

PART D

Miscellaneous

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AGENDA I
SCIENTIFIC COUNCIL MEETING, 3-18 JUNE 1998

- I. Opening (Chairman: H. P. Cornus)
 1. Appointment of rapporteur
 2. Adoption of agenda
 3. Attendance of observers
 4. Plan of work
 5. Report of proxy votes (by Executive Secretary)
- II. Precautionary Approach (PA)
 1. Review of report of the Workshop on PA in March 1998 (SCS Doc. 98/1)
 2. Fisheries Commission/Scientific Council Working Group on the PA to fisheries management, Copenhagen, 12-13 May 1998
 3. Future development
- III. Fisheries and Environment (STACFEN Chairman: M. Stein)
 1. Opening
 2. Chairman's introduction; report on activities
 3. Invited lecture (D. Mountain, NEFSC/NOAA, USA: "Review of historical and recent environmental conditions in Subareas 5 and 6")
 4. Invited paper (E. B. Colbourne, NWAFC, Newfoundland, Canada: "Overview paper on Flemish Cap Oceanography, 1990-97")
 5. Review of environmental conditions
 - a) Marine Environmental Data Service (MEDS) Report for 1997
 - b) Review of environmental studies in 1997
 - i) Results from physical oceanographic studies
 - ii) Interdisciplinary studies
 - c) Overview of environmental conditions in 1997
 6. Recommendations and Conclusions
 7. National representatives
 8. Report on the Russian/German data evaluation project
 9. Other matters
- IV. Fishery Science (STACFIS Chairman: R. Mayo)
 1. Opening
 2. General review
 - a) General review of catches and fishing activity
 3. Stock assessments
 - a) Precautionary Approach Reference Points (see Annex 1, item 3)

- b) 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 will be undertaken later in the year. **Note:** also Annex 1, item 8):
 - Cod (Div. 3M; Div. 3NO)
 - Redfish (Div. 3LN; Div. 3M)
 - American plaice (Div. 3LNO; Div. 3M)
 - Witch flounder (Div. 3NO)
 - Yellowtail flounder (Div. 3LNO)
 - Capelin (Div. 3NO)
 - Squid (Subareas 3 and 4) (see also Annex 1, item 7)
 - Greenland halibut (Subareas 2 and 3)
 - [**Note** also Annex 1, item 5 concerning cod in Div. 2J+3KL]
 - [**Note** also Annex 1, item 6 concerning witch flounder in Div. 2J+3KL]
- c) Stocks within the 200-mile fishery zone in Subareas 2, 3 and 4, as requested by Canada (Annex 2):
 - Roundnose grenadier (Subareas 2 and 3)
 - [**Note** also Annex 2, Item 3 concerning cod in Div. 2J+3KL]
- d) Stocks within the 200-mile fishery zone in Subarea 1 and at East Greenland as requested by Denmark on behalf of Greenland (Annex 3)(Northern shrimp in Denmark Strait and off East Greenland will be undertaken during a Scientific Council Meeting, 6-10 November 1998, Copenhagen, Denmark):
 - Redfish (Subarea 1) (by species, if possible)
 - Other finfish and invertebrates (Subarea 1)
- e) Stocks overlapping the fishery zones in Subareas 0 and 1, as requested by Canada and by Denmark on behalf of Greenland (Annexes 2 and 3) (Northern shrimp in Subareas 0 and 1 will be undertaken during a Scientific Council Meeting, 6-10 November, 1998):
 - Greenland halibut (Subareas 0 and 1)
 - Roundnose grenadier (Subareas 0 and 1)

4. Research activities

- a) Review of the ICES/NAFO Working Group on harp and hooded seals
- b) Report on comparative fishing studies
 - i) Between new Campelen survey trawl and Spanish survey gear
 - ii) Between the Campelen survey trawl and DFO/fishing industry trawl
 - iii) Between Japan and Greenland Surveys on Greenland halibut
- c) Ageing studies

5. Other matters

V. Research Coordination (STACREC Chairman: V. Shibanov)

1. Opening

2. Fishery statistics

- a) Progress report on Secretariat activities in 1997/98
 - 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)
- b) The CWP 18th Session
 - i) Report on intersessional meeting of 23-27 February 1998
 - ii) Considerations for CWP 18th Session, Luxemburg, July 1999

3. Biological sampling
 - a) Report on activities in 1997/98
 - b) Report by National Representatives on commercial sampling conducted
 - c) Report on data availability for stock assessments (by Designated Experts)
 4. Biological surveys
 - a) Review of survey activities in 1997 (by National Representatives and Designated Experts)
 - b) Surveys planned for 1998 and early-1999
 5. Non-traditional fishery resources in the NAFO Area
 - a) Distribution data from surveys
 - b) Report on the CITES Meeting on the coordination of shark data collection
 - c) Report on Northwest Atlantic/Gulf/Caribbean Regional Shark Management Workshop
 - d) Catch-data collection of elasmobranchs
 6. Species breakdown of Grenadiers fisheries statistics
 7. Review of SCR and SCS Documents
 8. Other matters
 - a) Tagging activities
 - b) Scientific data from Pilot Observer Program
 - c) Conversion factors
 - d) Description of fishing effort
 - e) Other business
- VI. Publications (STACPUB Chairman: W. B. Brodie)
1. Opening
 2. Review of STACPUB membership
 3. Review of scientific publications since June 1997
 - a) Journal of Northwest Atlantic Fishery Science
 - b) NAFO Scientific Council Studies
 - c) NAFO Statistical Bulletin
 - d) Index and Lists of Titles
 - e) Others
 4. Production costs and revenues for Scientific Council publications
 - a) Review of costs and revenues
 - b) Proposal for publication of 1998 Symposium proceedings
 5. Promotion and distribution of scientific publications
 - a) Invitational papers
 - b) Distribution of Abstracts from Research Documents - ASFA
 - c) New initiatives for publications
 - d) NAFO Website
 - e) Scientific citation index (SCI)
 6. Editorial matters regarding scientific publications
 - a) Review of Editorial Board
 - b) Progress report of publication on Shrimp in Div. 3M
 - c) Considerations for publishing Symposium proceedings
 - d) Progress review of publication of 1995 Symposium
 - e) Progress review of publication of 1997 Symposium
 - f) Editorial workload related to publication of Symposium proceedings

