

PART D

Miscellaneous

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AGENDA I**SCIENTIFIC COUNCIL MEETING, 1-15 JUNE 2000**

- I. Opening (Chairman: W. B. Brodie)
 1. Appointment of rapporteur
 2. Adoption of agenda
 3. Attendance of observers
 4. Plan of work
 5. Review of LAN use at meetings
 6. Report of proxy votes (by Executive Secretary)
- II. Review of Scientific Council Recommendations in 1999 (see Appendix III)
- III. Implementation of Precautionary Approach (PA) (see also Annex 1, note after Item 8)
 1. Review of results of 1999/2000 Meetings
 2. Future development
- IV. Fisheries Environment (STACFEN Chairman: M. Stein)
 1. Opening
 2. Chairman's introduction; report on intersessional activities
 3. Invited lecture (W. Melle, IMR, Norway: "Climate-fish-plankton interactions")
 4. Review of environmental conditions
 - a) Marine Environmental Data Service (MEDS) Report for 1999
 - b) Review of environmental studies in 1999
 - i) Results from physical oceanographic studies
 - ii) Results from interdisciplinary studies
 - c) Overview of environmental conditions in 1999
 5. Formulation of recommendations based on environmental conditions in 1999
 6. Environmental indices (implementation in the assessment process; progress report)
 7. Russian/German data evaluation (ICNAF/NAFO data; status report)
 8. ICES/NAFO Symposium on Hydrobiological Variability, August 2001, Edinburg, UK (progress; formulation of recommendations)
 9. National representatives
 10. Other matters
- V. Research Coordination (STACREC Chairman: R. K. Mayo)
 1. Opening
 2. Review of recommendations in 1999

3. Fishery statistics

- a) Progress report on Secretariat activities in 1999/2000
 - i) Acquisition of STATLANT 21A and 21B reports for recent years
 - ii) Publication of statistical information
 - iii) Considerations on internet site for statistical data
 - iv) Interagency data harmonization (NAFO/FAO)
 - v) Elasmobranch species
- b) CWP Sessions 2000/2001
 - i) Report on the CWP Intersessional Meeting, Copenhagen, 10-11 February 2000
 - ii) CWP 19th Session, July 2001
 - Review of Agenda
 - New proposals

4. Research Activities

- a) Biological sampling
 - i) Report on activities in 1999/2000
 - ii) Report by National Representatives on commercial sampling conducted
 - iii) Report on data availability for stock assessments (by Designated Experts)
- b) Biological surveys
 - i) Review of survey activities in 1999 (by National Representatives and Designated Experts)
 - ii) Surveys planned for 2000 and early-2001

5. Report of Working Group on Biological Information Database Exchange (Cod in Div. 3NO)

6. Report of the Working Group on NAFO Observer Protocol

- a) Protocol for scientific data on Pilot Observer Program
- b) Format on data from Pilot Observer Program for Scientific Council purposes

7. Review of SCR and SCS Documents

8. Other matters

- a) Tagging activities
- b) Conversion factors
- c) Comparative fishing between Canada and EU-Spain
- d) Other business

VI. Publications (STACPUB Chairman: O. A. Jørgensen)

- 1. Opening
- 2. Review of recommendations in 1999
- 3. Review of STACPUB membership
- 4. Review of scientific publications since June 1999
 - a) Journal of Northwest Atlantic Fishery Science
 - b) NAFO Scientific Council Studies
 - c) NAFO Statistical Bulletin
 - d) Index and Lists of Titles
 - e) Others

5. Production costs and revenues for Scientific Council publications
 - a) Review of costs and revenues
 - b) Consideration of publication of 2000 Special Session papers
 6. Promotion and distribution of scientific publications
 - a) Invitational papers
 - b) Abstracts from Research Documents
 - c) NAFO Website
 - d) Scientific Citation Index (SCI)
 - e) CD-ROM versions of reports, documents
 - f) New initiatives for publications
 7. Editorial matters regarding scientific publications
 - a) Review of Editorial Board
 - b) Progress review of publication of 1999 Symposium
 8. Papers for possible publication
 - a) Review of proposals resulting from the 1999 Meetings
 - b) Review of contributions to the June 2000 Meeting
 9. Other matters
- VII. Fisheries Science (STACFIS Chairman: H.-J. Rätz)
1. Opening
 2. General review
 - a) Review of recommendations in 1999
 - b) General review of catches and fishing activity
 3. Stock assessments
 - a) Stocks within or partly within the Regulatory Area, as requested by the Fisheries Commission with the concurrence of the Coastal State (Annex 1) (Shrimp in Div. 3M and Div. 3LNO will be undertaken during Scientific Council Meeting 8-15 November, 2000):
 - Cod (Div. 3NO (monitor); Div. 3M)
 - Redfish (Div. 3LN (monitor); Div. 3M)
 - American plaice (Div. 3LNO (monitor); Div. 3M)
 - Witch flounder (Div. 3NO)
 - Witch flounder (Div. 2J+3KL (monitor))
 - Yellowtail flounder (Div. 3LNO)
 - Squid (Subareas 3 and 4) (see also Annex 1, Item 3.f)
 - Greenland halibut (Subareas 2 and 3)
 - Capelin (Div. 3NO)
 - Elasmobranchs (see Annex 1, Item 6)
 - [Note also Annex 1, Item 8 concerning catches and/or discards of juvenile fish]
 - b) Stocks within the 200-mile fishery zone in Subareas 0 to 4, as requested by Canada (Annex 2)
 - Cod (Div. 2J + 3KL)
 - [Note also Annex 2, Item 4 on by-catch of yellowtail flounder in Div. 3LNO]

- c) Stocks within the 200-mile fishery zone in Subarea 1 and at East Greenland as requested by Denmark (Greenland) (Annex 3) (Northern shrimp in Denmark Strait and off East Greenland will be undertaken during Scientific Council Meeting, 8-15 November 2000):
 - Redfish (Subarea 1) (monitor)
 - Other finfish (Subarea 1)(monitor)
- d) Stocks overlapping the fishery zones in Subareas 0 and 1, as requested by Canada and by Denmark (Greenland) (Annexes 2 and 3) (Northern shrimp in Subareas 0 and 1 will be undertaken during Scientific Council Meeting, 8-15 November 2000):
 - Greenland halibut (Subareas 0 and 1) (see also Annex 2, Item 1 on SA 0 and 1 separately, SA 2+Div. 3K, and Div. 3LMNO)
 - Greenland halibut (Subarea 0, Div. 1 offshore (see Annex 3)
 - Greenland halibut (Div. 1 inshore) (see Annex 3)
 - Roundnose grenadier (Subareas 0 and 1) (monitor)
- e) Assessment of other stocks:
 - Roughhead grenadier (Subareas 2 and 3)

4. Other matters

- a) New Designated Experts
- b) Other business

VIII. Management Advice and Responses to Special Requests

1. Fisheries Commission (Annex 1)

- a) Request for advice on TACs and other management measures for year 2001
 - Redfish in Div. 3M
 - Yellowtail flounder in Div. 3LNO
 - Squid in Subareas 3 and 4
 - Capelin in Div. 3NO
 - Greenland halibut in Subareas 2 and 3
 - Elasmobranchs (Annex 1, Item 6)
- b) Request for advice on TACs and other management measures for the years 2001 and 2002
 - Cod in Div. 3M
 - American plaice in Div. 3M
 - Witch flounder in Div. 3NO
- c) Special requests for management advice
 - i) Precautionary measures (Annex 1, Item 4)
 - ii) Squid in Subareas 3+4 (Annex 1, Item 3 f)
 - iii) Catches and/or discards of juvenile fish (Annex 1, Item 8)
- d) Monitoring of stocks for which multi-year advice was provided in 1999
 - Cod in Div. 3NO, Redfish in Div. 3LN, American plaice in Div. 3LNO, Witch flounder in Div. 2J+3KL

2. Coastal States (Annexes 2 and 3)

- a) Request by Canada for advice:
 - Cod in Div. 2J + 3KL (Annex 2, Item 3)
 - By-catch of Yellowtail flounder in Div. 3LNO (Annex 2, Item 4)

- b) Request by Denmark (Greenland) for advice:

Redfish in Subarea 1 (monitor)
 Other finfish (monitor)
 Roundnose grenadier in Subarea 0+1 (monitor)

- c) Request by Canada and Denmark (Greenland) for advice on TACs and other management measures:

Greenland halibut in Subareas 0+1

3. Scientific advice from Scientific Council on its own accord

Roughhead grenadiers in SA 2+3.

