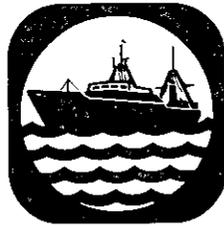


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Northwest Atlantic  
Fisheries Organization  
(NAFO)



Annual Report  
1998

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## **Preface**

This Annual Report for the year 1998 is submitted to the Contracting Parties of NAFO in accordance with the provisions of Article V.4 of the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries. The Report consists of four major parts that reflect the annual activities of NAFO's constituent bodies – the General Council, the Fisheries Commission, the Scientific Council, and the Secretariat as the summary proceedings and decisions through 1998. Full reports of the General Council and Fisheries Commission meetings held during the year are published in a separate edition – "Meeting Proceedings of the General Council and Fisheries Commission for 1998", and the proceedings of the Scientific Council are published in the "Scientific Council Reports, 1998". The Annual Report includes a summary of meetings, scientific, statistical, financial and other appropriate information pertaining to the activities of the Organization and fisheries in the Regulatory Area.

L. I. Chepel  
Executive Secretary



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## Introduction

The Northwest Atlantic Fisheries Organization (NAFO)\* operates under provisions of the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries signed in Ottawa, Canada, on 24 October 1978 and entered into force on 1 January 1979. Canada is the country-depositary for the Convention.

The principle objectives of NAFO set forth by the Convention are to contribute through consultation and cooperation to the optimum utilization, rational management and conservation of the fishery resources of the Convention Area. To carry out its mission, NAFO was structured into the following four constituent bodies: the General Council, the Scientific Council, the Fisheries Commission, and the Secretariat. The first three constituent bodies meet at least once annually, while NAFO business between meetings would be coordinated through the Secretariat.

The following NAFO meetings were held during 1998: (1) Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties (Brussels, Belgium, March); (2) Scientific Council Workshop on Precautionary Approach (Dartmouth, Canada, March); (3) Working Group on Dispute Settlement Procedures (DSP) (Dartmouth, Canada, April); (4) Working Group on Precautionary Approach (Copenhagen, Denmark, May); (5) Standing Committee on International Control (STACTIC) (Copenhagen, Denmark, May); (6) Working Group on Transparency (Washington, DC, USA, May); (7) Regular Scientific Council Meeting (Dartmouth, Canada, June); (7) Scientific Council Symposium on "Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish" (Lisbon, Portugal, September); (8) 20th Annual Meeting of the Organization including meetings of all constituent bodies in September, Hotel Altis, Lisbon, Portugal; (9) Scientific Council Meeting (Copenhagen, Denmark, November).

The Scientific Council reviewed and assessed the state of 25 fish stocks in the NAFO Regulatory and Convention Areas. The scientific recommendations for the management, conservation and utilization of the fishery resources were forwarded to the Fisheries Commission advising that all cod stocks remained at low abundance and shall be under moratoria in 1999. The Council also recommended continuation of moratoria for 3LNO and 3M American plaice, 3LN Redfish, 3NO Capelin and 2J3KL Witch flounder. Two stocks, 3LNO Yellowtail flounder and 2+3LMNO Greenland halibut were showing signs of improved recruitment and recommended for increased TACs.

The Scientific Council continued its progress in developing a precautionary approach to the management of NAFO stocks and proposed new elements to its Action Plan and scheduled a new meeting in May 1999.

The Fisheries Commission considered the Scientific Council recommendations and agreed on joint international measures and actions for the conservation and utilization of the fishery resources in the Regulatory Area.

The following stocks were put under moratoria in 1999: Cod in Divisions 3M and 3L (that portion within the Regulatory Area) and 3NO, Redfish in Div. 3LN, American plaice in Divisions 3M and 3LNO, Witch flounder in Div. 3NO and 3L (that portion within the Regulatory Area) and Capelin in 3NO. The TAC for Greenland halibut increased to 33,000 mt (from 27,000 mt) of which 24,444 mt was allocated to the Regulatory Area.

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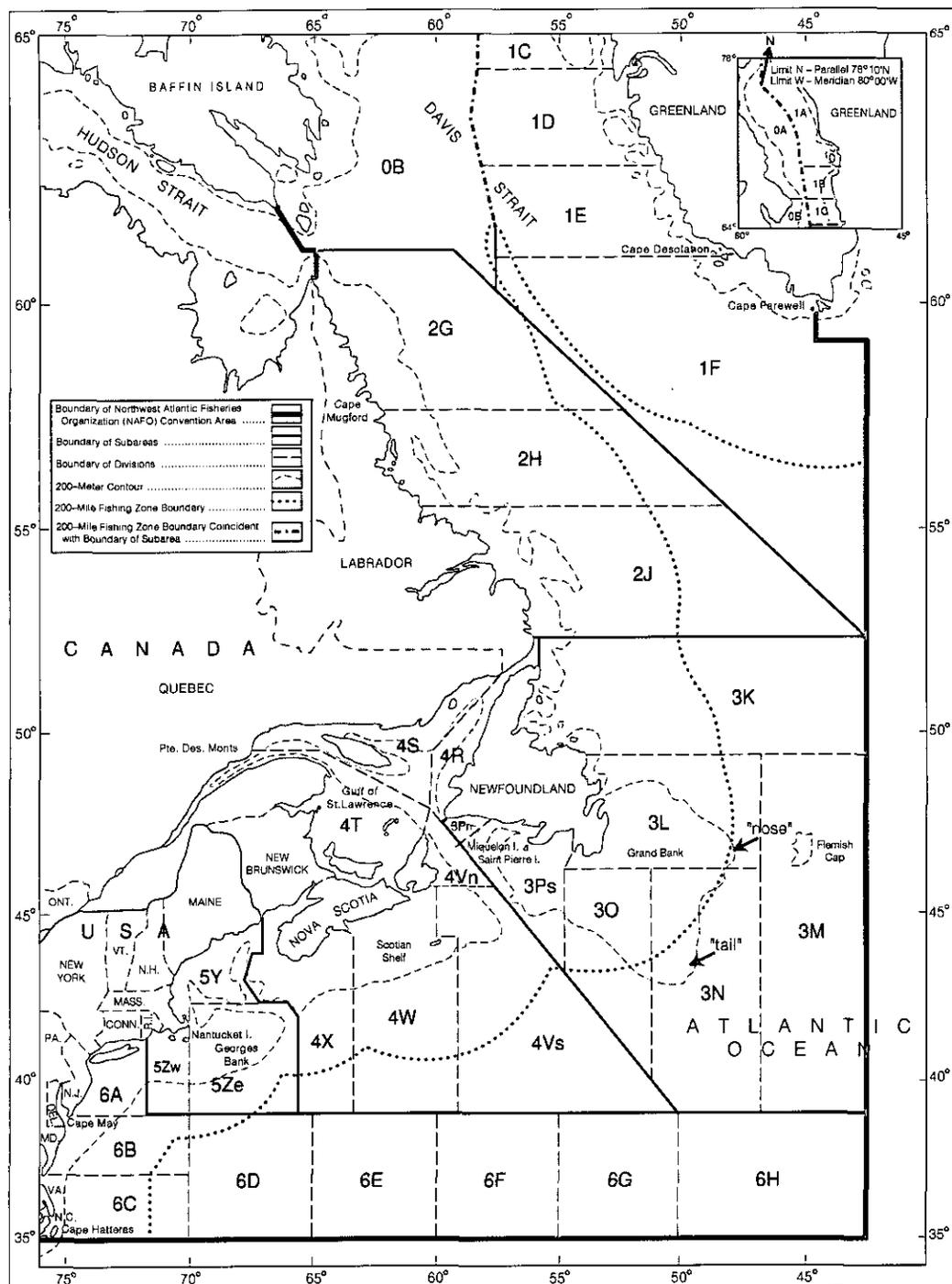
\*Note: The predecessor of NAFO was ICNAF through the years 1950-1978 based on the International Convention for the Northwest Atlantic Fisheries.