7. Papers for possible publication
 - a) Review of proposal resulting from the 1997 Meetings
 - b) Review of contributions to the March 1998 Workshop on Precautionary Approach
 - c) Review of contributions to the June 1998 Meeting
 8. Other matters
- VII. Arrangements for Special Sessions
1. Progress report on the Special Session in 1998: Symposium on "Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish" (co-convenors: E. Aro, J. Burnett and J. Morgan).
 2. Progress on Special Session in 1999: Joint NAFO/ICES/PICES Symposium on "Pandalid Shrimp Fisheries - Science and Management at the Millennium" (co-convenors: P. A. Koeller, J. Boutillier and S. Tveite).
 3. Proposals for Special Session in 2000
 4. Proposal for Special Session in 2001
- VIII. Future Scientific Council Meetings, 1998 and 1999
1. Scientific Council Meeting and Symposium, September 1998 (including assessment of Div. 3M shrimp)
 2. Scientific Council Meeting in November 1998 (assessment of Northern Shrimp in Subareas 0+1 and off East Greenland)
 3. Scientific Council Meeting, June 1999
 4. Scientific Council Meeting and Symposium, September 1999
- IX. Nomination and Election of Officers
1. Chairman STACFEN
- X. Management Advice and Responses to Special Requests
1. Fisheries Commission (Annex 1)
 - a) Advice for TACs for 1999, and other management measures
 - b) Precautionary measures and criteria for reopening fisheries
 - c) Other requests for management advice
 2. Coastal States (Annexes 2 and 3)
 - a) Advice for TACs for 1999, and other management measures
 - b) Special requests for management advice on fish and invertebrate stocks (note item 3, Annex 3)
- XI. Other Matters
- XII. Adoption of Reports and Recommendations
1. STACFIS
 2. STACFEN
 3. STACREC
 4. STACPUB
- XIII. Adoption of Scientific Council Report
- XIV. Adjournment

**ANNEX 1. FISHERIES COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON
MANAGEMENT IN 1999 OF CERTAIN STOCKS IN SUBAREAS 3 AND 4**

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 1998 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 1999:

Cod (Div. 3NO; Div. 3M)
 Redfish (Div. 3LN; Div. 3M)
 American plaice (Div. 3LNO; Div. 3M)
 Witch flounder (Div. 3NO)
 Yellowtail flounder (Div. 3LNO)
 Capelin (Div. 3NO)
 Squid (Sub-areas 3 and 4)
 Shrimp (Div. 3M)
 Greenland halibut (Sub-areas 2 and 3)

2. 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_{1997} and F_{max} in 1999 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 1999 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 of which only general biological and/or catch data are available, no standard criteria on which to base advice can be established. The evidence on the stock should be evaluated in the context of management requirements for the long-term sustainability.
- 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 productive 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 yield and fishing mortality for at least the past 10 years.
 - A graph of spawning stock biomass and recruitment levels for at least the past 10 years.
 - A graph of catch options for the year 1999 over a range of fishing mortality rates (F) at least from $F_{0.1}$ to F_{max} .
 - A graph showing spawning stock biomass at the beginning of 1999 corresponding to each catch option.
 - Graphs showing the yield-per-recruit and spawning stock per recruit values for a range of fishing mortality.
- 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.

3. *In 1996*, the Fisheries Commission requested that the Scientific Council comment on Article 6 and Annex II of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. *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 1998 report the following information for the 1998 Annual Meeting of the Fisheries Commission for all stocks under the responsibility of the Fisheries Commission (i.e. cod in 3M and 3NO, American plaice in 3M and 3LNO, yellowtail flounder in 3LNO, witch flounder in 3NO, redfish in 3M and 3LN, Greenland halibut in SA 2+3, 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;
 - 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 in the Agreement Annex II; these research requirements should be set out in order of priority considered appropriate by the Scientific Council; and,
 - 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.
4. The Fisheries Commission requests that the Scientific Council develop criteria to be evaluated during any consideration of possible fisheries reopenings.
 5. The Fisheries Commission with the concurrence of the Coastal State requests that the Scientific Council continue to provide information, if available, on the stock separation in Div. 2J+3KL and the proportion of the biomass of the cod stock in Div. 3L in the Regulatory Area. Information is also requested on the age composition of that portion of the stock occurring in the regulatory Area.
 6. The Fisheries Commission with the concurrence of the Coastal State requests that the Scientific Council review available information, including any Canadian assessment documentation *on the stock status, and provide advice on catch levels* for the 2J3KL witch flounder resource. Any information pertaining to the relative distribution of the resource within the stock area, as well as changes in this distribution over time should also be provided.
 7. *The Fisheries Commission requests that the Scientific Council undertake a review of the historical and current status of Illex squid in Subareas 3 and 4, and in Subareas 5 and 6, and to describe the major aspects of the biology and population dynamics of the species in these regions. The Council is further requested to describe the Illex fisheries in these regions and review the basis for considering Illex in SA 3, 4, 5 and 6 as a unit stock.*
 8. *The Fisheries Commission requests that the Scientific Council provide information on the shrimp stock in 3LNO with regards to catches in recent years, by-catches of groundfish in such fisheries, abundance indices and the distribution of the stock. The Scientific Council is also requested to provide information on annual yield potential for this stock.*
 9. *The Fisheries Commission requests the Scientific Council to evaluate the impact, in terms of changes in spawning biomass per recruit and yield per recruit, as well as the implication on effort in the short term and long term resulting from the use of a mesh size of 155 mm versus 130 mm for the 2+3 Greenland halibut stock in the NAFO Regulatory Area.*