IX. Future Scientific Council Meetings 2000 and 2001

1. Scientific Council Meeting and Special Session, September 2000
2. Scientific Council Meeting in November 2000 (assessment of shrimp stocks)
3. Scientific Council Meeting, June 2001
4. Scientific Council Meeting and Symposium, September 2001
5. Scientific Council Meeting, November 2001 (assessment of shrimp stocks)

X. Arrangements for Special Sessions

1. Progress report on Special Session in 2000: Workshop on Assessment Methods (Co-conveners: D. Rivard and C. Darby)
2. Progress report on ICES/NAFO Symposium on Hydrobiological Variability in August 2001
3. Progress report on Special Session in September 2001: Symposium on "Deep Sea Fisheries"
4. Topic for Special Session in 2002.

XI. Report of the Working Group on Reproductive Potential (Chairman: E. A. Trippel)

XII. Nomination and Election of Officers

1. Chairman STACFEN

XIII. Review of Scientific Council working procedures/protocols

- a) Adapting the form of advice to PA requirements (see also Annex 1, note after Item 8)
- b) NAFO Scientific Council observership at ICES ACFM meetings
- c) STACPUB membership: elections
- d) Review of proposed NAFO millennium publication "NAFO Century book"

XIV. Other Matters

- a) Report on FAO ACFR Working Party on Status and Trends of Fisheries, Nov/Dec 1999
- b) Report on NAFO intersessional meetings
- c) Participation at ICES ACFM meetings 1999-2000
- d) Joint NAFO-ICES Working Group on harp and hooded seals
- e) Other business

XIV. Adoption of Committee Reports

- a) STACFEN
- b) STACREC
- c) STACPUB
- d) STACFIS

XV. Scientific Council Recommendations to General Council and Fisheries Commission

XVI. Adoption of Scientific Council Report

XVII. Adjournment

ANNEX 1. FISHERIES COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2001 OF CERTAIN STOCKS IN SUBAREAS 3 AND 4, INCLUDING SUPPLEMENTARY QUESTIONS ON DIVISION 3M SHRIMP FOR 2000

1. The Fisheries Commission with the concurrence of the Coastal State as regards the stocks below which occur within its jurisdiction, requests that the Scientific Council, at a meeting in advance of the 2000 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2001:

Redfish (Div. 3M)
 Yellowtail flounder (Div. 3LNO)
 Squid (Sub-areas 3 and 4)
 Shrimp (Div. 3M)
 Greenland halibut (Subareas 2 and Div. 3KLMNO)
 Capelin (Div. 3NO)

2. The Fisheries Commission with the concurrence of the Coastal State as regards the stocks below which occur within its jurisdiction, requests that the Scientific Council, provide advice on the scientific basis for the management of the following fish stocks on an alternating year basis:

Cod (Div. 3NO; Div. 3M)
 Redfish (Div. 3LN)
 American plaice (Div. 3LNO; Div. 3M)
 Witch flounder (Div. 3NO)

To implement this system of assessments in alternating years, all stocks were assessed in 1999 but advice pertained to different time periods to allow the introduction of the new scheme over time. Consequently:

- In 1999, advice was provided for 2000 and 2001 for American plaice in 3LNO, witch flounder in 2J3KL, cod in 3NO and redfish in 3LN. The next assessment of these stocks will thus be conducted in 2001.
- In 2000, advice will be provided for 2001 and 2002 for cod in 3M, American plaice in 3M and witch flounder in 3NO. These stocks will then next be assessed in 2002.

The Fisheries Commission requests the Scientific Council to continue to monitor the status of these stocks annually and, should a significant change be observed in stock status (e.g. from surveys) or in by-catches in other fisheries, provide updated advice as appropriate.

3. The Commission and the Coastal State request the Scientific Council to consider the following options in assessing and projecting future stock levels for those stocks listed above:

- a) For those stocks subject to analytical-type assessments, the status of the stocks should be reviewed and management options evaluated in terms of their implications for fishable stock size in both the short and long term. As general reference points, the implications of fishing at $F_{0.1}$, F_{1999} and F_{max} in 2001 and subsequent years should be evaluated. The present stock size and spawning stock size should be described in relation to those observed historically and those expected in the longer term under this range of options.

Opinions of the Scientific Council should be expressed in regard to stock size, spawning stock sizes, recruitment prospects, catch rates and TACs implied by these management strategies for the short and the long term. Values of F corresponding to the reference points should be given. Uncertainties in the assessment should be evaluated.

- b) For those stocks subject to general production-type assessments, the time series of data should be updated, the status of the stock should be reviewed and management options evaluated in the way described above to the extent possible. In this case, the general reference points should be the level of fishing effort or fishing mortality (F) which is calculated to be required to take the MSY catch in the long term and two-thirds of that effort level.
- c) For those resources for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management requirements for long-term sustainability and the advice provided should be consistent with the precautionary approach.
- d) Spawning stock biomass levels that might be considered necessary for maintenance of sustained recruitment should be recommended for each stock. In those cases where present spawning stock size is a matter of scientific concern in relation to the continuing reproductive potential of the stock, management options should be offered that specifically respond to such concerns.

e) Presentation of the results should include the following:

I. For stocks for which analytical-type assessments are possible:

- a graph of historical yield and fishing mortality for the longest time period possible;
- a graph of spawning stock biomass and recruitment levels for the longest time period possible;
- a graph of catch options for the year 2001 and subsequent years over a range of fishing mortality rates (F) at least from $F_{0.1}$ to F_{max} ;
- a graph showing spawning stock biomass corresponding to each catch option;
- graphs showing the yield-per-recruit and spawning stock per recruit values for a range of fishing mortalities.

II. For stocks for which advice is based on general production models, the relevant graph of production on fishing mortality rate or fishing effort.

In all cases, the three reference points, actual F, $F_{0.1}$ and F_{max} should be shown.

f) Squid (*Illex*) in Subareas 3 and 4 is a short-lived species such that a change in productivity regime could be sudden. The Scientific Council is requested to develop an in-season indicator of productivity level based on results from the annual July survey of the Scotian-Shelf and any other source of data. If it is not considered possible to develop an in-season indicator, the Scientific Council is requested to comment on the research that would be required to develop such an indicator. The Scientific Council is also requested to review the protocol outlined in FC Working Paper 99/18 and to advise on possible modifications to ensure its applicability on the long term, including a level of TAC which would be applicable during the high productivity regime.

4. Noting the progress made by the Scientific Council on the development of a framework for implementation of the Precautionary Approach, the Fisheries Commission requests that the Scientific Council provide, in their June 2000 report, the following information for the 2000 Annual Meeting of the Fisheries Commission for stocks under its responsibility requiring advice for 2001, or 2001 and 2002, as per Section 2 (i.e. cod in 3M, American plaice in 3M, yellowtail flounder in 3LNO, witch flounder in 3NO, redfish in 3M, Greenland halibut in SA 2+3KLMNO, capelin in 3NO, shrimp in 3M and squid in SA 3+4):

- a) the limit and target precautionary reference points described in Annex II indicating areas of uncertainty (when precautionary reference points cannot be determined directly, proxies should be provided);
- b) information including medium term consideration and associated risk or probabilities which will assist the Commission to develop the management strategies described in paragraphs 4 and 5 of Annex II in the Agreement;
- c) information on the research and monitoring required to evaluate and refine the reference points described in paragraphs 1 and 3 of Annex II of the Agreement; these research requirements should be set out in order of priority considered appropriate by the Scientific Council;
- d) any other aspect of Article 6 and Annex II of the Agreement which the Scientific Council considers useful for implementation of the Agreement's provisions regarding the precautionary approach to capture fisheries;
- e) propose criteria and harvest strategies for re-opening of fisheries and for new and developing fisheries; and
- f) to work toward the harmonization of the terminology and application of the precautionary approach within relevant advisory bodies.