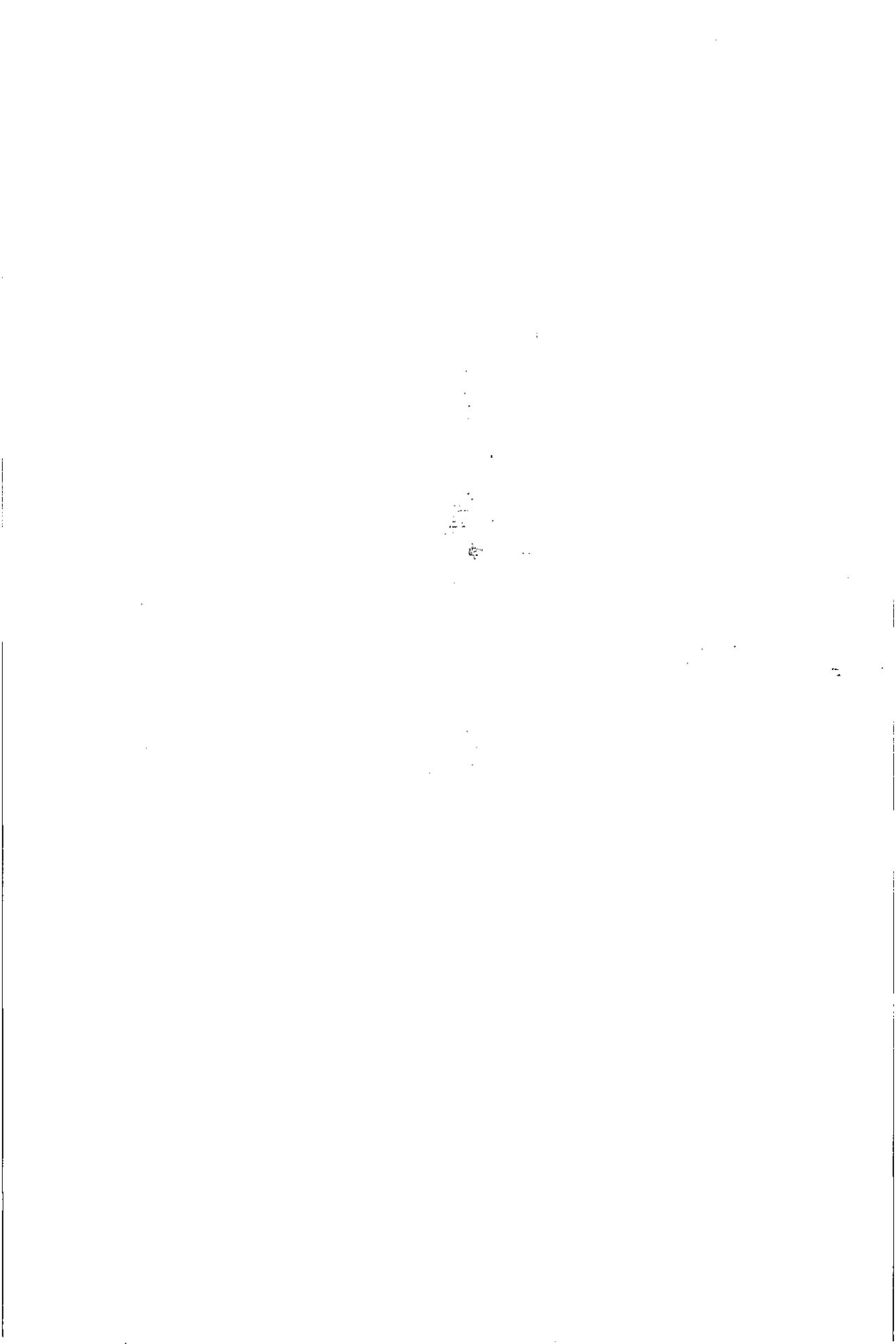
New conservation and enforcement measures were agreed for the shrimp fishery on the Flemish Cap in Division 3M; program on 100% coverage by observers; 100% of satellite tracking devices on all vessels fishing in the Regulatory Area not later than 1 January 2001; formats for electronic transmission of NAFO hail reports from Contracting Parties to the NAFO Secretariat; prevent transshipments of fish from non-Contracting Party vessels which have been sighted in fishing activities in the NAFO Regulatory Area.

On the subject of the precautionary approach, the Fisheries Commission jointly with the Scientific Council decided to call a special intersessional Working Group meeting in spring 1999. The meeting will progress further with the idea of "case specific studies" and develop precautionary management strategies for three groundfish stocks (Cod 3NO, Yellowtail flounder 3LNO, Shrimp 3M).