**ANNEX 2. CANADIAN REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 1999
OF CERTAIN STOCKS IN SUBAREAS 0 TO 4**

1. Canada requests that the Scientific Council, at its meeting in advance of the 1998 Annual Meeting, provide advice on the scientific basis for the management of the Roundnose grenadier in Subareas 2 and 3 in 1999.

It is also suggested that, subject to the concurrence of Denmark (Greenland), the Scientific Council, prior to the 1998 Annual Meeting of NAFO, provide advice on the scientific basis for management in 1999 of the following stocks:

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

The Scientific Council has noted previously there was no biological basis for making two separate assessments for the 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 (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 1999. 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. The Council is asked also to provide information on present harvest patterns in terms of yield per recruit and on distributional variation of the resource in recent years.

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 dynamic-pool type assessments, the status of the stock should be reviewed and implications of fishing at $F_{0.1}$ in 1999 and subsequent years should be evaluated. The present stock size should be described in relation to those observed historically and those to be expected at the $F_{0.1}$ level in both the short and long term. In those cases where present spawning stock size is a matter of scientific concern in relation to the continuing productive potential of the stock, management options should be considered to rebuild the spawning stock. All results should be expressed in terms of stock sizes, catch rates and TACs implied for 1999 and the long term.
 - b) For those stocks subject to general production-type assessments, 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 point should be the level of fishing effort (F) which is two-thirds that calculated to be required to take the MSY catch in the long term.
 - c) For those resources on which only general biological and/or catch data are available, no standard criteria on which to base advice can be established. The evidence on stock status should, however, be weighed against a strategy of optimum yield management and maintenance of stock biomass at levels of about two-thirds that of the virgin stock.

In addition to the above, the Scientific Council should also provide information on the application the Precautionary Approach for those stocks, as determined during the special March 1998 meeting of the Scientific Council.

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. Subject to the concurrence of Denmark (Greenland), the Scientific Council is requested to address the following questions related to Greenland halibut in Subareas 0 and 1:
 - a) The Scientific Council is requested to describe the spawning times and locations as well as nursery areas for Greenland halibut in Subareas 0 and 1 and the relationships with the Greenland halibut resources in southern areas.
 - b) Concern has been expressed regarding the impact of shrimp fishing in Greenland halibut nursery areas with respect to discards of young Greenland halibut. The Scientific Council is therefore asked to quantify the by-catch of Greenland halibut (by size and age) from the shrimp fishery in the nursery areas of Davis Strait and describe the potential loss in both yield and contribution to the spawning stock. The Scientific Council is also asked to comment on the measures that could be taken to eliminate or reduce substantially these by-catches.

- c) It is recognized that answers to these questions may be difficult to precisely quantify given the limitations of the existing database. Accordingly, the Scientific Council is asked to comment on the research required to adequately answer these and related questions regarding the status of the stock of Greenland halibut throughout the Davis Strait area.
5. For Roundnose grenadier in Subareas 0+1, the advice of the Scientific Council has been constrained by the lack of scientific information on this stock, as there are no recent estimates of biomass for the entire stock area. Subject to the concurrence of Denmark (Greenland), the Scientific Council is requested to comment on the research required to allow the Council to provide advice on TAC levels for that stock.

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

**ANNEX 3. DENMARK (GREENLAND) REQUEST FOR SCIENTIFIC ADVICE ON
MANAGEMENT OF CERTAIN STOCKS IN 1999**

1. Denmark, on behalf of Greenland, request the Scientific Council of NAFO in advance of the 1998 Annual Meeting, provide advice on the scientific basis for management of the following stocks in Subarea 1 in 1999 and as many years forward as data allow:
- i) Redfish (by species, if possible)
 - ii) Any other stock of invertebrates and finfish of commercial interest, for which data allow a status report

It is also suggested that, subject to the concurrence of Canada, advice be given for the following stocks overlapping Subareas 0 and 1:

- i) Greenland halibut
- ii) Roundnose grenadier

2. In the analyses on which management advice will be based, the following should be included:

In its 1993 report, the Scientific Council has 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 further information on following topics:

- a) allocation of TACs to appropriate Subareas (Subareas 0 and 1).
- b) allocation of TAC for Subarea 1 inshore areas.

3. Denmark, on behalf of Greenland, further requests that the Scientific Council of NAFO before December 1998, provide advice on the scientific basis for management of the Northern shrimp (*Pandalus borealis*) in Subareas 0 and 1 in 1999 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 the Northern shrimp (*Pandalus borealis*) in the Denmark Strait and adjacent areas east of southern Greenland.