5. With regard to shrimp in Divisions 3LNO, the Fisheries Commission, with the concurrence of the Coastal State, requests that the Scientific Council:

- a) provide information on the fishing mortality on shrimp in Divisions 3LNO in recent years, as well as information on by-catches of groundfish in 3LNO shrimp fisheries;
- b) provide information on abundance indices and the distribution of the stock in relation to groundfish resources, particularly for the stocks which are under moratorium;
- c) provide information on the distribution of shrimp in Divisions 3L, 3N and 3O, as well as describe the relative and seasonal distribution inside and outside the NAFO Regulatory Area; and
- d) provide information on annual yield potential for this stock.

6. The Scientific Council is requested to summarize all available information from the Convention Area on catches of elasmobranchs, by species and by the smallest geographical scale possible. The Scientific Council is requested to review available information from research vessel surveys on the relative biomass and geographic distribution of elasmobranchs by species, and to quantify the extent of exploitation on these resources. Further, the Scientific Council is requested to initiate work leading to the development of precautionary reference points.

7. The Scientific Council is requested at its November 11-17, 1999 meeting to evaluate, on the basis of the best data available, whether the provision for a Div. 3M shrimp closure in FC Working Paper 99/16 would be a precautionary approach-based measure and if so, whether proposed area and timing of the closure are appropriate.
8. The Scientific Council is requested to compile and review all information on catches and/or discards of juvenile fish in the various NAFO fisheries. The Scientific Council is requested to describe and evaluate the effectiveness of additional technical management measures aiming at reducing catches of juvenile fish and male shrimp in the various NAFO fisheries.

*With respect to elements 3 and 4, the Scientific Council is advised that additional or revised requests may arise from the next meeting of the joint FC-SC Working Group on the Precautionary Approach.**

* [Note: Meeting was held 29 February -2 March 2000.]

ANNEX 2. CANADIAN REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2001 OF CERTAIN STOCKS IN SUBAREAS 0 TO 4

1. Canada requests that the Scientific Council, at its meeting in advance of the 2000 Annual Meeting of NAFO, subject to the concurrence of Denmark (on behalf of Greenland) provide advice on the scientific basis for management in 2001 of the following stocks:

Shrimp (Subareas 0 and 1)
Greenland halibut (Subareas 0 and 1)

The Scientific Council has noted previously there is no biological basis for conducting separate assessments for Greenland halibut throughout Subareas 0-3, but has advised that separate TACs be maintained for different areas of the distribution of Greenland halibut. The Council is asked therefore, subject to the concurrence of Denmark (on behalf of Greenland) as regards Subarea 1, to provide an overall assessment of status and trends in the total stock throughout its range and comment on its management in Subareas 0+1 for 2001. In particular, the Council is asked to advise on appropriate TAC levels separately for SA 0+1, for SA 2+Division 3K and for Divisions 3LMNO, and to make recommendations on the distribution of fishing effort within each of these three geographic areas.

With respect to shrimp, it is recognized that the Council may, at its discretion, delay providing advice until later in the year, taking into account data availability, predictive capability, and the logistics of additional meetings.

2. Canada requests the Scientific Council to consider the following options in assessing and projecting future stock levels for those stocks listed above:
 - a) For those stocks subject to analytical-type assessments, the status of the stock should be reviewed and management options evaluated in terms of their implications for fishable stock size in both the short- and long-term. The implications of no fishing as well as fishing at $F_{0.1}$ and F_{1999} in 2001 and subsequent years should be evaluated in relation to precautionary reference points of both fishing mortality and spawning stock biomass. The present stock size and spawning stock size should be described in relation to those observed historically and those to be expected in the longer term under this range of fishing mortalities, and any other options Scientific Council feels worthy of consideration under a precautionary framework.

Opinions of the Scientific Council should be expressed in regard to stock size, spawning stock sizes, recruitment prospects, catch rates and catches implied by these management strategies for the short- and long-term. Values of F corresponding to the reference points should be given. Uncertainties in the assessment should be evaluated and presented in the form of risk analyses related to B_{lim} (B_{buf}) and B_{target} , and F_{lim} (F_{buf}) and F_{target} .

- b) For those stocks subject to general production-type assessments, the time series of data should be updated, the status of the stock should be reviewed and management options evaluated in the way described above to the extent possible. Management options should be within the precautionary framework.
 - c) For those resources for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management requirements for long-term sustainability and management options evaluated in the way described above to the extent possible. Management options should be within the precautionary framework.

d) Presentation of the results should include the following:

I. For stocks for which analytical-type assessments are possible:

- A graph of historical yield and fishing mortality for the longest time period possible;
- A graph of spawning stock biomass and recruitment levels for the longest time period possible;
- Graphs and tables of catch options for the year 2001 and subsequent years over a range of fishing mortality rates (F) at least from $F = 0$ to $F_{0.1}$ including risk analyses;
- Graphs and tables showing spawning stock biomass corresponding to each catch option including risk analyses;
- Graphs showing the yield-per-recruit and spawning stock per recruit values for a range of fishing mortalities.

II. For stocks for which advice is based on general production models, the relevant graph of production on fishing mortality rate or fishing effort.

In all cases, the three reference points, actual $F = 0$, actual F , and $F_{0.1}$ should be shown.

3. The Scientific Council is requested to review the status of the cod stock in Divisions 2J+3KL and to provide estimates of the current size of the total and spawning biomass, together with a description of recent trends.
4. Noting the increase in by-catch of 3LNO yellowtail flounder in other fisheries, in particular the skate fishery, the Scientific Council is requested to comment on the potential impacts of these by-catches on the long-term sustainability of the yellowtail flounder resource.

P. S. Chamut
 Assistant Deputy Minister
 Fisheries Management, Department of Fisheries and Oceans
 Ottawa, Canada

**ANNEX 3. DENMARK (GREENLAND) REQUEST FOR SCIENTIFIC ADVICE ON
 MANAGEMENT IN 2001 OF CERTAIN STOCKS IN SUBAREAS 0 AND 1**

1. In the Scientific Council Report of 1999, scientific advice on management of redfish (*Sebastes* spp.) and other finfish in Subarea 1 was given for 2000 and 2001. Also, advice for Roundnose grenadier in Subareas 0+1 was given as a 3-year advice (for 2000, 2001 and 2002).

Denmark, on behalf of Greenland, requests the Scientific Council to continue to monitor the status of these stocks annually and, should significant change in stock status be observed (e.g. from surveys), the Scientific Council is requested to provide an updated advice as appropriate.

2. Subject to the concurrence of Canada, the Scientific Council is also requested to provide advice on the scientific basis for the management of Greenland halibut overlapping Subareas 0 and 1.

For Greenland halibut in Subareas 0 and 1, the analyses on which management advice will be based, the following should be included:

In its 1993 report, the Scientific Council noted that the offshore component of Greenland halibut in Subareas 0 and 1 was distributed equally between these Subareas. Further, in its 1995 report, the Scientific Council noted that the biomass of the inshore component in Subarea 1 was unknown. The Council is therefore asked to provide advice on the following topics:

- a) allocation of TACs to Subarea 0 and Subarea 1 offshore.
- b) allocation of TAC for Subarea 1 inshore.

3. Denmark, on behalf of Greenland, further requests the Scientific Council of NAFO before December 2000 to provide advice on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Subareas 0 and 1 in year 2001, and as many years forward as data allow.