The General Council deliberated several outstanding issues regarding internal and external NAFO policy and resolved on the following: to continue deliberations for improving transparency in NAFO proceedings and decisions and dispute settlement procedures; to seek to establish closer inter-regional cooperation with other regional fisheries organizations with the aim to share information and to promote respect for relevant conservation measures by Non-Contracting Party vessels; to improve control of the fisheries by the Contracting Parties and prohibit any charter vessel arrangements until a comprehensive set of rules is developed by NAFO. The President of NAFO, A. Rodin (Russia), signed diplomatic demarches to the Non-Contracting Party flag-States whose vessels fished in the NAFO Regulatory Area in 1998, namely Belize, Honduras, Panama and Sierra Leone.

The Convention Area to which the Convention on Future Multilateral Cooperation in the Northwest Atlantic applies





**Structure of the Northwest Atlantic Fisheries Organization (NAFO) in 1998  
(as at 20th Annual Meeting, September 1998)**

**Contracting Parties**

Bulgaria, Canada, Cuba, Denmark (in respect of the Faroe Islands and Greenland), Estonia, European Union (EU), France (in respect of St. Pierre et Miquelon), Iceland, Japan, Republic of Korea, Latvia, Lithuania, Norway, Poland, Romania, Russia and United States of America (USA).

**President**

A. Rodin (Russia)

**Constituent Bodies**

General Council	Bulgaria, Canada, Cuba, Denmark (in respect of the Faroe Islands and Greenland), Estonia, EU, France (in respect of St. Pierre et Miquelon), Iceland, Japan, Korea, Latvia, Lithuania, Norway, Poland, Romania, Russia and USA.	<i>Chairman</i> – A. Rodin (Russia) <i>Vice-Chairman</i> – R. Dominguez (Cuba)
Scientific Council	Bulgaria, Canada, Cuba, Denmark (in respect of the Faroe Islands and Greenland), Estonia, EU, France (in respect of St. Pierre et Miquelon), Iceland, Japan, Korea, Latvia, Lithuania, Norway, Poland, Romania, Russia and USA.	<i>Chairman</i> – H.-P. Cornus (EU) <i>Vice-Chairman</i> – W.B. Brodie (Canada)
Fisheries Commission	Canada, Cuba, Denmark (in respect of the Faroe Islands and Greenland), Estonia, EU, France (in respect of St. Pierre et Miquelon), Iceland, Japan, Korea, Latvia, Lithuania, Norway, Poland, Poland, Russia and USA.	<i>Chairman</i> – P. Gullestad (Norway) <i>Vice-Chairman</i> – D. Swanson (USA)

**Standing Committees**

General Council	Standing Committee on Finance and Administration (STACFAD)	<i>Chairman</i> – G. F. Kingston (EU) <i>Vice-Chairman</i> – J.-P. Plé (USA)
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General Council (cont'd)	Standing Committee on Fishing Activity of Non-Contracting Parties in the Regulatory Area (STACFAC)	<i>Chairman</i> – J.-P. Plé (USA) <i>Vice-Chairman</i> – B. Buch (Denmark in respect of Faroe Islands and Greenland)
Scientific Council	Standing Committee on Fishery Science (STACFIS) Standing Committee on Research and Coordination (STACREC) Standing Committee on Publications (STAC PUB) Standing Committee on Fisheries Environment (STACFEN) Executive Committee	<i>Chairman</i> – R. Mayo (USA) <i>Chairman</i> – V. Shibanov (Russia) <i>Chairman</i> – W. B. Brodie (Canada) <i>Chairman</i> – M. Stein (EU) <i>Chairman</i> – H.-P. Cornus (EU)
Fisheries Commission	Standing Committee on International Control (STACTIC)	<i>Chairman</i> – D. Bevan (Canada)

#### Secretariat

Executive Secretary	L. I. Chepel
Assistant Executive Secretary	T. Amaratunga
Administrative Assistant	F. D. Keating
Senior Secretary	B. J. Cruikshank
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Statistical Clerk	C. L. Kerr

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**PART I**  
(pages 15 to 61)

**Activities of the General Council in 1998**

**List of Meetings**

The following meetings were held under the authority of the General Council:

- Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties; Brussels, Belgium, 4-6 March.
- Working Group on Dispute Settlement Procedures (DSP); NAFO Headquarters, Dartmouth, N.S., Canada, 22-24 April.
- Working Group on Transparency of NAFO Proceedings; Washington, D.C., USA, 27-29 May.
- The General Council and its subsidiary bodies (STACFAD and STACFAC); 20th Annual Meeting, Lisbon, Portugal, 14-18 September.



## Major Documents of the General Council in 1998

<u>Serial No.</u>	<u>GC Doc. No.</u>	<u>Title</u>
N2982	98/1	Report - 1997 – In accordance with the Scheme to Promote Compliance by Non-Contracting Party Vessels with the Conservation and Enforcement Measures
N3031	98/2	Report of the Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties, 4-6 March 1998, Brussels, Belgium
N3074	98/3	Report of the Working Group on Transparency, 27-29 May 1998, Washington, D.C., USA
N3078	98/4+Add.	Report of the Working Group on Dispute Settlement Procedures (DSP), 22-24 April 1998, Dartmouth, N.S., Canada
N3079	98/5	Administrative Report and Financial Statements for the fiscal year ending 31 December 1998 (as of 31 July 1998)
N4012	98/6	Report of the Annual Meeting of the North Atlantic Marine Mammal Commission (NAMMCO)
N4038	98/7	Report of the General Council, 20th Annual Meeting, 14-18 September 1998, Lisbon, Portugal



**Working Group on Allocation of Fishing Rights to  
Contracting Parties of NAFO and Chartering of  
Vessels Between Contracting Parties  
4-6 March 1998, Brussels, Belgium**

The Working Group was organized in accordance with the joint decision by the General Council and Fisheries Commission at the 19<sup>th</sup> Annual Meeting, 15-19 September 1997 (item 4.14 of the General Council Report, GC Doc. 97/8). Complete proceedings of the meeting are presented in GC Doc. 98/2 and in the NAFO Meeting Proceedings (General Council and Fisheries Commission), 1998.

**Opening Procedures**

The Meeting was called to order by the Chairman, H. Koster (EU), who drew the attention of delegates to the terms of reference charged to the working group by the General Council regarding chartering and the Fisheries Commission regarding the allocation of fishing rights. Delegates from the following Contracting Parties were present: Canada, Denmark (in respect of the Faroe Islands and Greenland), Estonia, European Union, France (in respect of St. Pierre et Miquelon), Iceland, Japan, Republic of Korea, Latvia, Lithuania, Norway, Poland, Russia and the United States of America (Annex 1).