Director
On behalf of
Ministry for Fisheries, Hunting & Agriculture

AGENDA II
SCIENTIFIC COUNCIL MEETING, 6-18 SEPTEMBER 1998

- I. Opening (Chairman: H.-P. Cornus)
 1. Appointment of Rapporteur
 2. Adoption of Agenda
 3. Attendance of Observers
 4. Plan of work

- II. Fisheries Environment (STACFEN Chairman: M. Stein)
 1. Chairman's introduction: report activities
 2. Review of oceanography information from shrimp meeting (6 to 8 September 1998)
 3. Review of research documents
 4. Russian/German data evaluation (Report on Workshop in Murmansk, 24 to 31 August 1998)
 5. Other matters

- III. Fishery Science (STACFIS Chairman: R. K. Mayo)
 1. Opening
 2. Matters related to stock assessments
 - a) Assessment of Shrimp in Division 3M (see Annex 1)
 - b) Information on Shrimp in Divisions 3LNO (see Annex 1, item 8)
 3. Arrangements for conducting stock assessments in 1999
 - a) Update list of Designated Experts
 - b) Protocol for compiling assessment reports
 4. Other matters
 - a) Review of SCR and SCS Documents
 - b) Other business

- IV. Research Coordination (STACREC Chairman: V. Shibanov)
 1. Opening
 2. Fisheries statistics
 - a) Progress report on Secretariat activities in 1998
 - i) Acquisition of STATLANT 21 data
 - ii) Publication of statistical information
 - b) Update on the establishment of NAFO Internet Website
 3. Review of SCR and SCS Documents
 4. Other matters
 - a) Working Group on biological information database
 - b) Other business

- V. Publications (STACPUB Chairman: W.B. Brodie)
 1. Opening
 2. Review of scientific publications
 - a) Status of papers from 1998 Symposium
 - b) Other reviews

3. Production costs and revenues for Scientific Council publications
 - a) Review of costs and revenues
4. Promotion and distribution of scientific publications
 - a) Invitational papers
 - b) Distribution of Abstracts from Research Documents - ASFA
 - c) NAFO Website
 - d) Scientific Citation Index (SCI)
5. Review of papers for possible publication
 - a) Papers presented at the September 1998 Meeting
 - b) Contributions not considered at the 1998 June Meeting
6. Other matters

VI. Management Advice and Responses to Special Requests

1. Shrimp in Division 3M
2. Shrimp in Divisions 3LNO
3. Special Requests from concurrent Fisheries Commission meeting

VII. Development of Precautionary Approach

1. Dates and place of Spring 1999 meeting
2. Terms of reference for Spring 1999 meeting
3. Joint Meeting with Fisheries Commission on Precautionary Approach

VIII. Review of Future Meeting Arrangements

1. Scientific Council Meeting on Northern Shrimp November 1998 (see Annex 2 and 3)
2. Scientific Council Meeting on Precautionary Approach Spring 1999
3. Joint Meeting with Fisheries Commission on Precautionary Approach
4. Scientific Council Meeting June 1999
5. Special Session and Annual Meeting September 1999
6. Scientific Council Meeting June 2000

IX. Future Special Sessions

1. Progress Report on Symposium in 1999
2. Review of Proposal for Special Session 2000

X. Other Matters

1. Scientific Council Working Procedures
2. Chairman's Report on intersessional activities
3. Review of proposed intersessional activities
4. Other business

XI. Adoption of Reports

1. Consideration of report from the Symposium of 9-11 September 1998
2. Committee reports of present meeting (STACFEN, STACFIS, STACREC, STACPUB)
3. Report of Scientific Council 6-18 September 1998

XII. Adjournment

AGENDA III
SCIENTIFIC COUNCIL MEETING, 6-10 NOVEMBER 1998

- I. Opening (Chairman: H.P. Cornus)
 - 1. Appointment of rapporteur
 - 2. Adoption of agenda
 - 3. Plan of work

- II. Fishery Science (STACFIS Chairman: R. Mayo)
 - 1. Stock assessments (Annexes 1 and 2)
 - Northern shrimp (Subareas 0 and 1)
 - Northern shrimp (in Denmark Strait and off East Greenland)
 - 2. Other business

- III. Formulation of Advice
 - 1. Northern shrimp (Subareas 0 and 1)
 - 2. Northern shrimp (Denmark Strait and off East Greenland)

- IV. Other Matters
 - 1. Progress report on 1999 Symposium
 - 2. Meeting of November 1999

- V. Adoption of Reports

- VI. Adjournment

LIST OF RESEARCH AND SUMMARY DOCUMENTS, 1998

RESEARCH DOCUMENTS (SCR)

