that currently used in the ICNAF Stat. Form 2, and in the Statistical Bulletin. It was considered that the use of two forms instead of the one form currently required for European submissions to ICNAF and the adoption of a different species order on the prescribed form would add to the work of the ICNAF Secretariat in checking and rearranging data for publication in the Bulletin.

It was, therefore, concluded that it was not possible at present to recommend the introduction of the scheme for reporting ICNAF statistics, but that a further evaluation of its merits and deficiencies should be made during the coming year. It is, however, recommended that the ESTANA Continuing Working Party should be asked to make this evaluation and report its findings at the next Annual Meeting of ICNAF.

7. ICNAF STATISTICAL REPORTING PROCEDURES

The Subcommittee reviewed the present ICNAF statistics forms in the light of the proposed changes in the Statistical Bulletin, and the need for more precise definitions of the terms used. The following conclusions and recommendations were adopted:-

(a) Statistics Form 1 provides the data for the proposed new Table 4, and all summary tables in the Bulletin. The order of entries on the form conforms with that of Table 4 for efficient processing at the Secretariat. The effort categories "number of trips made", "number of days absent from port" and "number of days on grounds" should be deleted from this form.

Information should, wherever possible, be given for "number of days fished", defined as the number of days (24 hour periods) on which any fishing took place. Only where such information is not available should countries report instead the "number of days on grounds". In the stub of the Statistics Form 1 the words "number of days fished or....." should be shown, and countries should insert where necessary the words "on grounds" and delete the word "fished".

Only one line should be provided on the form to report number of hours or the equivalent. It should read "number of hours/thousands of hooks fished" or "number of sets/drags", and countries should cross out the words not applicable.

Hours fished for otter trawls represent the total number of hours during which the trawl was on bottom and fishing. If countries are unable to report so precisely they should give the nearest approximation, with a precise definition of the approximation used.

Information on average horsepower, length and gross tonnage are not required on this form.

"Main species sought" is defined as the species towards which the fishing effort was mainly directed, as determined by the manner or method of fishing. The word "mixed" should be inserted when two or more species are sought. The word "unknown" should be inserted when the main species cannot be determined.

(b) Statistics Form 2 is not required from those countries which catch so few species that they can all be entered on the Statistics Form 1. Since the information is only used in Summary Tables 1-3 the statistics are submitted in summary form by months and divisions, and without fishing effort data. The species order should conform to that of Tables 1 and 3.

(c) Statistics Form 3 is a summary sheet for subareas only. "Number of vessels" refers to the number of fishing units operating. Every unit that fished at least once in the subarea should be included. A trip to more than one subarea should be reported as a fraction of a trip, in proportion to the days fished in each subarea.

"Average gross tonnage" represents gross registered tons. Averages should be given either as straight (unweighted) averages or as weighted averages, with countries specifying which measure has been taken.

The Subcommittee noted the usefulness of Summary Statistics Form 3 for interpretation of ICNAF statistics. Those countries not reporting on this Form are urged to do so.

(d) It is recommended that:-

(i) the Commission should confirm the existing practice of returning prescribed statistics forms not only for the fisheries in the ICNAF Convention Area, but also for the fisheries of the territorial waters of the adjacent countries. The whole area covered by the statistical reporting should be described as the "ICNAF Statistical Area";

(ii) the list of species for which statistical reports are required, and their order, grouping and subtotalling, should be reviewed at the next Annual Meeting. In preparation for this the Secretariat should prepare Table 3 of the Statistical Bulletin in both ICNAF and FAO species orders, and distribute it to member countries in preparation for consideration at the next Annual Meeting;

(iii) the Chairman of the Statistics Subcommittee should maintain liaison with the appropriate Committees of ICES with regard to statistical matters of common interest, such as classification of fishing method and tonnage etc., so that decisions arrived at by one body are taken with some knowledge of the plans and problems of the other, thereby expediting the evolution of standardized statistics.

APPENDIX V - ANNEX I

FORM FOR REPORTING DISCARDS AND INDUSTRIAL FISH IN THE ICNAF AREA

Notes for completion of Form

1. Reports should, so far as possible, be completed for each type and size of vessel and gear used, for each division fished and for each month.

2. Col. 1:This should include any special equipment such as fishmeal plants etc., as well as the type of vessel, as in the Statistical Bulletin.