Dr. D. Swanson (USA) was elected as rapporteur.

The agenda attached as Annex 2 was adopted.

**Consideration of the current allocation practice within NAFO, general  
rules affecting allocation and methods for setting quota allocations**

There were diverse considerations: that the NAFO allocation practice was not adequately specified, was not transparent or consistently applied through time, and did not adequately take into account the interests of all Contracting Parties; that NAFO's allocation of fishing rights was clear and consistent in its application over time and that experience had also shown that the stability of NAFO's allocation practice lies at the heart of the Organization's stability; that there would be the possibility of changes to the practice that would not threaten stability. The consensus has been that rules should be written regarding how NAFO would deal with future new members in terms of allocations.

For the general rules, all delegations agreed that the NAFO Convention is the legal framework within which quota allocation must be dealt (Article XI). In addition, all delegations agreed that a variety of instruments of established or emerging international law as well as recent international declarations gave guidance on participatory rights within organizations such as NAFO.

These include, *inter alia*,

- the United Nations Convention on the Law of the Sea, 1982;
- the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 (UNIA);
- the Code of Conduct for Responsible Fisheries, 1995;
- Kyoto Declaration and Plan of Action, 1995; and,
- relevant international customary law (e.g. the *due regard* principle).

For setting quota allocations, several tasks were identified. In the first place, it should be explored how to deal with future members of NAFO. Although all Contracting Parties accepted that NAFO is an open organization of which all members are the same, allocations to future new members needed to be examined. Such examination could also draw on UNIA and applicable international law, although the NAFO Convention is the legal framework for any NAFO policies as strategies. It was understood that any strategy to be developed should not affect existing fishing rights of Contracting Parties whilst any flexibility in the current quota table should be explored for accommodating any requests for fishing opportunities as well as a broader sharing when regulated stocks were so abundant that they were under exploited.

#### **Consideration of the NAFO Convention and chartering operations and relevant provisions**

It was agreed that, although nothing in the NAFO Convention and associated rules expressly prohibits the chartering of a fishing vessel within one Contracting Party to harvest fish allocated to another Contracting Party, there were non-transferable obligations required of the flag state such as for monitoring, control, and reporting. For some delegations, this was the reason to prohibit chartering in principle and to examine each derogation to this principle, whilst other delegations considered that chartering is an economic activity for which NAFO only could establish measures based on conservation and enforcement measures to regulate such operations.

The issues considered relevant to a NAFO policy on chartering included: ensuring effective monitoring, control, and reporting; notification of or approval by NAFO according to established procedures and criteria; use of effort or "others" quota allocation by chartering arrangements; whether a charter might be a discrete or continuing arrangement; and, whether the chartered vessel would acquire registration from the Contracting Party allocated the relevant quota.

#### **Recommendations to the General Council and Fisheries Commission**

As the outcome of the discussions, the Working Group recommended to the General Council and the Fisheries Commission for follow-up action in accordance with the Chairman's Working Paper (Annex 3).

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L. I. Chepel, Executive Secretary

B. J. Cruikshank, Senior Secretary

## Annex 2. Agenda

1. Opening by the Chairman, H. Koster (EU)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Consideration of the current allocation practice within NAFO, including developments since the establishment of NAFO, the interests of Contracting Parties, relevant provisions of the NAFO Convention and applicable international agreements
5. Consideration of general rules affecting allocations
6. Consideration of methods for setting quota allocations:
  - (a) current fisheries with TACs
  - (b) fisheries previously not subject to TAC
  - (c) new fisheries
  - (d) closed fisheries
7. Consideration of the NAFO Convention and chartering operations
8. Consideration of relevant provisions to be incorporated in a NAFO policy dealing with chartering operations
  - (a) flag-State responsibility
  - (b) notification/approval of other NAFO Contracting Parties to chartering operations
  - (c) Non-Contracting Party involvement in chartering operations
9. Other Business
10. Adjournment

### **Annex 3. Chairman's Working Paper**

#### **Guidelines for future discussions:**

##### **on Allocation of Fishing Rights**

1. Explore the meaning of the term "real interest" in relation to future new members.
2. Consider adopting a broad strategy to guide expectation of future new members with regard to fishing opportunities in the NAFO Regulatory Area.
3. Develop a broad strategy to allocate future fishing opportunities for stocks not currently allocated.
4. Explore in connection with stocks under TACs possible margins to accommodate requests for fishing opportunities.

##### **on Chartering of Vessels**

1. Consider chartering of fishing vessels which during the charter period are flying the flag of the chartering NAFO Contracting Party.
2. Consider and develop rules for chartering of fishing vessels flying the flag of a NAFO Contracting Party, which are duly authorized to exploit fishing rights of the chartering NAFO Contracting Party:
  - notification and approval procedures
  - criteria
  - recording and reporting rules
  - effective control

**Working Group on Dispute Settlement Procedures (DSP)**  
**22-24 April 1998, Dartmouth, N. S., Canada**

The DSP Working Group met in accordance with the decision taken by the General Council at the 19th Annual Meeting, September 1997 (GC Doc. 97.9, Part I, item 4.11). The complete proceedings of the Working Group Meeting are presented in GC Doc. 98/4 and in the NAFO Meeting Proceedings, 1998.

**Opening Procedures**

The Meeting was opened by the Chairman, Mr. Stein Owe (Norway), who welcomed all delegates. The following Contracting Parties were represented at the Meeting: Canada, Denmark (in respect of Faroe Islands and Greenland), Estonia, European Union, Iceland, Japan, Latvia, Lithuania, Norway, Poland, the Russian Federation and the United States of America (Annex 1).

Mr. Fred Kingston (EU) was appointed Rapporteur.

The Agenda set out in Annex 2 was adopted.

**Review of Proposals by Contracting Parties on a  
NAFO Dispute Settlement Mechanism**

The Working Group considered two proposals on DSP, namely a Canadian paper entitled "Proposed Canadian Protocol on the Settlement of Disputes under NAFO Convention Article XII", and an EU paper entitled "Proposal for a new Article related to the settlement of disputes to be introduced by way of an amendment pursuant to Article XXI of the NAFO Convention".