SCR No.	Serial No.	Author(s) and Title
98/1*	N2972	NEDREAAS, K. H. Catch statistics and biological sampling from the Norwegian fishery in NAFO in 1995 (revised) and 1996 (preliminary). (6 pages)
98/2*	N2975	RIKHTER, V. A. Problems of fishery management: precautionary approach and some others. (2 pages)
98/3*	N2977	CADRIN, S. X., and U. SKÚLADÓTTIR. Surplus production analysis of shrimp in the Denmark Strait. (20 pages)
98/4*	N2978	RÄTZ, H. J., and J. LLORET. Checking of some conventional management reference points for the cod stock off Greenland. (7 pages)
98/5*	N2979	MYERS, R. A., K. G. BOWEN, N. J. BARROWMAN, and G. MERTZ. The maximum reproductive rate of fish at low populations sizes. (21 pages)
98/6*	N2980	VAZQUEZ, A., and S. CERVIÑO. Covariance among survey indices of abundance at age. (10 pages)
98/7*	N2981	BELL, E. D., and G. STEFANSSON. Performance of some harvest control rules. (19 pages)
98/8*	N2983	CADDY, J. F. Deciding on precautionary management measures for a stock and appropriate limit reference points (LRPs) as a basis for a multi-LRP Harvest Law. (13 pages)
98/9*	N2984	COOK, R. M. Application of gloss methodology to 3NO cod. (12 pages)
98/10*	N2985	MOHN, R., and G. BLACK. Illustrations of the precautionary approach using 4TVW haddock and 4VsW cod and 3LNO American plaice. (23 pages)
98/11*	N2986	RIVARD, D. Elements of a non-parametric precautionary framework. (15 pages)
98/12*	N2988	BELL, E., and G. STEFÁNSSON. In search of stability: how to halt the decline of fish stocks. (5 pages)
98/13 ^a	N2992	SAVVATIMSKY, P. I., and A. A. VASKOV. Results of Russian surveys on Greenland halibut stock assessment on the Flemish Cap in 1987-1996. (10 pages)
98/14 ^a	N2993	SAVVATIMSKY, P. I. Results from the assessment of roundnose grenadier stocks in NAFO Divisions 2G and 2H by the data from Russian trawl surveys in 1987-1992. (9 pages)
98/15 ^a	N2994	VASKOV, A. A., V. S. MAMYLOV, and S. V. RATUSHNY. Review of 1983-1996 Russian trawl acoustic surveys to assess redfish stock on the Flemish Cap Bank. (16 pages)
98/16 ^a	N2995	MELNIKOV, S. P. Peculiarities of deepwater redfish, <i>Sebastes mentella</i> , distribution by depths in the Irminger Sea. (9 pages)
98/17 ^a	N2996	BENWAY, R. L. Surface and bottom temperatures and surface salinities: New York to the Gulf Stream, Massachusetts to Cape Sable, N.S., 1997. (12 pages)

* Scientific Council Workshop on the Precautionary Approach to Fisheries Management

^a Scientific Council Meeting, 3-18 June 1998

SCR No.	Serial No.	Author(s) and Title
98/18 ^a	N2997	STEIN, M., and V. A. BOROVKOV. First report of joint Russian/German project "assessment of short-time climatic variations in the Labrador Sea". (2 pages)
98/19 ^a	N3000	SAVVATIMSKY, P. I., and K. V. GORCHINSKY. Results from studies on length and weight growth in <i>Macrourus berglax</i> and its bathymetric distribution off the Bear Island (the Norwegian Sea) and in the Northwest Atlantic. (9 pages)
98/20 ^a	N3002	STEIN, M., J. LLORET, and H.-J. RÄTZ. North Atlantic Oscillation (NAO) Index - environmental variability effects on marine fisheries? (6 pages + corrigendum)
98/21 ^a	N3005	RÄTZ, H.-J. Abundance, biomass and size composition of dominant demersal fish stocks and trend in near bottom temperature off West and East Greenland, 1982-97. (22 pages)
98/22 ^a	N3006	DOUGHERTY-POUPORE, T. Marine Environmental Data Service Report for 1997. (29 pages)
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B = Scientific Council Annual Meeting, , 6-18 September 1998

C = Scientific Council Meeting, 6-10 November 1998

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LIST OF RECOMMENDATIONS IN 1998

The following are the specific recommendations made by the Scientific Council at its meetings through 1998, 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.

All recommendations listed here are as they appear in this publication under the relevant sections and pages mentioned.

SCIENTIFIC COUNCIL MEETING, 3-18 JUNE 1998

SCIENTIFIC COUNCIL

V. RESEARCH COORDINATION

5. Non-traditional Fishery Resources in the NAFO Area

c) Report on Northwest Atlantic/Gulf/Caribbean Regional Shark Management Workshop (page 17)

The Council noted that NAFO had received an invitation from FAO to attend the preparatory meeting COFI "Meeting of FAO and non-FAO Regional Fishery Bodies" from 11-12 February 1999, dealing with various inter-agency activities focusing on promotion of code of conduct for responsible fisheries within different agencies. This meeting will be a preparatory meeting for the above-mentioned COFI Meeting. The Scientific Council **recommended** that *NAFO accept the invitation and endorsed the STACREC recommendation that the Scientific Council nominate a representative to participate, noting also that this would be a suitable forum for discussion of harmonization of terminology in relation to the Precautionary Approach.*

VI. PUBLICATIONS

2. Summary of the Committee Report (page 18)

....., the Scientific Council **recommended** that *its reports be made available to the public through the FTP-server of the NAFO internet, and any cost-savings related to this should be reinvested in the NAFO website and FTP-server.*

X. MANAGEMENT ADVICE AND REPOSSES TO SPECIAL REQUESTS

FISHERIES COMMISSION

b) Precautionary Approach

Introduction (page 34)

The frameworks are simply tools enabling managers to evaluate the performance of the "system" in relation to the management objectives (either explicit, or implicit from past actions). In case of diverging views on the basis for the framework, the Scientific Council **recommended** that *more than one framework be put forward for testing. For the above to work, it is very important that scientists and managers work together closely.*

In order to maintain the current momentum in the development of Precautionary Approach frameworks, the Scientific Council encouraged representatives to carry on activities in this area and **recommended** that *a Special Scientific Council Meeting be held during the spring of 1999 to review progress on Precautionary Approach initiatives in preparation for the June 1999 meeting.*

XI. OTHER MATTERS

a) **Harmonizing Inter-agency Terminology on the PA** (page 59)

The Council noted that there was an identified need to harmonize the PA (Precautionary Approach) terminology among different agencies, e.g. NAFO, ICES, FAO.