3. Col. 2: State whether fish is stored on ice, filleted, deep frozen, salted, etc.

4. Col. 4: The number of trips to the division in question for which discard information is available are to be entered under (a), and the total number of trips under (b).

5. Col. 5: Weight of landings for which discard information is available are to be entered under (a), and total landings from the division under (b).

6. Col. 6: The minimum size of fish retained for human consumption should be obtained either by sample measurements or by enquiry from skippers.

7. Cols. 7 and 8: The quantity of fish not landed for human consumption should be given both by weight (metric tons round fresh) and as a percentage (by weight) of the total catch of that species. It is subdivided into "discarded fish" (Col. 7), which includes all fish thrown back into the sea or used as bait in the line-fisheries, and "industrial fish" (Col. 8), which is that part of the catch converted into fishmeal, animal food and fish flour etc. Thus the quantities of "discarded fish" and "industrial fish" should together constitute the whole of the catch which is not at present reported in the statistics of landings. Columns 7 and 8 are further subdivided into that part of the "by-catch" of which the quantity either discarded or used for industrial purposes is directly recorded (r), and the total of such categories as may be estimated by raising from the recorded quantities, if the latter is based on samples only.

8. Under the heading "Recording System" should be entered a brief description of how the data on discarded and/or industrial fish have been obtained, i.e. whether by "observers on board", "log books", etc.

9. Quantities entered in columns 5, 7 and 8 should be in the units "metic tons, round fresh weight".

APPENDIX V - ANNEX I

FORM FOR REPORTING DISCARDS AND INDUSTRIAL FISH IN THE ICNAF AREA

COUNTRY			DIVISION			MONTH OR YEAR							
(1) Type of Vessel and Gear as in Statistical Bulletin	(2) Handling and Treatment of fish on board	(3) Main Species	(4) No. of trips		(5) Total Landings		(6) Maximum size of fish not retained for human consumption	(7) Discarded fish				(8) Fish turned into industrial use			
			(a) For which discard data are reported	(b) Total according to Statistics	(a) For which discard data are reported	(b) Total according to Statistics		%		Total Weight		%		Total Weight	
								r	c	r	c	r	c	r	c
		Cod Haddock Redfish Halibut Flounders Others (Specified)													

9. Recording System:

APPENDIX VI - WORKING GROUP ON THE SAMPLING YEARBOOK

Participants: Hennemuth (Convener), Horsted, Dickie, DeBaie, Dementieva, Monteiro, Paloheimo.

With the increase in the amount of sampling data submitted by countires, the Sampling Yearbook has grown greatly in size. The working group therefore examined ways of reducing the size and increasing the usefulness of the Yearbook, by suitable grouping of data.

The working group agreed that only grouped data should be published, but it is suggested that detailed information of potential value in special studies, for example in assessment studies, should also be submitted to the Secretariat.

As a guide both to the submission of sampling data by member countries and its collation by the Secretariat for inclusion in the Sampling Yearbook, the following recommendations were made and approved:-

(a) Sampling data on age and length should be submitted by countries in the following details:-

(i) by species (cod, haddock, redfish, and all species of flounders);

(ii) by division;

(iii) by origin (e.g. discards, landings (specify food or industrial), research vessel);

(iv) by month;

(v) by gear category (also by gross tonnage class, where this is correlated with area fished or other factors of importance);

(vi) by country;

(vii) by 50 fathom depth zone (for redfish only);

(viii) by sex (for redfish and all species of flounder only).

Individual samples should not be submitted as such, but should be summarised according to the above categories. If data are available by tonnage classes, they should also be combined to give totals over all tonnage classes. Combining should, if possible, be done by weighting according to total landings in each tonnage class; however, this may not be possible in some cases. The manner of arriving

at the combined total frequencies should be specified (i.e. weighted or unweighted) in all cases. Only the combined frequencies should be published in the Sampling Yearbook (exception noted below).

(b) The order of tabulation of data in the Sampling Yearbook should be as follows:-

(i) species;

(ii) division;

(iii) gear;

(iv) origin of sample (discards, landings (food or industrial), research vessel);

(v) month;

(vi) country;

(vii) tonnage class (where tonnage class can bring out important differences in stocks, area, etc.);

(viii) 50 fathom depth zone (redfish only);

(ix) sex (for redfish and all species of flounder only).