The Canadian paper was the same as that which was reviewed extensively at the last meeting of the Working Group (please see Meeting Proceedings, 1997). Canada stated that it remains convinced of the need to prevent the misuse of the NAFO objection procedure by adopting a mechanism that deals with objections that threaten the conservation of NAFO stocks. Any NAFO DSP should apply to both straddling and discrete stocks and should be expeditious in order to resolve any dispute before it has a damaging effect on fish stocks. Other disputes could be adequately covered under the United Nations Convention on the Law of the Sea.

The EU stated that the main idea of this proposal is for NAFO to incorporate, by way of an amendment to the NAFO Convention, the existing DSP set out in UNCLOS. This DSP should apply to all NAFO Contracting Parties and to all kinds of disputes. It should also cover discrete stocks.

**Desirability and, as appropriate, of the development of DSP**

Concerning the issue of whether NAFO DSP were desirable, delegates either declared that such procedures were desirable or were prepared to keep the issue open for future consideration. Without prejudice to any such final decision in this regard, the Working Group agreed to proceed with an examination of possible elements on the development of DSP.

Certain delegates remarked upon the desirability for parties to resolve their differences by peaceful means and pointed to the obligations to consult and cooperate under Article II of the NAFO Convention.

Concerning the development of such DSP, much of the discussion focused on issues including: the type of dispute to be covered under any DSP; concerning the objection procedure under Article XII of the NAFO Convention, the Working Group agreed that any DSP should not challenge a Contracting Party's right to object but rather focus on its "post-objection behavior". In this context, there was an extensive discussion concerning the type of post-objection behavior sufficient to trigger any NAFO DSP; binding/non-binding nature of any decision arising out of any possible NAFO DSP Panel process; the competence of any NAFO DSP Panel; the applicable law, particularly whether the UN Agreement should be applied also to discrete stocks; time-lines concerning conservation and management measures before the start of the relevant fishing season; burden of proof; establishment of Panel; costs, namely that NAFO would pay the costs of any Panel established or that the disputing parties would pay in equal shares; legal form for NAFO to incorporate any DSP; amendment of the NAFO Convention and/or a Protocol.

#### **Report to the General Council**

Following the discussion at this meeting, the Chairman informed the Working Group that he intends to prepare a paper to serve as a basis for the further work of the Working Group. He will distribute this paper in advance of the next NAFO Annual Meeting. The Working Group agreed to meet on 14 September 1998 in Lisbon, Portugal, in order for the Chairman to present his paper and to respond to any questions thereon.

## Annex 1, List of Participants

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L. I. Chepel, Executive Secretary  
B. Cruikshank, Senior Secretary

**Annex 2. Agenda**

1. Opening by the Chairman, Stein Owe (Norway)
2. Appointment of Rapporteur
3. Adoption of the Agenda
4. Review of papers and proposals by Contracting Parties on a NAFO dispute settlement mechanism
5. Examination of the desirability and possible elements in a NAFO dispute settlement mechanism
6. Report to the General Council
7. Other matters
8. Adjournment

**Working Group on Transparency**  
**27-29 May 1998, Washington, D.C., USA**

The complete proceedings of this Working Group are presented in GC Doc. 98/3 and in the NAFO Meeting Proceedings, 1998.

**Opening Procedures**

The Chairman, D. Swanson (USA), opened the meeting and welcomed delegates to Washington, D.C. Representatives from the following Contracting Parties were present: Canada, Denmark (in respect of the Faroe Islands and Greenland), European Union, France (in respect of St. Pierre et Miquelon), Iceland, Japan, Republic of Korea, Norway, Poland, Russia and the United States (Annex 1).

P. Moran (USA) was appointed Rapporteur.

The provisional agenda was adopted (Annex 2).

**Consideration of Concrete Requirements and Rules for Participation  
of Observers at NAFO Meetings**

Intergovernmental Organization and Non-member Government Observers and Non-Governmental Organizations

This discussion is reflected in the body of the Chairman's Paper (Annex 3).

Other access to and distribution of information on the work and decisions of NAFO in light of the Organization's relations with relevant interest groups and the general public

The Executive Secretary summarized the current NAFO system of distribution of information noting that NAFO provides documents from the General Council, Fisheries Commission and Scientific Council to major fisheries organizations in North America and Europe. Information is also distributed to the United Nations, FAO and interested libraries in this region. Enquiries from the press of a Contracting Party are generally referred to the government of that Party. All other enquiries from the public are provided with condensed versions of NAFO activities. Furthermore, NAFO has developed an internet website which is currently being expanded.

Working Group delegates congratulated the Executive Secretary on the work of the Secretariat to increase NAFO's interaction with the public. Some delegates noted that perhaps this level of transparency was sufficient. Others expressed the view that Article XII of the UN Convention on Straddling Stocks identifies two elements to transparency - (1) the sharing of information and (2) access of observers to the decision-making procedure.

Regarding access of the press to NAFO meetings, the Executive Secretary clarified that the item "Publicity" is on the agenda of the General Council and Fisheries Commission each year. Standard practice has been that no statements to the press may be made during the meeting. At the end of the meeting, the Chairs of the General Council, Fisheries Commission and Scientific Council in cooperation with the Executive Secretary draft a press release which is adopted by the General Council and released.

After considerable discussion it was decided that the Working Group should recommend that the General Council authorize it to continue its work. The Working Group further recommended that Contracting Parties continue their consultations regarding issues discussed at this meeting.

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## Annex 2. Agenda

1. Opening by Chairman, D. Swanson (USA)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Presentation of papers by Delegates for discussion
5. Consideration of concrete requirements and rules for participation of observers at NAFO meetings:
  - a) terms, conditions, procedures, and other relevant factors for participation in meetings of NAFO bodies as observers or otherwise, as appropriate, with respect to:
    - (i) IGO's
    - (ii) NGO's
      - eligibility
      - selection
      - participation
      - cost
      - other provisions, and
  - b) other access to and distribution of information on the work and decisions of NAFO in light of the Organization's relations with relevant interest groups and the general public.
6. Report and recommendations to the General Council
7. Other matters
8. Adjournment.

### Annex 3. Chairman's Draft – Procedures for Observers

#### Observers from Inter-governmental Organizations and Non-Contracting Parties

The Working Group agreed that, at present, there was no need to be concerned about the eligibility criteria for such observers. Contracting Parties should continue to be notified in advance of such measures. The costs of participation by non-member governments should be assessed consistent with those assessed to NGOs, while any costs assessed to IGOs should also aim at recovering the additional costs of their participation to NAFO, taking into account any reciprocal arrangements and reserving appropriate flexibility. IGO and Non-Contracting Party observers must agree in writing to comply with the Rules of Procedure and other rules applicable to other participants in the meeting.