Further, in cooperation with ICES, the Council is requested to advise on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in the Denmark Strait and adjacent areas east of southern Greenland.

On behalf of The Ministry of Industry
Jørn Birk Olsen
Director

AGENDA II**SCIENTIFIC COUNCIL ANNUAL MEETING, 18-22 SEPTEMBER 2000**

- I. Opening (Chairman: W. B. Brodie)
 1. Appointment of Rapporteur
 2. Adoption of Agenda
 3. Attendance of Observers
 4. Plan of Work

- II. Fishery Science (STACFIS Chairman: H.-J. Rätz)
 1. Opening
 2. Matters Related to Stock Considerations
 - a) Review of advice given in 1999 on Shrimp in Div. 3M
 - b) Nomination of Designated Experts
 3. Other Matters
 - a) Review of SCR and SCS Documents (if necessary)
 - b) Other Business

- III. Research Coordination (STACREC Chairman: R. K. Mayo)
 1. Opening
 2. Fisheries Statistics
 - a) Progress Report on Secretariat Activities
 - i) Acquisition of STATLANT 21 data
 - ii) Publication of statistical information
 - iii) Progress Report on Internet Site for Statistical Information
 - Progress on Loading FISHSTAT Software
 - b) 19th CWP Session
 - i) Proposed Agenda Items
 3. NAFO Observer Protocol
 - a) Report of the *Ad hoc* Working Group on NAFO Observer Protocol
 - Progress Report from June 2000 STACTIC Meeting
 4. Other Matters
 - a) Review of SCR and SCS Documents (if necessary)
 - b) Other Business

- IV. Publications (STACPUB Chairman: O. Jørgensen)
 1. Opening

2. Review of Scientific Publications
 - a) Papers from June 2000 Meeting
 - b) Status of Papers from 1999 Symposium
 - c) Information from the 2000 Special Session
 - d) Status of Invitational Papers
 - e) Other Reviews
 3. Considerations of NAFO Website
 4. Scientific Citation Index (SCI)
 5. Review of Editorial Board (new members)
 6. Other Matters
- V. Special Requests from Concurrent Fisheries Commission Meeting (as necessary)
- VI. Development of Precautionary Approach
1. Review of Papers Related to Precautionary Approach
 2. Future Development
- VII. Review of Future Meeting Arrangements
1. Scientific Council Meeting, June 2001
 2. Special Session and Annual Meeting, September 2001
 3. Other Meetings in 2001 and 2002
- VIII. Future Special Sessions
1. Progress Report on Symposium in 2001
 2. Progress Report on Special Session 2002
- IX. Scientific Council Working Procedures and Protocols
1. Review of Rules of Procedure
 - a) Observers at Scientific Council Meetings
 2. Standardizing assessment reporting and documentation
 3. Matters related to NAFO Website
 4. Possible implementation of Symposium fees
 5. Other Procedures or Protocols
- X. Other Matters
1. Report of STACTIC intersessional meeting, June 2000
- XI. Adoption of Reports
1. Consideration of Report from the Workshop of 13-15 September 2000
 2. Committee Reports of Present Meeting (STACFIS, STACREC, STACPUB)
 3. Report of Scientific Council Present Meeting 13-22 September 2000
- XII. Adjournment

AGENDA III**SCIENTIFIC COUNCIL MEETING, 8-15 NOVEMBER 2000**

- I. Opening (Chairman: W. B. Brodie)
 1. Appointment of rapporteur
 2. Adoption of agenda
 3. Plan of work

- II. Fisheries Science (STACFIS Chairman: H. J. Rätz)
 1. Review of Recommendations in 1999 and 2000
 2. General environmental review
 3. Stock assessments (see Agenda I, Annexes 1, 2 and 3)
 - Shrimp (Div. 3M) (also see Note 7 in Agenda I, Annex 1)
 - Northern shrimp (Subareas 0 and 1)
 - Northern shrimp (in Denmark Strait and off East Greenland)
 - Shrimp in Div. 3LNO (see Note 5 in Agenda I, Annex 1)
 4. Other business
 - Assessment methodology

- III. Formulation of Advice (see Agenda I, Annexes 1, 2 and 3)
 1. Advice for Northern Shrimp
 - Northern shrimp (Div. 3M)
 - Northern shrimp (Subareas 0 and 1)
 - Northern shrimp (in Denmark Strait)
 2. Responses to Special Requests
 - Shrimp in Div. 3LNO
 - Closed area for shrimp in Div. 3M (see Note 7 in Agenda I, Annex 1)
 3. Formulation of advice under a Precautionary Approach framework

- IV. Other Matters
 1. Meeting of November 2001
 2. Meeting of November 2002

- V. Adoption of Reports

- VI. Adjournment

LIST OF RESEARCH AND SUMMARY DOCUMENTS, 2000

RESEARCH DOCUMENTS (SCR)

SCR No.	Ser. No.	Author(s) and Title
00/1 ^a	N4213	BUCH, E. Oceanographic investigations off West Greenland, 1999. (15 pages)
00/2 ^a	N4214	STEIN, M., and V. A. BOROVKOV. Fifth Report of Joint Russian/German Project, assessment of short-time climatic variations in the Labrador Sea. (6 pages)
00/3 ^a	N4215	VINOGRADOV, V. I. Feeding of 0group silver hake (<i>Merluccius bilinearis</i>) in Scotian Shelf area. (14 pages)
00/4 ^a	N4216	RIKHTER, V. A. On the problem of silver hake stock long-term dynamics in the Scotian Shelf area (Div. 4VWX). (5 pages)
00/5 ^a	N4223	STEIN, M., and V. A. BOROVKOV. Fourth Report of Joint Russian/German Project, assessment of short-time climatic variations in the Labrador Sea. (4 pages)
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LIST OF REPRESENTATIVES, ADVISERS/EXPERTS AND OBSERVERS, 2000

Meetings*

CANADA

Representatives:

Rivard, D. Fisheries Research Branch, Dept. of Fisheries and Oceans, 200 Kent St., Ottawa, Ont. K1A 0E6A B
Phone: + 613-990-0281 – Fax: + 613-954-0807 – E-mail: rivardd@dfo-mpo.gc.ca

Atkinson, D.B. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P.O. Box 5667, St. John's, Nfld. A1C 5X1A B
Phone: + 709-772-2027 – Fax: + 709-772-6100 – E-mail: atkinsonb@dfo-mpo.gc.ca

Bowering, W.R. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P.O. Box 5667, St. John's, Nfld. A1C 5X1A B C
Phone: + 709-772-2054 – Fax: + 709-772-4188 – E-mail: boweringr@dfo-mpo.gc.ca

Advisers/Experts:

Brodie, W.B. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P.O. Box 5667, St. John's, Nfld. A1C 5X1A B C
Phone: +709-772-3288 – Fax: +709-772-4105 – E-mail: brodieb@dfo-mpo.gc.ca

Cadigan, N.G. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-5028 – Fax: +709-772-4188 – E-mail: cadigan@athena.nwafc.nf.ca

Colbourne, E.A. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-6106 – Fax: +709-772-5315 – E-mail: colbourne@athena.nwafc.nf.ca

Dawe, E.G. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Fax: +709-772-4188 – E-mail: dawee@dfo-mpo.gc.ca

Kulka, D.W. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P.O. Box 5667, St. John's, Nfld. A1C 5X1A B
Phone: + 709-772-2064 – Fax: + 709-772-4188 – E-mail: kulkad@dfo-mpo.gc.ca

Lilly, G. R. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-0568 – Fax: +709-772-4188 – E-mail: lillyg@dfo-mpo.gc.ca

Maddock Parsons, D. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-2495 – Fax: + 709-772-4188 – E-mail: parsonsd@dfo-mpo.gc.ca

Morgan, M. J. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-2261 – Fax: +709-772-4188 – E-mail: morganj@dfo-mpo.gc.ca

Orr, D. C. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1 C
Phone: +709-772-7343 – Fax: +709-772-4105 – E-mail: orrd@dfo-mpo.gc.ca