(c) Length and age compositions, and age/length keys, are to be forwarded to the Secretariat, summarised in the manner indicated in (a) on a per mille basis. Only the summarised length and age compositions are to be included in the Sampling Yearbook. The age/length keys and detailed length and age compositions are not to be published, but are to be deposited in the Secretariat and will be available, on request, to member countries and to special study groups. A table showing what detailed data (age/length keys, etc.) are available at the Secretariat will be published annually in the Yearbook. Suitable forms for submitting these data will be prepared by the ICNAF Secretariat, in consultation with the Chairman of the Statistics Subcommittee.

(d) With each batch of sample data the following additional information should be provided:-

(i) number of samples;

(ii) number of fish measured or aged;

(iii) mean length and weight (special emphasis is placed on providing mean weights);

(iv) total weight of fish landed (by all vessels in the category to which the sample belongs);

(v) estimated number of fish landed;

(vi) weight of fish in sampled portion, hook or mesh size;

(vii) range of depths;

(viii) structures used in age determination.

(e) In order that the length frequencies or age/length keys from different countries can be combined, it is very important that the member countries submit their length data by 3cm groups for cod, by 2cm groups for haddock and by 1cm groups for redfish and flounder, as set out on the printed forms now provided by the Secretariat. Length frequencies should be submitted in full and any grouping of length classes of fish over or under certain lengths should be left to the Secretariat.

(f) Sampling data for each year should be submitted not later than August 1st of the following year.

(g) Additional studies should be conducted by laboratories engaged in collecting these data to determine whether any further groupings could be used in reporting sampling statistics. Specifically, it should be determined if data could be published on a quarterly basis rather than monthly. Quarters are often staggered by one month in order to centralize the average birth date of fish within the three month period. Since the date of spawning depends on species and area, some difficulties may be encountered in standardizing the quarters to be used. For this reason, and also to have the sampling data conform with other statistics published annually in the Bulletin, it would be desirable to use the calendar quarters rather than biological ones. However, it is recommended that this be given further consideration at the next Annual Meeting. The assistance of Mr. J.A. Gulland of the Lowestoft Laboratory is specially requested in connection with the above problems.

APPENDIX VII - GEAR AND SELECTIVITY SUBCOMMITTEE

Participants: Templeman (Chairman), Hodder (Rapporteur), Beverton, Bratberg, Gharrett, Jonsson, Marcotte, Martin, Magnusson, Parrish, Laszczynski, Treschev, and others.

1. Agenda item 3a: Review of data on mesh selection (1961 Redbook, p.10, item 4a)

With regard to the compilation of selectivity data (Doc. 6) by the Executive Secretary, the Subcommittee noted its value but that in certain respects it is not complete. It is recommended that the Secretariat should (a) contact the research workers or laboratories concerned, with a view to obtaining the missing information on locality and on other pertinent items,(b) obtain information on the runnage values for twines used in the selectivity experiments, (c) keep the compilation of selectivity information up to date, and (d) request authors to supply complete information in the future.

With regard to the comparison of selectivity for natural and synthetic twines, Mr. Parrish agreed to look into this and report at the next meeting. He also agreed to include a comparison of ICES and ICNAF selectivity data on this point.

2. Agenda item 3b: Gauges for mesh measurement, with consideration of the introduction of a standard gauge for the ICNAF area (1961 Redbook, p.10, item 4c)

After considering pertinent documents on mesh gauges (Nos. 46,49) and a review of the progress made by ICES in the adoption of the ICES gauge at 4 kg pressure, it is recommended that ICNAF adopt the ICES gauge as a research instrument and that the normal operating pressure should be 4 kg (8.8 pounds).

The Subcommittee felt that the ICES gauge would be a considerable improvement over the present ICNAF gauge, but reserved judgement on recommending its use for enforcement purposes pending further experience with the use of this gauge by ICNAF research workers.

3. Agenda item 3c: Chafing gear

The Subcommittee considered Documents Nos. 6, 27, 36 and 72 and in addition the merits of flap-type chafers. It was agreed that both the flap-type and the ICNAF chafers, if properly fitted, are reasonably effective in permitting the escapement of small fish.

It is noted that the USSR is continuing experiments on large mesh chafers and expects to be able to provide a document on this at the 1963 Annual Meeting.