The Council agreed that the FAO Committee on Fisheries (COFI) is the suitable forum to address this task. It was agreed that the Scientific Council Chairman should look at an appropriate approach for NAFO. The Council also **recommended** that *NAFO accept the invitation to attend the FAO and non-FAO international agency meeting prior to the COFI Meeting in February 1999 and bring forward the issue of harmonizing the PA terminology.*

STACFEN

Recommendations and Conclusions (page 66)

STACFEN **recommended** that *NAFO co-sponsors, along with ICES, the Joint ICES/NAFO Decadal Symposium to be held in August 2001 in Edinburgh.*

STACFIS

Cod in Division 3M

f) **Research Recommendations** (page 70)

STACFIS **recommended** that *research effort be directed to rebuild past catch-at-age information and abundance indices to link all partial series, and to carry out further sequential population analysis in a common framework.*

Cod in Divisions 3NO

b) **Input Data**

i) **Commercial fishery data** (page 71)

Catch-at-age. No biological sampling data were available from by-catches of cod. Consequently, an estimate of the total removals-at-age could not be derived. STACFIS **recommended** that *length and age data from by-catches of cod in Div. 3NO be presented in June 1999.*

e) **Reference Points** (page 73)

STACFIS **recommended** that *more investigations into the calculations of other reference points for cod in Div. 3NO be conducted.*

Redfish in Division 3LN

e) **Future Studies** (page 77)

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.*

Redfish in Division 3M

d) **Assessment Results** (page 82)

STACFIS noted that the method of presentation of Div. 3M redfish by-catch information from the shrimp fishery continues to be variable. It is **recommended** that *in future the estimated numbers caught as well as tables showing their size distribution be presented.*

... STACFIS **recommended** that *in addition to age determinations, length frequency information on redfish in Div. 3M should also be provided to enable easier comparisons.*

Witch Flounder in Divisions 3NO

d) **Research Recommendations** (page 93)

STACFIS noted that it was not possible for ageing data for witch flounder in Div. 3NO to be available for this meeting from any of the Canadian surveys since 1993, which made it difficult to evaluate abundance-at-age or estimates the recruitment potential of recent year-classes. Although STACFIS was informed that this problem is unlikely to be resolved in the near future, STACFIS **recommended** nevertheless that *wherever possible the most up to date catch-at-age data for witch flounder from the surveys in Div. 3NO be made available.*

Yellowtail flounder in Divisions 3LNO

b) **Input Data**

ii) **Research survey data** (page 973)

Sampling gear studies

STACFIS **recommended** that *conversion factors be derived for re-calculating the Yankee trawl survey time series into Campelen trawl units.*

Short-finned Squid in Subareas 3+4

e) **Research Recommendations** (page 102)

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

- i) *The suitability of surplus production models for this annual species be investigated through simulation studies.*
- ii) *In order to evaluate effects of annually variable effort levels, data on effective fishing effort should be collected in all Subareas.*

Greenland Halibut in Subarea 0 and Division 1A offshore and Divisions 1B-F

f) **Research Recommendations** (page 116)

.... STACFIS **recommended** that *a survey covering both Subarea 0 and Subarea 1 should be conducted in order to allow for a more complete evaluation of the Greenland halibut stock status.*

The question of whether the Cumberland Sound Greenland halibut stock contributes to the Subareas 0 and 1 stock needs to be resolved. STACFIS **recommended** that *the tagging program in Cumberland Sound should be continued in 1999 to ascertain whether Greenland halibut move into Davis Strait.*

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

STACFIS **recommended** that *the standardized catch rates from Div. 0B and Div. 1CD should be combined to get a better overall view of the Greenland halibut stock.*

Greenland Halibut in Division 1A inshore

e) **Research Recommendations** (page 120)

The continuing increase in total landings of Greenland halibut in NAFO Div. 1A inshore generates concern, especially because lack of effort data from the commercial fishery impedes the assessment of the stocks. Therefore STACFIS **recommended** that *measures of effort from the commercial fishery be analyzed to obtain estimates of total mortality for Greenland halibut in Div. 1A.*

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

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

Redfish in Subarea 1

f) **Research Recommendation** (page 128)

STACFIS **recommended** that *the monitoring of redfish by-catch taken by the shrimp fishery in Subarea 1 based on the Greenland bottom trawl survey results reflecting the catch composition of a commercial shrimp trawl on the shrimp fishing grounds should be continued and that the results should be presented at the June Meeting in 1999 on a length disaggregated basis.*

Other Finfish in Subarea 1

f) **Research Recommendation** (page 131)

STACFIS **recommended** that *the monitoring of finfish by-catch taken by the shrimp fishery in Subarea 1 based on the Greenland bottom trawl survey results reflecting the catch composition of a commercial shrimp trawl on the shrimp fishing grounds should be continued and that the results should be presented at the June Meeting in 1999 on a species by species, as well as a length disaggregated basis.*

IV. RESEARCH ACTIVITIES

1. **Report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals** (page 136)

STACFIS was pleased that the Working Group will be examining various population models in the future, and supports their **recommendation** that a special workshop be held to evaluate the performance of the various models available. Of the seven **recommendations** arising from the meeting of the Working Group (SCS Doc. 98/16, p. 14), six pertain to seals in the Northwest Atlantic, and STACFIS endorsed all of these.