Power, D. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-4935 – Fax: +709-772-4188 – E-mail: powerd@dfo-mpo.gc.ca

Stansbury, D.E. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-0559 – Fax: +709-772-4188 – E-mail: stansburyd@dfo-mpo.gc.ca

Stenson, G. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-5598 – Fax: +709-772-4105 – E-mail: stensong@dfo-mpo.gc.ca

Walsh, S.J. Science, Oceans & Envir. Br., Dept. of Fish. & Oceans, P. O. Box 5667, St. John's, Nfld. A1C 5X1A
Phone: +709-772-5478 – Fax: +709-772-4918 – E-mail: walshs@dfo-mpo.gc.ca

Trippel, E. Dept. of Fisheries & Oceans, St. Andrews Biological Station, St. Andrews, NB E0G 2X0 A
Phone: +506-529-8854 – Fax: +506-529-5862 – E-mail: trippele@mar.dfo-mpo.gc.ca

Drinkwater, K.F. Coastal Oceanog., Dept. of Fish. & Oceans, BIO, P. O. Box 1006, Dartmouth, N.S. B2Y 4A2 A
Phone: +902-426-2650 – Fax: +902-426-2256 – E-mail: drinkwaterk@mar.dfo-mpo.gc.ca

Dougherty-Poupore, T. Marine Envir. Data Service (MEDS), 12082, 200 Kent St., Ottawa, Ont. K1A 0E6 A
Phone: +613-990-0243 – Fax: +613-993-4658 – E-mail: dougherty@meds-sdmm.dfo-mpo.gc.ca

Treble, M.A. Dept. of Fisheries & Oceans, Freshwater Inst., 501 University Cres., Winnipeg, Man. R3T 2N6 A
Phone: +204-984-0985 – Fax: +204-984-2403 – E-mail: treblem@dfo-mpo.gc.ca

Woodman, F. Fisheries Resource Conservation Council (FRCC), Box 2001, Station D, Ottawa, Ont. K1P 5W3A
Phone: +613-998-0433 – Fax: +613-998-1146 – E-mail: info@frcc.x400.gc.ca

*

- A Scientific Council Meeting, 1-15 June 2000
B Scientific Council Annual Meeting, 18-22 September 2000
C Scientific Council Meeting, 8-15 November 2000.

CUBA

Representative:

Valdes, E. Centro de Investigaciones Presqueras, 5ta. Ave y 248, Barlovento, Sta Fe, Playa C. Habana 19100A
Phone: +537 298055 – Fax: +537 339168 – E-mail: cubacip@ceniai.inf.cu

DENMARK (in respect of Faroe Islands and Greenland)

FAROE ISLANDS

Representative:

Nicolajsen, A. Fiskorannsóknarstovan, Noatun, Postboks 3051, FR-1100, Torshavn A B C
Phone: +298 1 50 92 – Fax: +298 1 8264 – E-mail: arninic@frs.fo

GREENLAND

Representative:

Siegstad, H. Greenland Institute of Natural Resources, P. O. Box 570, DK-3900 Nuuk A C
Phone: +299 321095 - Fax: +299 325957 - E-mail: helle@natur.gl

Advisers/Experts:

Jørgensen, O.A. Greenland Institute of Natural Resources, Pilestræde 52., P. O. Box 2151, DK-1016 A B
Phone: +45 33 69 3461 - Fax: +45 33 69 3406 - E-mail: grfioaj@inet.uni2.dk

Carlsson, D. M. Greenland Institute of Natural Resources, P. O. Box 2151, DK-1016 Copenhagen K, Denmark C
Phone: +45 33 69 3457 – Fax: +45 33 69 3406 – E-mail: danmc@inet.uni2.dk

Kannevorff, P. Greenland Institute of Natural Resources, P. O. Box 2151, DK-1016 Copenhagen K, Denmark C
Phone: +45 33 69 3456 – Fax: +45 33 69 3406 – E-mail: grfipka@inet.uni2.dk

Hvingel, C. Greenland Institute of Natural Resources, P. O. Box 570, DK-3900 Nuuk C
Phone: +299 32 1095 – Fax: +299 32 5957 – E-mail: hvingel@natur.gl

Kingsley, M.C.S. Greenland Institute of Natural Resources, P. O. Box 570, DK-3900 Nuuk C
Phone: +299 32 1095 – Fax: +299 32 5957 – E-mail: mcsk@natur.gl

Simonsen, C.S. Greenland Institute of Natural Resources, P. O. Box 570, DK-3900, Nuuk A
Phone: +299 32 1095 - Fax: +299 32 5957 - E-mail: claus@natur.gl

Wieland, K. Greenland Institute of Natural Resources, P. O. Box 570, DK-3900 Nuuk C
Phone: +299 32 1095 – Fax: +299 32 5957 – E-mail: wieland@natur.gl

ESTONIA

Representative:

Saat, T. Estonian Marine Institute, 18b Viljandi Road, EE-3600 Tallinn A B
Phone: +372 6281 570 – Fax: +372 6281 563 – E-mail: tsaat@sea.ee

*

- A Scientific Council Meeting, 1-15 June 2000
B Scientific Council Annual Meeting, 18-22 September 2000
C Scientific Council Meeting, 8-15 November 2000.

Meetings*

EUROPEAN UNION (EU)

Representatives:

Patterson, K. European Commission DGXIV Fisheries, Rue de la Loi 200, B-1049 Brussels, Belgium A B
Phone: +32 2 299 2179 – Fax: +32 2 295 5621 – E-mail: patterson.kr@dg14.cec.be

Advisers/Experts:

Cross, D.G. EUROSTAT, European Commission, Jean Monnet Bldg, B.P. 2920, Luxembourg (G.D.) A B
Phone: +352 4301 37249 – Fax: +352 4301 37318 – E-mail: david.cross@cec.eu.int

Mahé, J.-C. IFREMER, Station de Lorient, 8, Rue François Toullec, 56100 Lorient, France A
Phone: +33 2 9787 3818 – Fax: +33 2 9787 3801 – E-mail: jcmahe@ifremer.fr

Briand, D. Institut Français de Recherche pour l'Exploitation de la Mer, B. P. 4240, B
F-97500 Saint Pierre, St. Pierre et Miquelon
Phone: +508 41 30 83 – Fax: +508 41 49 36 – E-mail: brianspm@cancom.net

Rätz, H-J. Institute of Sea Fisheries, Palmaille 9, D-22767 Hamburg, Federal Republic of Germany A B C
Phone: +49 40 389 05169 – Fax: +49 40 389 05263 – E-mail: raetz.ish@bfa-fisch.de

Stein, M. Institut für Seefischerei, Palmaille 9, D-22767 Hamburg, Federal Republic of Germany A B
Phone: +49 40 389 05174 – Fax: +49 40 38905 263 – E-mail: stein.ish@bfa-fisch.de

Avila de Melo, A. Inst. de Investigacao das Pescas e do Mar (IPIMAR), Av. de Brasilia, 1400 Lisbon, Portugal A B
Phone: +351 21 302 7000 – Fax: +351 21 301 5948 – E-mail: amelo@ipimar.pt

Alpoim, R. Inst. de Investigacao das Pescas e do Mar (IPIMAR), Av. de Brasilia, 1400 Lisbon, Portugal A B
Phone: +351 21 302 7000 – Fax: +351 21 301 5948 – E-mail: ralpoim@ipimar.pt

De Cárdenas, E. Instituto Español de Oceanografía, Avenida de Brasil 31, 28020 Madrid, Spain A B
Phone: +34 91 5974443 – Fax: +34 91 5974770 – E-mail: e.decardenas@md.ieo.es

Junquera, S. Instituto Español de Oceanografía, Apto 1552, E-36280 Vigo (Pontevedra), Spain B
Phone: +34 9 86 49 2111 – Fax: +34 9 86 49 2351 – E-mail: susana.junquera@vi.ieo.es