#### Observers from Non-governmental Organizations

##### 1. Eligibility

- A. Representatives from [international] non-governmental organizations (NGO's) [with a qualified interest in][with an ability to contribute to] [concerned with] the work of NAFO, and supportive of the optimum utilization, rational management and conservation of the fishery resources of the NAFO Convention Area, shall be eligible to participate in meetings described in 4(A) below.
- B. [NGO's referred to in paragraph 1A shall be international with offices in at least two Contracting Parties]

##### 2. Application

Any NGO desiring to participate as an observer in meetings described in 4(A) below shall notify the NAFO Secretariat of its desire to participate at least [60] days in advance of the beginning of the meeting and shall specify in the body of a memorandum:

- A. a description of the NGO's [concern with] [ability to contribute to] [interest in] the work of NAFO;
- B. the purpose of the NGO, [including a copy of its annual report];
- C. description of the NGO's activities, including observership granted by other fisheries management organizations, [funding sources,] and [information of its governance and] the total number of members;
- D. a statement that the NGO supports the optimum utilization, rational management and conservation of the fishery resources of the NAFO Convention Area.
- E. a statement agreeing to comply with the Rules of Procedure and other rules applicable to other participants in the meeting.
- [F. a statement of the location of the NGO's offices in at least two Contracting Parties.]

##### 3. Selection

- A. Notification: The Executive Secretary shall notify NAFO Contracting Parties of the names of NGOs desiring to participate as observers and shall forward copies of the documents in paragraph 2 to Contracting Parties at least [50] days prior to the beginning of the meeting.

B. Selection:

[any eligible NGO that has applied consistent with 2 above to participate as an observer may do so unless a majority of NAFO Contracting Parties formally objects for cause in writing at least [30] days prior to the beginning of the meeting, and in this case, the Executive Secretary shall notify the NGO and Contracting Parties accordingly]

[the decision on each NGO application should be taken by consensus]

[any eligible NGO that has applied consistent with 2 above to participate as an observer may do so provided that a majority of NAFO Contracting Parties eligible to vote supports the application through a vote conducted by mail under Rule 2 of the applicable rules of procedure as a matter of course. Contracting Parties shall have [30] days to cast their votes [, and any votes opposing the application shall be accompanied by an explanation].

[Applicants shall be notified of the results of the voting within 10 days[, including, in the case of the denial of the application, the explanations for any votes opposing the application.]

C. Duration:

Decisions approving an application of an NGO will be effective for two years.

[Any observer that engages in activities which are at odds with the principles and objectives of the NAFO Convention should have its status as observer suspended.]

4. Participation

A. Meetings open to NGOs: NGOs shall be admitted to meetings of

[the General Council]

[the General Council and the Fisheries Commission]

[the General Council, the Fisheries Commission, and the Scientific Council]

[the General Council, the Fisheries Commission, and the Scientific Council and, with the permission of the presiding officer, any subsidiary body thereof, except extraordinary meetings held in executive session or meetings of Heads of Delegations.]

B. Forms of participation: NGOs may:

- i. not vote
- ii. not use films, videos, tape-recording devices, etc. to record meeting proceedings

- iii. [attend meetings and distribute documents,]  
 [attend meetings, distribute documents and make oral statements:  
 [[at the discretion of the presiding officer]]  
 [[at the discretion of the presiding officer and subject to objection  
 by any Party]]  
 [attend meetings, distribute documents, and make oral statements at  
 fixed times, at the discretion of the presiding officer]
- iv. [engage in other activities as appropriate and at the discretion of the  
 presiding officer and subject to objection by any Party]
- v. [each NGO may send not more than two representatives to meetings]

[All observers admitted to a meeting shall be sent or otherwise receive the same documentation generally available to delegates.]

### C. Conditions of Participation

NGO's must agree in writing to comply with the rules of procedure and other rules applicable to other participants in the meeting. Failure to adhere to these rules of procedure can result in revocation of observer status.

### 5. Costs

NGOs shall bear the costs, including copying and mailing of documents prior to the meeting, of their participation.

(Note: A lump sum fee designed to meet these costs shall be established for the first applicable meeting and reviewed regularly thereafter by STACFAD.)

### 6. Other

- A. [the Press should have the same access to NAFO and under the same conditions and procedures as NGOs, except for paying a fee.]
- B. [When an NGO publishes an article on NAFO matters in which a Contracting Party is mentioned by name, the NGO shall forward a copy of the article to that Contracting Party [in that Party's language][in English]].
- C. Procedures and rules applicable to NGO observers should be implemented [as a pilot project for five years] [subject to review after five years] [subject to review at any time]. A general evaluation of the regime should be undertaken after five years.

**General Council Annual Meeting  
14-18 September 1998, Lisbon, Portugal**

The 20th Annual Meeting of the General Council was held in Lisbon, Portugal, 14-18 September 1998. Complete proceedings of this Meeting can be found in GC Doc. 98/7 and in Meeting Proceedings, 1998.

**Opening Procedures (items 1-5 of the Agenda)**

The meeting was opened by the Chairman of the General Council, A. V. Rodin (Russia) at 10:20 a.m. on 15 September 1998.

Representatives from the following fifteen (15) Contracting Parties were present: Canada, Cuba, Denmark (in respect of Faroe Islands and Greenland), Estonia, European Union (EU), France (in respect of St. Pierre et Miquelon), Iceland, Japan, Republic of Korea, Latvia, Lithuania, Norway, Poland, Russia and the United States of America (USA) (Annex I).

The Executive Secretary was appointed Rapporteur.

The Chairman welcomed the Delegates to the 20th Annual Meeting and expressed his expectation of traditional cooperation among Contracting Parties in the name of NAFO objectives.

He emphasized that the current EXPO '98 of the Year of the Ocean in Lisbon and NAFO work are very closely related important events. He hoped that the good NAFO tradition of cooperation will prevail during the coming days of this Annual Meeting. Mr. Rodin expressed his gratitude to the Government of Portugal for inviting this Annual Meeting to Lisbon.

The distinguished guests on behalf of the Government of Portugal, the Minister of Agriculture, Rural Development and Fisheries, Mr. Gomes Da Silva and Secretary of State on Fisheries, Mr. Marselos Vas Consalos, were present at the opening session. Minister Da Silva addressed the meeting with his welcome speech. The delegates met the welcome speech by the Minister with applause.