4. Agenda item 3 d: Consideration of the mesh regulation poster and other appropriate educational material (1961 Redbook, p. 19, item 4 e)

The Subcommittee agreed that methods of educating fishermen are more national than international in nature and that ICNAF should probably not do more than urge member countries to inform their fishing captains and fishing industry, regarding the benefits to be derived from the use of large-meshed nets. However, if any country devises an effective pictorial or other method of educating fishermen in this matter, ICNAF should be informed.

5. Agenda item 3 f: Reports by countries on weight, length and girth of cod and other species (1961 Redbook, p. 10 , item 4 b)

The Subcommittee noted with interest Documents Nos. 13 and 55 and urges the continued collection of girth-length-weight data from all subareas in all seasons and especially from Subareas 1 and 2. To be effectively useful for the work of the Assessments Subcommittee, girth-length-weight data are needed not only from areas in which there is now a good deal of selectivity information available but also from areas where selectivity data are lacking.

6. Other items

(a) The Subcommittee noted with interest Document No. 40 showing a decrease in selection factor of redfish with increase in catch, and urges member countries to examine their selectivity data for all species of groundfish from this point of view, but with special reference to the Assessments Subcommittee's requests regarding redfish. The purpose is to make selection factors available covering the actual catch range in the commercial fisheries.

(b) The Subcommittee noted that more information was needed on the meshing problem of redfish in relation to mesh and catch sizes, and requested that this problem be kept under review in redfish selection experiments, and that available data should be brought forward.

(c) International selectivity experiment at Iceland: The Subcommittee considers that this experiment is of interest to ICNAF for the following reasons:-

(i) It is important to obtain a comparison of the selection factors for the same fish on the same ground by different vessels and different types of trawls, and especially by vessels and trawls from both sides of the Atlantic.

(ii) Although the experiment is being carried out at Iceland as a work area, comparisons will be made of selectivity data obtained with covered codends, alternate and paired hauls, and night and day hauls. This information is of equal importance to ICNAF and ICES.

APPENDIX VIII - WORKING GROUP ON TAGGING

Participants: Horsted (Convener), Hodder (Rapporteur), Aslanova, Beverton, Bratberg, Hennemuth, Holt, Kotthaus, Magnusson, Martin, McKernan, Monteiro, Noskov, Pechenik, Postolaky, Poulsen, Rodriguez, Ruivo.

1. Agenda item 6a: Consideration of the results of the North Atlantic Fish Marking Symposium, May, 1961. (1961 Redbook, p. 11 a)

Several countries commented on the value of the Marking Symposium and indicated that they have already made good use of the results from a practical as well as from a theoretical point of view in planning new marking experiments. It was felt that much greater use would be made of the Symposium results after the papers and reports are published.

The FAO observer present reported that his organisation intends to print for wide distribution the Report of the Marking Symposium as a manual in English, French and Spanish.

It was a general feeling that the Symposium really was needed and has filled a gap.

2. Agenda item 6 b: Progress in publishing report and papers of Marking Symposium

The editor, Mr. Beverton, reported that the papers and reports from the Marking Symposium have already been sent to the printer. The working group expressed its appreciation of the speed with which editing had been accomplished.

3. Agenda item 6 c: Distribution of information on tagging experiments conducted in the ICNAF area (1961 Redbook, p. 11 c)

Following the recommendation of the 1961 Annual Meeting, the Secretariat attempted to obtain views from various institutions engaged in tagging experiments regarding the circulation of tagging releases. It was generally agreed that summary information on releases should be circulated as soon as possible. It was also agreed that the Secretariat be the distributing centre. To ensure this it is recommended that the following procedure be followed: immediately after a tagging experiment the card proposed by the working group (see attached) and distributed by the Secretariat should be completed and sent promptly to the Secretariat. The Secretariat will then distribute the information received to the relevant institutions for publicising among their fishermen and port organisations who are likely to receive tagged fish. The Secretariat will also prepare an annual summary of the cards received. In the same way releases of sea-bed drifters should be reported and distributed.

The releases reported in this way should include not only releases in the Convention Area but also any releases outside this Area which are likely to be recaptured in it.

The Secretariat will distribute the release data on mimeographed sheets. On receiving these sheets, the various institutions can register the information on the same cards as used for reporting the releases, or on any types of cards that they may use.

The working group urgently calls upon all member countries to take part in this programme by following the above procedure with regard to releases, and by promptly sending returns to the appropriate institutions, and information to the fishermen, about the release data of their returns.