Murua, H. AZTI, Food & Fish., Tech., Inst., Satrustegi ib. 8, 20008 Donostia-San Sebastian A B
Basque Country, Spain
Phone: +34 9 43 316731 – Fax: +34 9 43 212162 – E-mail: hmurua@azti.es

Cerviño, S. Instituto Investigaciones Marinas, Eduardo Cabello 6, 36208 Vigo, Spain A
Phone: +34 9 86 23 1930 – Fax: +34 9 86 29 2762 – E-mail: santi@iim.csic.es

Durán, P. Instituto Español de Oceanografía, P. O. Box 1552, 36208 Vigo, Spain A
Phone: +34 9 86 492111 – Fax: +34 9 86 4923512 – E-mail: pablo.duran@vi.ieo.es

Vazquez, A. Instituto de Investigaciones Marinas, Eduardo Cabello 6, 36208 Vigo B
Phone: +34 9 86 23 1930 – Fax: +34 9 86 29 2762 – E-mail: avazquez@iim.csic.es

Darby, C. Centre for Fisheries & Aquaculture Science (CEFAS), Lowestoft Laboratory, A
Pakefield Rd., Lowestoft (Suffolk), England NR33 OHT, United Kingdom
Phone: +44 1502 524 329 – Fax: +44 1502 513 865 – E-mail: c.d.darby@cefasc.co.uk

ICELAND

Representative:

Skúladóttir, U. Marine Research Institute, Skúlagata 4, Pósthólf Box 1390, 121 Reykjavik C
Phone: +354 552 0240 – Fax: +354 562 3790 – E-mail: unnur@hafro.is

*

- A Scientific Council Meeting, 1-15 June 2000
B Scientific Council Annual Meeting, 18-22 September 2000
C Scientific Council Meeting, 8-15 November 2000.

JAPAN**Representatives:**

Ichii, T. National Research Institute of Far Seas Fisheries, 5-7-1 Orido, Shimizu 424-8633 A
 Phone: +81 543 36 6056 – Fax: +81 543 35 9642 – E-mail: ichii@envo.affrc.go.jp
 Kawahara, S. National Research Institute of Far Seas Fisheries, 5-7-1 Orido, Shimizu 424-8633 B
 Phone: +81 543 36 6056 – Fax: +81 543 35 9642 – E-mail: kawahara@envo.affrc.go.jp

NORWAY**Representatives:**

Tveite, Stein Institute of Marine Research, Flodevigen Marine Research Station, N-4817 His C
 Phone: +47 37059000 – Fax: +47 37059001 – E-mail: stein.tveite@imr.no

RUSSIAN FEDERATION**Representatives:**

Botvinro, M. State Comm. for Fisheries of the Russian Federation, 12 Rozhdestvensky Boul., 103031 Moscow A
 Phone: +70 95 928 2679 – Fax: +70 95 921 3463
 Rikhter, V.A. Atlantic Scientific Research Institute of Marine Fisheries and Oceanography (AtlantNIRO), A B
 5 Dmitry Donskoy Street, Kaliningrad 23600
 Phone: +70 112 22 5547 – Fax: +70 112 21 9997 – E-mail: atlant@baltnet.ru
 Shibarov, V.N. Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), A B
 6 Knipovich Street, Murmansk 183763
 Phone: +7 8152 47 34 61 – Fax: +47 789 10 518 – E-mail: inter@pinro.murmansk.ru

Advisors/Experts:

Babayan, V.K. Russian Federal Research Institute of Fisheries & Oceanography (VNIRO), 17, V. Krasnoselskaya, A B
 Moscow, 107140
 Phone: +70 95 264 6983 – Fax: +70 95 264 9187
 Bakanev, S. Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO), C
 6 Knipovich Street, Murmansk 183763
 Phone: +81 52 47 2464 – Fax: +47 789 10 518 – E-mail: borisber@pinro.murmansk.ru
 Vaskov, A. Knipovich Polar Research Institute of Marine Fisheries & Oceanography (PINRO), A
 6 Knipovich Street, Murmansk 183763
 Phone: +7 8152 45 05 68 – E-mail: inter@pinro.murmansk.ru
 Okhanov, A. Representative Russian Federation on Fisheries, 47 Oceanview Drive, Bedford, N.S., A
 Canada B4A 4C4
 Phone: +902-832-9225 – Fax: +902-832-9608

UNITED STATES OF AMERICA (USA)**Representatives:**

Serchuk, F.M. National Marine Fisheries Service, NEFSC, 166 Water St., Woods Hole, MA 02543 A B
 Phone: +508-495-2245 – Fax: +508-495-2258 – E-mail: fred.serchuk@noaa.gov

*

- A Scientific Council Meeting, 1-15 June 2000
- B Scientific Council Annual Meeting, 18-22 September 2000
- C Scientific Council Meeting, 8-15 November 2000.

Meetings***Advisers/Experts:**

Hendrickson, L.C.	Northeast Fisheries Science Center, 166 Water St., Woods Hole, MA 02543 Phone: +508-495-2285 – Fax: +508-495-2393 – E-mail: lisa.hendrickson@noaa.gov	A	B
Jones, C.M.	Applied Marine Research Laboratory, Old Dominion Univ., 1034 W 45th St., Norfolk, VA 23701 Phone: +757-683-4497 – Fax: +757-683-5293 – E-mail: cjones@odu.edu	A	
Mayo, R.K.	National Marine Fisheries Service, NEFSC, 166 Water St., Woods Hole, MA 02543 Phone: +508-495-2310 - Fax: +508-495-2393 - E-mail: ralph.mayo@noaa.gov	A	B

OBSERVERS

Lassen, H. (ICES Observer)	Fisheries Adviser, International Council for the Exploration of the Sea (ICES), Palagade 2-4, 1261 Copenhagen, Denmark Phone: +45 33 15 42 25 – Fax: +45 33 93 42 15 – E-mail: hans@ices.dk	A	
Jakobsen, T. (ICES Observer)	ACFM Chair, Institute of Marine Research, P. O. Box 1870, Nordnes, N-5024, Bergen, Norway Phone: +47 55 23 8636 – Fax: +47 55 23 8687 – E-mail: torej@imr.no	A	
Molenaar, E. J.	Utrecht University, Netherlands Inst. for the Law of the Sea, Achter Sint Pieter 200, 3512 MT Utrecht, The Netherlands Phone: +31 30 253 2095 – E-mail: e.molenaar@law.uu.nl	A	

NAFO SECRETARIAT

T. Amaratunga, Assistant Executive Secretary	A	B	C
D. C. A. Auby, Secretary	A	B	C
G. M. Moulton, Statistical/Conservation Measures Officer	A	B	
B. L. Marshall, Statistical Clerk	A		
C. L. Kerr, Statistical/Reception Clerk	A		

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- A Scientific Council Meeting, 1-15 June 2000
- B Scientific Council Annual Meeting, 18-22 September 2000
- C Scientific Council Meeting, 8-15 November 2000.

LIST OF RECOMMENDATIONS IN 2000

The following are the specific **recommendations made by the Scientific Council** at its meetings through 2000 besides those made with respect to scientific advice on stocks considered. The recommendations with respect to stock advice appear in the stock-by-stock Summary Sheets presented in this publication. Recommendations listed under the Standing Committees were **endorsed** by the Scientific Council.

All recommendations listed here were **adopted** by the Scientific Council and are presented as they appear in this publication under the relevant sections and pages mentioned.

Scientific Council Meeting, 1-15 June 2000

SCIENTIFIC COUNCIL

NOTE: All 1-15 June 2000 recommendations pertaining to the work of the Scientific Council, except those related to stocks under STACFIS, were listed in Part A, Sections IV, V and VI. These and other recommendations pertaining to all Constituent Bodies of NAFO are presented below under the relevant section and subject headings.