The provisional Agenda was adopted without any additional amendment (Annex 2).

**Supervision and Coordination of the Organizational, Administrative  
and Other Internal Affairs (items 6-9 of the Agenda)**

Under item 6 of the Agenda, "Review of Membership", the Chairman noted that the membership of the General Council is presently 17 Contracting Parties, and the Fisheries Commission 15 Contracting Parties, excluding Bulgaria and Romania. These two Contracting Parties have not participated in NAFO and have not paid their contribution dues for many years: Romania from 1983 and Bulgaria from 1992. The total unpaid debt to NAFO by those Parties totals \$350,000 Cdn in 1998.

Under item 7, "Report of the Working Group on Transparency in NAFO Activities and Decisions", the Working Group Chairman, Dr. D. Swanson (USA) presented its Report to the meeting. The Working Group delegates were instructed to make their best effort to conclude this issue at the 1999 Annual Meeting.

Item 8 of the Agenda, "Administrative Report", was referred to STACFAD, which reviewed the Report in detail during its sessions and recommended the Report for adoption by the General Council. At the closing session of the General Council, 18 September 1998, the Administrative Report was adopted by the meeting.

Under item 9 of the Agenda, "Place of the 22nd Annual Meeting in the Year 2000", the Chairman brought the Contracting Parties' attention to the invitation from the United States Government to host the meeting in the United States. This proposal was adopted by the meeting. The Chairman, on behalf of NAFO, thanked the USA Government and USA Delegation for the invitation.

#### **Coordination of External Relations (items 10-11 of the Agenda)**

Under item 10, "Communication with the United Nations", the Chairman informed the meeting that the Executive Secretary has communicated all required information to requests from the UN and according to the instructions from the General Council (NAFO GF/98-325 of 04.06.98 and GF/98-299 of 21.05.98).

Under item 11 of Agenda, "NAFO Participation at other International Organizations", the Chairman noted that the NAFO observer, H.-P. Cornus (EU) took part in ICES proceedings and a delegate of Norway attended the NAMMCO 1998 meeting. H.-P. Cornus reported to the NAFO Scientific Council, and the report from Norway was distributed to the delegates at the current meeting.

For the future participation by NAFO observers, the General Council **decided** to delegate Dr. D. Swanson (USA) to the FAO meeting on sharks and other issues, in Rome, Italy, 26-28 October 1998, and Mr. P. Gullestad (Norway) and the Executive Secretary, at the Meeting of FAO and Regional Fishery Bodies, in Rome, Italy, 11-12 February 1999. This meeting will precede the FAO Committee on Fisheries meeting, which would discuss international fisheries management issues.

#### **Fishing Activities in the Regulatory Area Adverse to the Objectives of the NAFO Convention (items 12-15 of the Agenda)**

Under items 12-13 of the Agenda, "Consideration of Non-Contracting Parties Activities in the NAFO Regulatory Area", the Chairman asked the Meeting to address any relevant issue or additional task for STACFAC at this meeting. There were no comments from the Delegates on this item. The Executive Secretary brought the Delegates' attention to the Report (GC Doc. 98/1) on the NAFO Compliance Scheme (GC Doc. 97/6) asking Contracting Parties to participate in providing their data to such reports in the future.

The Chairman of STACFAC, Dr. J.-P. Plé (USA), presented outstanding issues including a proposal regarding transshipments at sea and inspection of non-Contracting Party vessels fishing in the NAFO Regulatory Area. This proposal was forwarded to STACTIC/Fisheries Commission for consideration and incorporation in the NAFO Conservation and Enforcement Measures (see Fisheries Commission Report).

The STACFAC Chairman underlined the following information and recommendations to the General Council:

- There was a notable decrease in the fishing activity by Non-Contracting Party vessels in the NAFO Regulatory Area, with four vessels, all from Sierra Leone, observed during 1998 (estimated catch of 350 mt against 1000 mt in 1997);

- During 1997/98 NAFO diplomatic demarches were delivered by Canada to the Governments of Honduras and Panama, and by USA, to the Governments of Belize and Sierra Leone. No replies have been received to-date from those countries.

STACFAC recommended the following actions and measures to the General Council:

- To again send the NAFO diplomatic demarches to the Governments of Belize, Honduras, Panama and Sierra Leone.
- To seek closer inter-regional cooperation with other regional fishing organizations with the aim to share information and to promote respect for relevant measures by Non-Contracting Party vessels.
- To bring to the attention of all Contracting Parties the names of four (4) Non-Contracting Party vessels observed fishing in the Regulatory Area during 1998 and inform their national port authorities. The vessels are: the "Austral", "High Sierra", "Porto Santo" and the "Santa Princesa" – all from Sierra Leone.

The General Council adopted the STACFAC Report and its recommendations. The proposal on transshipments and inspections concerning Non-Contracting Party vessels was adopted by the Fisheries Commission (see Fisheries Commission Report).

The General Council noted that Dr. J.-P. Plé (USA) was re-elected as STACFAC chairman for a second term of two years and Mr. D. Silvestre (France-in respect of St. Pierre et Miquelon) was elected Vice-Chairman.

Under item 14, "Report of the Working Group on Dispute Settlement Procedures" (GC Doc. 98/4), the Chairman of the Working Group, Mr. Stein Owe (Norway) informed that the Working Group met on 14 September 1998 prior to the opening of the session of the General Council and, on the basis of a paper prepared by the Chairman, exchanged views on a number of questions. In view of the importance and complexity of this issue, further scrutiny and discussions were considered to be necessary.

The General Council decided to authorize the Working Group to continue its work and meet intersessionally in 1999.

Under item 15, "Report of the Working Group on Allocation of Fishing Rights and Chartering of Vessels" (GC Doc. 98/2), the Chairman of the Working Group, Mr. H. Koster (EU) noted a number of different opinions on those issues and advised that the guidelines for any further discussions have been developed by the Working Group.

The Chairman of the General Council clarified that the pending item will be dealt with only by the General Council (without additional consideration by the Fisheries Commission).

The meeting agreed to follow the agreement of last year's General Council meeting that no Party should charter fishing vessels to fish in the NAFO Regulatory Area until final resolution of this matter by the General Council.

The General Council decided that the Working Group should meet intersessionally.

The meeting agreed that the Working Group should make its best effort to recommend a resolution on this issue to the General Council at the 21st Annual Meeting in September 1999.