STACFIS **recommended** that *the Chair of the Joint Working Group provide a detailed update of information on harp and hooded seals in the Northwest Atlantic to the Scientific Council for its consideration at the June 1999 Meeting.*

2. **Report on Comparative Fishing Studies** (page 136)

iii) **Between Japan and Greenland survey on Greenland halibut**

...STACFIS **recommended** that *at least two days be set aside during future Spanish and Canadian spring surveys to conduct comparative fishing between the vessels, beginning in 1999.*

STACREC

Fishery Statistics

a) **Progress report on Secretariat Activities in 1997/98**

iii) **Considerations on internet site for statistical data** (page 139)

STACREC **recommended** that *online access to data on the NAFO website be at the STATLANT 21A level and that access to 21B data should be via restricted FTP accounts.*

iv) **Interagency data harmonization (NAFO/FAO)** (page 139)

STACREC recognized the value of this work in safeguarding the credibility of the databases and **recommended** that *inter-agency statistical data harmonization be continued as a regular procedure in order that the discrepancies be detected at as early a stage as possible*. STACREC also **recommended** that *national authorities should be encouraged to submit statistics with a maximum of detail with regard to the species composition of the catch, in order to minimize one of the main causes of inter-agency discrepancies*.

b) **The CWP 18th Session**

ii) **Considerations for CWP 18th Session, Luxembourg, July 1999** (page 140)

STACREC **recommended** that *the Scientific Council be represented at the CWP-18 session in Luxembourg in July 1999 by the Assistant Executive Secretary and the STACREC Chairman*.

Biological Sampling

a) **Report on Activities in 1997/98** (page 140)

STACREC **recommended** that *the Secretariat examine the various datasets compiled by different NAFO Committees, which may be available electronically in the future, and consider appropriate codes and abbreviations in order to develop means of cross referencing the information easily*.

STACREC **recommended** that *the Secretariat make provision for a new code for Canada – Central and Arctic*.

Non-traditional Fishery Resources in the NAFO Area

a) **Distribution Data from Surveys** (page 147)

STACREC noted the increasing interest in elasmobranchs worldwide and **recommended** that *analyses on the distribution and abundance of elasmobranchs and other non-traditional species be carried out and the results presented to STACREC at the earliest opportunity*.

b) **Report on the CITES Meeting on the Co-ordination of Shark Data Collection** (page 147)

STACREC agreed with the CWP that identification of elasmobranchs could be problematic and **recommended** that *NAFO encourage training in identification and reporting of elasmobranchs*

c) **Report on Northwest Atlantic/Gulf/Caribbean Regional Shark Management Workshop** (pages 147 & 148)

STACREC **recommended** that *the Scientific Council consider asking the Secretariat to approach FAO requesting that a Scientific Council representative be invited to attend the October 1998 FAO Consultation on the Plans of Action for the conservation and management of sharks*.

STACREC **recommended** that *NAFO accept the invitation from FAO to attend the preparatory meeting of FAO and non-FAO Regional Fisheries Bodies to be held in Rome on 11-12 February, 1999, and that this would also be a suitable forum for discussion of harmonization of terminology in relation to the Precautionary Approach*.

STACREC noted that FAO is also developing a plan of action on the incidental capture of seabirds in longline fisheries and a plan of action on managing fishing capacity. STACREC **recommended** that *the NAFO Secretariat inform FAO of its interest in these initiatives and request that FAO keep NAFO informed of any progress*.

d) **Catch-data Collection of Elasmobranchs** (page 148)

In response to the CITES resolution on shark data collection STACREC **recommended** that *an expanded list of individually identified species of elasmobranchs be included on the STATLANT 21A questionnaire and that the national authorities be requested to submit catch statistics with a maximum degree of detail*.

Species Composition of Grenadier Fisheries Statistics (page 148)

STACREC **recommended** that *identification of grenadiers should also be publicized, and that Scientific Council consider for 1999 that members with data on roughhead grenadier in Subareas 2+3 bring such data to its June 1999 meeting to attempt an assessment on this species.*

Other Mattersb) **Scientific Data from Pilot Observer Program** (page 149)

STACREC **recommended** that *the Scientific Council inform the Fisheries Commission that the information on protocol for data collection by the Pilot Observer Program being requested has already been furnished to the Fisheries Commission.*

d) **Description of Fishing Effort** (page 150)

STACREC **recommended** that *its proposed definition of fishing effort for boat seines (Danish, etc.) should be referred to the CWP to determine its suitability for global definitions.*

STACPUB

Production Costs and Revenues for Scientific Council Publicationsa) **Review of Cost and Revenues** (page 152)

STACPUB therefore **recommended** that *the Executive Committee of the Scientific Council be more directly involved in the budgetary process of NAFO.*

b) **Proposal for Publications of 1998 Symposium Proceedings** (page 152)

STACPUB therefore **recommended** that *all authors be encouraged to bring a copy of their papers to the session to enable the Secretariat to keep a complete record of papers presented at the Symposium.*

Promotion and Distribution of Scientific Publicationsb) **Distribution of Abstracts from Research Documents - ASFA** (page 153)

STACPUB **recommended** that *NAFO Secretariat change the forms and announcements for paper submissions at the Scientific Council Meetings to incorporate abstracts in the SCR Docs.*

d) **NAFO Website** (page 153)

STACPUB **recommended** that *Scientific Council reports be made available to the public through the FTP-server. There will be two versions of reports: The "Blue covered SCS Doc." and the "Redbook" versions. The "Blue cover" versions will be loaded to the server as soon as they are available. When the "Redbook" version is available, this report will replace the previous "Blue cover" versions. The use of electronic media for dissemination of information should reduce production and shipping costs considerably. STACPUB accordingly **recommended** that *any savings of funds be used for hiring and training of personnel as necessary for maintenance of the Website and FTP server.**

Other Matters (page 154)

STACPUB noted the increased importance of computers to the work of the Scientific Council and **recommended** that *Scientific Council form an Ad hoc Working Group to review current and future needs.*

SCIENTIFIC COUNCIL ANNUAL MEETING, 6-18 SEPTEMBER 1998

ANNEX 1. REPORT OF THE SYMPOSIUM

Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish

III. Recommendations (page 175)

The Symposium **recommended** that *the NAFO Scientific Council should establish a Working Group in order to:*

- *Explore and review availability of information and existing data on reproduction potential by areas and species*
- *Explore possibilities to develop standard internationally coordinated research protocols to estimate egg and larval production*
- *Explore and evaluate alternative methods to estimate reproductive potential annually as part of routine in monitoring and sampling schemes (such as HSI)*
- *Review possibilities to develop methods and applications to estimate stock's reproductive potential for assessment and management*

The Working Group should work by correspondence in 1998-1999 and make a proposal for the June Scientific Council meeting in 1999.