XVI. SCIENTIFIC COUNCIL RECOMMENDATIONS TO GENERAL COUNCIL AND FISHERIES COMMISSION (pages 49-51)

Regarding the September 2001 Symposium, the Scientific Council noted the level of success of this Symposium will be related to the possibility of attracting eminent scientists to it, and agreed that financial support is required to invite key speakers, and **recommended** that *NAFO's financial contribution to the Symposium on "Deep-sea Fisheries" in 12-14 September 2001 should be CDN \$8 000*. The Scientific Council also **recommended** that *the ICES and CSIRO as co-sponsors should also be requested to contribute CDN \$8 000 each*.

The Scientific Council noted list of countries that have not submitted STATLANT 21A and 21B data through 1994-1998.

STATLANT 21A					STATLANT 21B				
1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
USA	USA	USA	USA	Faroe Is. USA	USA	Faroe Is. USA	Faroe Is. USA	Faroe Is. USA	Faroe Is. USA

The Scientific Council regretted this situation, noting the work of the Scientific Council is seriously jeopardized and the publication of the Statistical Bulletin is seriously delayed, and **recommended** that *the Executive Secretary write to the national delegates of the USA and Denmark (in respect of Faroe Islands and Greenland) with reference to their obligations on the submission of data to NAFO, and further recommended that the Scientific Council should prepare a document for submission to the General Council and the Fisheries Commission on the adverse effect the absence of the STATLANT 21A and 21B data was having on the work of the Scientific Council*.

The Scientific Council **recommended** that *for the fiscal year 2001, the following nominees be supported by the NAFO budget for meeting attendance: i) the Assistant Executive Secretary to the February 2001 meeting of the FAO and Non-FAO Regional Fishery Bodies or Arrangements and the associated CWP Intersessional Meeting at FAO Headquarters, Rome, Italy and ii) the Assistant Executive Secretary and the STACREC Chairman to the CWP 19th Session in Noumea, New Caledonia (July 2001)*.

Scientific Council further **recommended** that *costs associated with the above activities be enumerated and included in the Scientific Council budget request for 2001*.

The Scientific Council **recommended** that *the Scientific Council Reports and the Reports of the Annual Meeting be included in the contents of the CD-ROM, and the CD-ROM be issued before April of the following year.*

The Scientific Council **recommended** that *the comparative fishing in Div. 3NO be continued during future spring surveys conducted by EU-Spain and Canada.*

STACFEN

ICES/NAFO Symposium on Hydrobiological Variability (page 58)

STACFEN **recommended** that *NAFO's financial contribution to the Joint ICES/NAFO Symposium on "Hydrobiological Variability During the 1990s", August 2001, Edinburgh, Scotland, include the equivalent of GB 3 500 (approximately CDN \$8 000) to cover partial costs of conducting the Symposium.*

STACREC

Publication of Statistical Information (pages 61 and 62)

STACREC regretted this situation, noting the work of the Scientific Council is seriously jeopardized and the publication of the Statistical Bulletin is seriously delayed. Thus STACREC **recommended** that *the Executive Secretary write to the national delegates of the USA and Denmark (in respect of Faroe Islands and Greenland) with reference to their obligations on the submission of data to NAFO. STACREC further recommended that the Scientific Council should prepare a document for submission to the General Council and the Fisheries Commission on the adverse effect the absence of the STATLANT 21A and 21B data was having on the work of the Scientific Council.*

The Scientific Council noted list of countries that have not submitted STATLANT 21A and 21B data through 1994-1998.

STATLANT 21A					STATLANT 21B				
1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
USA	USA	USA	USA	Faroe Is. USA	USA	Faroe Is. USA	Faroe Is. USA	Faroe Is. USA	Faroe Is. USA

STACREC **recommended** that the *Secretariat should extract from Scientific Council reports the annual estimates of the total catches for each stock for the period from 1985 used by STACFIS in its assessment work and report them alongside the annual STATLANT nominal catches.*

CWP 19th session, July 2001 (page 63)

STACREC reiterated its view that participation by Secretariat officers as well as Scientific Council officers nominated to attend important meetings of international organizations such as CWP should be supported by the NAFO budget. Accordingly STACREC **recommended** that *for the fiscal year 2001, the following nominees be supported by the NAFO budget for meeting attendance: i) the Assistant Executive Secretary to the February 2001 meeting of the FAO and Non-FAO Regional Fishery Bodies or Arrangements and the associated CWP Intersessional Meeting at FAO Headquarters, Rome, Italy, and ii) the Assistant Executive Secretary and the STACREC Chairman to the CWP 19th Session in Noumea, New Caledonia (9-13 July 2001).*

Comparative Fishing Between Canada and EU-Spain (page 72)

Noting the differences in catches observed in the comparative fishing in 2000, and the potential impact on interpretation of indices of abundance from the Canadian and Spanish surveys, STACREC **recommended** that *the comparative fishing in Div. 3NO be continued during future spring surveys conducted by EU-Spain and Canada.*

STACPUB

NAFO Statistical Bulletin (page 77)

STACPUB **recommended** that *STACREC should consider proceeding with the publication of NAFO Statistical Bulletin for 1994 without the USA data.*

NAFO Website (page 78)

Realizing that there may arise financial impacts on the NAFO budget as a result of June meeting deliberations, STACPUB **recommended** that *an Executive Committee Meeting be held near the end of the June Meeting to evaluate financial impacts on the NAFO budget which arise from deliberations and decisions made during the course of that meeting.*

STACPUB further **recommended** that *costs associated with the above activities be enumerated and included in the Scientific Council budget request for 2001.*

CD-ROM Versions of Reports, Documents (page 78)

STACPUB considered the issue of CD-ROM versions of reports and **recommended** that *the Scientific Council Reports and the Reports of the Annual Meeting be included in the contents of the CD-ROM, and the CD-ROM be issued before April of the following year.*

New Initiatives for Publications (page 79)

STACPUB **recommended** that *electronic publishing of the Journal begin with the five papers currently awaiting publication in Volume 26.*

STACFIS

Greenland Halibut (*Reinhardtius hippoglossoides*) in Subarea 0 and Division 1A Offshore and Divisions 1B-1F (page 89)

STACFIS **recommended** that *the investigations of the by-catch of Greenland halibut in the shrimp fishery in Subareas 0 and 1 should be continued.*

Greenland Halibut (*Reinhardtius hippoglossoides*) in Division 1A Inshore**Research Recommendations** (page 94)

The high catch level of Greenland halibut in Div. 1A inshore generates concern, especially because the lack of effort data from the commercial fishery impedes the assessment of the stocks. Logbooks were introduced in 1999 and STACFIS **recommended** that *for the Greenland halibut commercial fishery in Div. 1A action should be continued taken to obtain measures of effort from the commercial fishery.*

STACFIS **recommended** that *studies of the longline survey in Div. 1A should be continued to investigate if the observed variation in CPUE is caused by natural behaviour of the Greenland halibut or if it is due to survey design.*

STACFIS **recommended** that *investigations of by-catch of juvenile Greenland halibut in the commercial shrimp fishery in Subareas 0+1 should be continued.*

STACFIS **recommended** that *the discard rate of 'small Greenland halibut' in Div. 1A be investigated.*

Redfish (*Sebastes* spp.) in Subarea 1**Research Recommendation** (page 97)

STACFIS **recommended** that *monitoring of redfish by-catch taken by the shrimp fishery in Subarea 1 should be conducted and that the results should be presented at the June 2001 Scientific Council Meeting on a length disaggregated basis.*

STACFIS **recommended** that *study on maturation and reproduction of redfish in Subarea 1 be carried out.*

Other Finfish in Subarea 1**Research Recommendation** (page 99)

STACFIS **recommended** that *monitoring of finfish by-catch taken by the shrimp fishery in Subarea 1 should be conducted and that the results should be presented at the June 2001 Scientific Council Meeting on a species by species, as well as a length disaggregated basis.*

Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Division 3M**Assessment Results** (page 109)