Type of postcard for reporting of summary releases to ICNAF

Country Institution			Year	Species	
ICNAF Div.	Locality or Position	Date Month Day	Type of Tag	Range of Serial Nos.	No. released

AIRMAIL

Affix stamp

To: ICNAF Secretariat,
Dalhousie University,
Halifax, Nova Scotia,
CANADA.

APPENDIX IX - WORKING GROUP ON AGEING TECHNIQUES

Participants: Ruivo (Convener), Hodder (Rapporteur), Bratberg, Dementjeva, Hansen, Jonsson, Kotthaus, Magnusson, Martin, Monteiro, Noskov, Parrish, Rodriguez, Templeman, DeBaie.

The Subcommittee met on May 30th and 31st to consider (a) revision of agenda and organisation of the Workshop on Ageing Techniques having regard, in particular, to the existing discrepancies in age-determination, especially for cod in Subareas 3 and 4, (b) revision of otolith exchange programmes.

1. Workshop on Ageing Techniques

After careful consideration of the draft proposals for the Workshop made at the 1961 Annual Meeting (1961 Redbook, page 50), it is recommended:-

(a) that the Workshop should be convened at Bergen in November, 1962, for the duration of one full week;

(b) that the Workshop should concentrate on the study of objective criteria for the age-determination of cod, and on methods of validation, with a view to eliminating, in particular, the existing discrepancies in the age reading of cod in Subareas 3 and 4;

(c) that the programme of the Workshop should be based on the revised agenda set out in Annex I to this report;

(d) that Dr. G. Rollefsen should be asked to appoint, as soon as possible, a Rapporteur for the Workshop. The following names are proposed as special conveners for the different items of the agenda:

Item 1. Mr. Bratberg, Norway
Item 2. Special lectures by
Mr. Trout (Lowestoft)
Dr. Dannevig (Norway)
Item 3. Mr. Jensen (U.S.A.)
Item 4. Dr. Kohler (Canada)
Item 5. Miss Quartin (Portugal)

(e) that the ICES Working Party on whiting age-reading should be invited to submit a report on their work to the Workshop;

(f) that since the success of the meeting will be vitally dependent on the presence of the scientists and technicians in charge of age-reading, the Secretariat should contact laboratories in the member countries to obtain as soon as possible the names of participants and inform the Convener accordingly;

(g) that the original project of holding a Symposium on the scientific basis of the methods of age-reading and the use of skeletal structures for other purposes (e.g. racial identification, spawning zones, etc.) should be reconsidered at some future time in the light of progress made at this Workshop.

2. Otolith exchange programme

(a) The Working Group agreed that the cod otolith exchange programme had been of value. Accordingly, it is recommended that the programme should be continued according to the scheme to be drawn up by the Ageing Techniques Workshop (see Annex I).

(b) It is also recommended that the halibut otolith exchange programme should be intensified, and that the Secretariat should follow up its contact with the International Pacific Halibut Commission with a view to establishing an exchange programme with scientists in that organisation.

APPENDIX IX - ANNEX I

Revised Agenda for Ageing Techniques Workshop,

Bergen, November, 1962

1. Techniques of reading structures used for age-determination, particularly otoliths (handling, lighting staining, etc.)

Participants should bring to the Workshop, (a) samples of otoliths and other structures used for age-determination of the various cod stocks located in the ICNAF Area; (b) equipment used for age-reading work; (c) materials for demonstration (photographs, slides, etc.). It is necessary that such equipment as projection microscopes and special microscopes for simulations viewing be available for the meeting.

2. Structural development and variations therein

This point should cover items B and C of the draft agenda for the Workshop approved at the 1961 ICNAF Meeting (1961 Redbook, page 50). It is suggested that this point be covered by two or three lectures by specialists, followed by discussions and if possible demonstrations.

3. Nomenclature and symbols

The Workshop should consider the papers on terminology and notation by Mr. Jensen, and prepare a revision for publication by ICNAF to be distributed to age-readers working in the ICNAF Area.

4. Validation, practice and theory

Participants should demonstrate and discuss matters such as the use of young fish age-determination in relation to Petersen frequency curves, the appearance of special marks in certain year-classes, comparison between different structures (scales versus otoliths, for example, etc.), and so forth.

5. Problems in establishing objective criteria for age-reading and interpretation

The Workshop is asked under this heading to consider and report on questions such as the training of age readers; the supervision, control and checking of routine age-determination programmes; and the organisation by ICNAF of otolith exchange programmes.