The Symposium also **recommended** that *whenever possible, stock assessments should take into account the following points and information when evaluating a stock's reproductive potential:*

- *Age and length at maturity*
- *Changes in mean weights-at-age*
- *The use of annual maturity ogives rather than "knife-edge" ogive for all years to estimate SSB*
- *Estimation of SSB*
- *Stock-Recruitment relationship plot*
- *Condition factor data - trends if possible*
- *Age and sex specific condition factors*
- *Fecundity estimates*
- *Egg quality (size, viability), in relation to reproductive history and/or condition*
- *Apply maturity, fecundity, condition and egg quality data to compile stock reproductive potential*
- *Establish minimum safe threshold level of stock reproductive potential (conservation threshold)*

STACFIS

II. STOCK ASSESSEMENTS

Shrimp (*Pandalus borealis*) in Division 3M

e) **Research Recommendations** (page 190)

Progress was made on some of the research recommendations from 1997. Stomach content data from the 10 main groundfish species on Flemish Cap are being investigated for consumption of shrimp, and the possible development of a recruitment index and a report on progress should be available in 1999. A standardized database for biological samples was prepared for two nations, but more information is necessary.

Several **recommendations** from the September 1997 Meeting were not addressed and are repeated below:

- *Age composition of the EU survey results should be estimated to provide insights into mortality and year-class strengths.*
- *Contracting Parties contribute to the catch and effort dataset according to the format specified in SCS Doc. 96/19.*
- *Estimates of overpack should be obtained for all nations fishing for shrimp in Div. 3M and these estimates be included in the catch statistics.*

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

- *A refinement of the standardized CPUE index in relation to the appropriate analytical methods and addressing the changes in fishing technology over time be conducted.*
- *The implications of the change in the relative efficiency of the different codend mesh sizes used during the 1998 EU groundfish survey be evaluated.*
- *Relationships between shrimp in Div. 3M and those in adjacent areas in Div. 3LN and farther north in Div. 2J and 3K should be investigated.*

Because the 1997 and 1998 Faroes surveys do not address the problem of providing a recruitment index, the 1996 **recommendation** was repeated. "A directed research survey for shrimp on Flemish Cap should be initiated with the primary goal of obtaining a reliable recruitment index, given that the EU-survey does not provide reliable estimates of shrimp at age two. The survey would also provide extensive data on the distribution and demography of the shrimp stock throughout the area. Hydrographic information should be collected, including data on currents, in conjunction with the survey."

STACREC

Others Matters

a) Working Group on Biological Information Database (page 194)

STACREC **recommended** that *the Working Group on Biological Information Database proceed forward to develop a data exchange protocol and data format for a candidate stock based on the structure of the biological information files mentioned above.* The work will be undertaken by correspondence under the direction of the Chairman (E. De Cárdenas, EU Spain) and it was agreed that the progress be reported at the June 1999 Meeting.

b) Shark, Other Elasmobranchs and Non-utilized Resources (page 194)

STACTREC reiterated the **recommendation** made at the June 1998 Meeting that *an expanded list of individually identified species of elasmobranchs be included in the STATLANT 21 A questionnaire and that the national authorities be requested to submit catch statistics with a maximum degree of detail.*

STACPUB

Review of Scientific Publications

a) Status of Papers from 1998 Symposium (page 197)

The Symposium convenors had agreed to coordinate the review and editorial process in consultation with the Assistant Executive Secretary. Papers presented during the Symposium are due at the NAFO Secretariat by the end of September. STACPUB **recommended** that *the Scientific Council report on the 1998 Symposium be placed on the NAFO website.*

Promotion and Distribution of Scientific Publications

c) NAFO Website (page 198)

STACPUB **recommended** that *Scientific Council advice given in 1998 for various stocks should be placed on the NAFO website.*

REPORT OF SCIENTIFIC COUNCIL, 6-10 NOVEMBER 1998**STACFIS****Shrimp (*Pandalus borealis*) in Subareas 0 and 1****d) Research Recommendations** (page 213)

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

- *sampling of the commercial fishery be further improved to cover all components of the fishery by area and month,*
- *an analysis of the distribution of the shrimp stock in relation to environmental conditions be conducted,*
- *survey results 1994-97 (both biomass estimates and size composition data) be standardized to make them comparable to results from the other years,*
- *survey strategy and design be further optimized, and a study on the impact of the duration of trawl hauls on biomass estimates be undertaken, and*
- *an analysis of the abundance and spatial distribution over time of all by-catch species in trawl surveys be undertaken.*

Shrimp (*Pandalus borealis*) in Denmark Strait**d) Research Recommendations** (page 216)

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

- *a survey be conducted, to provide fishery independent data of the stock throughout its range,*
- *all available oceanographic data regarding the area be compiled for further investigation of the warming in northern Denmark Strait beginning in 1993,*
- *commercial catch sampling of the fishery be improved to fully cover seasonal and spatial variation, so that size and sex composition of the catch can be accurately described,*
- *methods for presenting length-at-age and length-at-sex reversal be coordinated, and*
- *all available logbook data be analyzed for trends in CPUE (both standardized and unstandardized).*