STACFIS noted that information on Div. 3M redfish by-catch in the shrimp fishery was presented during the November 1999 assessment of shrimp in Div. 3M. STACFIS **recommended** that *an update of the Div. 3M redfish by-catch information be presented on a regular basis during the November assessment of shrimp in Div. 3M, including the estimated weights and numbers of redfish caught annually in the Div. 3M shrimp fishery as well as tables showing their size distribution.*

American Plaice (*Hippoglossoides platessoides*) in Division 3M**Future Studies** (page 114)

Problems related to age determination were presented as a key obstacle to the use of an analytical approach for American plaice in Div. 3M. STACFIS **recommended** that *current initiatives aiming at reconciling age determination from different age readers be continued in an effort to determine the catch-at-age for this stock.* Also, efforts should be made to establish historical time series of catch-at-age and other biological information at age so that they can be used in analytical assessments. It was noted that, despite these inconsistencies in age determination, the age disaggregated information available appears to be tracking year-classes as well as the information available for many other stocks. Therefore, STACFIS **recommended** that *analytical assessments be attempted in the next assessment of Div. 3M American plaice.*

Redfish (*Sebastes mentella* and *Sebastes fasciatus*) in Divisions 3L and 3N**Current and Future Studies** (page 118)

The Committee endorsed continuation of genetic studies at the population level to determine the validity of Div. 3LN and Div. 3O as separate management units. STACFIS again **recommended** that *(1) redfish data in Div. 3LN and 3O be analyzed further to determine if a relationship exists between Div. 3O and Div. 3LN that may help in the interpretation of the indices of abundance; and (2) data be examined to evaluate the appropriateness of Div. 3LN and Div. 3O as management units for redfish.*

American plaice (*Hippoglossoides platessoides*) in Divisions 3L, 3N and 3O

Interim Monitoring Report (page122)

The 1999 VPA included a value for natural mortality that was a large departure from previous models and STACFIS again **recommended** that *for American plaice in Div. 3LNO, the effect of the increase in natural mortality and possible estimation of M be explored*. In recent years catch at older ages was low or nonexistent and therefore, STACFIS again **recommended** that *the number of ages in the catch-at-age matrix of American plaice in Div. 3LNO be reduced and the effect of a plus group in the catch-at-age be explored*. Previous VPAs on this stock had a severe retrospective pattern and STACFIS again **recommended** that *the current VPA of American plaice in Div. 3LNO be examined for a retrospective pattern*. STACFIS again **recommended** that *the stock recruit relationship of American plaice in Div. 3LNO from the VPA should be explored further*. STACFIS **recommended** that *in 2001 the entire time series of abundance, biomass and length frequencies for American plaice from the surveys conducted by EU-Spain in the Regulatory Area of Div. 3NO be presented in a single document*. STACFIS further **recommended** that *in future catch to survey biomass plots for American plaice in Div. 3LNO be presented*.

Yellowtail Flounder (*Limanda ferruginea*) in Divisions 3L, 3N and 3O

Research survey data (page 124 and page 126)

STACFIS **recommended** that *a detailed description of the survey design, specifications and geometry of the sampling trawl used in the Spanish survey in the Regulatory Area of Div. 3NO be tabled at the June 2001 Meeting*.

STACFIS noted the excellent progress made to reconcile age determination and **recommended** that *age validation studies be carried out to authenticate aging by the new methods for yellowtail flounder in Div. 3LNO*.

Reference Points

Precautionary Approach (page 133)

STACFIS **recommended** that *more work is needed on the precautionary framework and how the implementation would work when projections are based on risk analyses done annually and these aspects be investigated further in future assessments of yellowtail flounder in Div. 3LNO*.

Witch Flounder (*Glyptocephalus cynoglossus*) in Divisions 3N and 3O

Recommendations (page 136)

STACFIS found it difficult to fully evaluate the trends in the annual EU-Spain survey series in the NRA area of Div. 3NO without the details of the entire time series. STACFIS **recommended** that *for future meetings the data for witch flounder in Div. 3NO be provided in detail for the entire time series in similar format as in the report of the EU survey series in Div. 3M (SCR Doc. 00/9)*.

Capelin (*Mallotus villosus*) in Divisions 3N and 3O

Potential Reference Points (page 138)

STACFIS **recommended** that *all data available related to capelin Div. 3NO stock be compiled for the June 2001 Scientific Council Meeting*.

Greenland Halibut (*Reinhardtius hippoglossoides*) in Subarea 2 and Divisions 3KLMNO**Assessment Results** (page 148)

STACFIS accepted the general upward trend apparent in the results of all approaches for the most recent years (since 1995) but believed that further work is necessary to capture the dynamics of the resource in earlier years. In particular, STACFIS **recommended** that *for Greenland halibut in Div. 2J and 3K, further analyses be carried out in order to investigate the possibility of changes in natural mortality (including sexual differences) or resource distribution inside and outside the Div. 2J and 3K area in order to enable better definition of the history of the stock size.*

Short-finned Squid (*Illex illecebrosus*) in Subareas 3 and 4**Research Recommendations** (page 154)

For short-finned squid in Subareas 3+4, STACFIS **recommended** that:

- i) *in order to evaluate effects of annually variable effort levels, data on effective fishing effort should be collected in all Subareas.*
- ii) *migration patterns within and between fishery areas for the total stock be investigated.*
- iii) *annual variability in age structure, growth rate, and maturation throughout the stock area be monitored.*
- iv) *additional research be carried out on the factors that affect recruitment.*

Elasmobranchs in Subareas 0-6**Research Recommendations** (page 171)

STACFIS **recommended** that *for elasmobranchs in SA 0-6,*

- 1) *life history characteristics (growth, maturation and fecundity) should be investigated for the most common elasmobranch species.*
- 2) *information on growth rates and stock structure (tagging studies) should be elaborated to enhance knowledge of the current status of thorny skate in Div. 3LNO and Subdiv. 3Ps.*
- 3) *a program to promote identification of elasmobranchs species taken in commercial catches should be initiated throughout all Subareas.*
- 4) *a sampling program of the commercial catches of elasmobranchs should be initiated to define removals by size and possibly by age.*

Scientific Council Annual Meeting, 18-22 September 2000*STACPUB***Information from 2000 Special Session** (page 221)

Noting that the information presented at the Workshop would be valuable for future reference, STACPUB **recommended** that *the documents from the "Workshop on Assessment Methods" along with the discussions should be compiled and issued as a Scientific Council Studies publication.*

Considerations of NAFO Website (page 222)

STACPUB **recommended** that *a Working Group with representatives from General Council, Fisheries Commission and Scientific Council should be established in order to ensure that all relevant material becomes available on the NAFO website.*

Scientific Council Meeting, 8-15 November 2000*SCIENTIFIC COUNCIL MEETING***Shrimp in Division 3M**(page 242)

Scientific Council was not able to advise on a specific catch level for 2002 and **recommended** that *the advice for 2002 be re-evaluated by Scientific Council in November 2001.*

*STACFIS***Northern Shrimp (*Pandalus borealis*) in Division 3M****Research Recommendations** (page 250)

STACFIS **recommended** that, *for shrimp in Div. 3M:*

- *number-at-age from the EU survey results should be estimated to provide insights into mortality and year-class strengths.*
- *work on age structured population models should be continued.*

Northern Shrimp (*Pandalus borealis*) in Subareas 0 and 1**Research Recommendations** (page 256)

For shrimp in Div. 0A and Subarea 1, STACFIS **recommended** that:

- *an analysis of the length-frequency data of shrimp in order to obtain the age composition be conducted.*
- *the effect of recent changes in survey design and execution be further studied.*

Northern Shrimp (*Pandalus borealis*) in Denmark Strait**Research Recommendations** (page 261)

For shrimp in Denmark Strait, STACFIS **recommended** that:

- *a survey be conducted, to provide fishery independent data of the stock throughout its range,*
- *commercial catch sampling of the fishery be improved to fully cover seasonal and spatial variation, so that size, sex and age composition of the catch can be accurately described.*