**Finance (items 16-17 of the Agenda)**

The acting Chairman of STACFAD, Mr. A. Thomson (EU), reported the following information and recommendations to the General Council:

- Auditors' Report circulated to Contracting Parties in March 1998 and Administrative Report (administration and financial statements for 1998-GC Doc. 98/5) were recommended for adoption;
- The participation of the NAFO Secretariat in the Pension Society Meeting (La Jolla, USA, May 1998) was approved by STACFAD with a special note that the new arrangements for administration of NAFO pension plans will reduce NAFO expenses by \$4,300 Cdn.;
- The major budgetary items of the NAFO Secretariat were agreed as follows:
  - the budget for 1999 to be adopted in the amount of \$1,092,000 Cdn.;
  - the Accumulated Surplus Account be maintained at a level not less than \$75,000 Cdn.;
  - the outstanding contributions from Bulgaria and Romania should be written-off (and excluded from the Accumulated Surplus Account estimates).
- For the automation of the hail system at the NAFO Headquarters, \$35,000 Cdn. shall be allocated to the 1999 budget.
- On the term of the Executive Secretary's office, STACFAD recommended to renew the contract of the present Executive Secretary and further review the matter at the General Council.
- The dates of the next Annual Meetings were recommended as follows:
 

1999	-	Scientific Council	-	08-17 September
	-	General Council	-	13-17 September
	-	Fisheries Commission	-	13-17 September
2000	-	Scientific Council	-	13-22 September
	-	General Council	-	18-22 September
	-	Fisheries Commission	-	18-22 September
2001	-	Scientific Council	-	12-21 September
	-	General Council	-	17-21 September
	-	Fisheries Commission	-	17-21 September

The other substantive issues from STACFAD were the following:

- to modernize the NAFO website and allocate at this first stage \$5,000 Cdn. subject to further review of the costs by STACFAD;
- to authorize the NAFO Secretariat to review the scheduling and time of Annual Meetings to ensure that the mandate of the Organization be adequately fulfilled.

The STACFAD Report was adopted as a whole by the General Council.

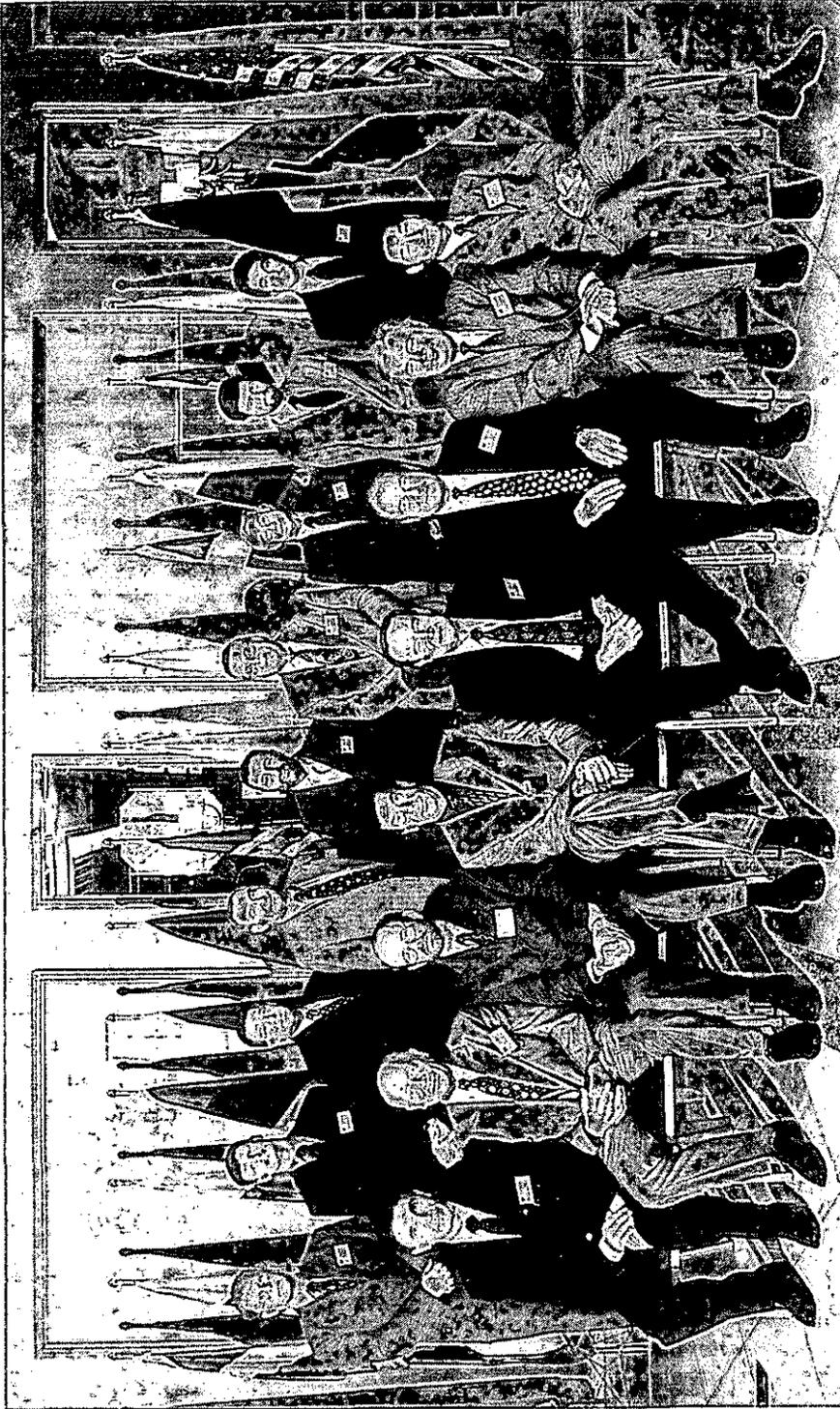
**Closing Procedures** (items 18-21 of the Agenda)

Item 18, "Time and Place of the Next Annual Meeting", was resolved in STACFAD Report. The 21st Annual Meeting will be scheduled in Halifax Regional Municipality, N.S., Canada, through 08-17 September 1999.

The Press Release was prepared by the Executive Secretary and circulated to all Contracting Parties (Annex 3).

The list of actions and decisions by the General Council at the 20th Annual Meeting is presented in Annex 4.

20th Annual Meeting, September 1998  
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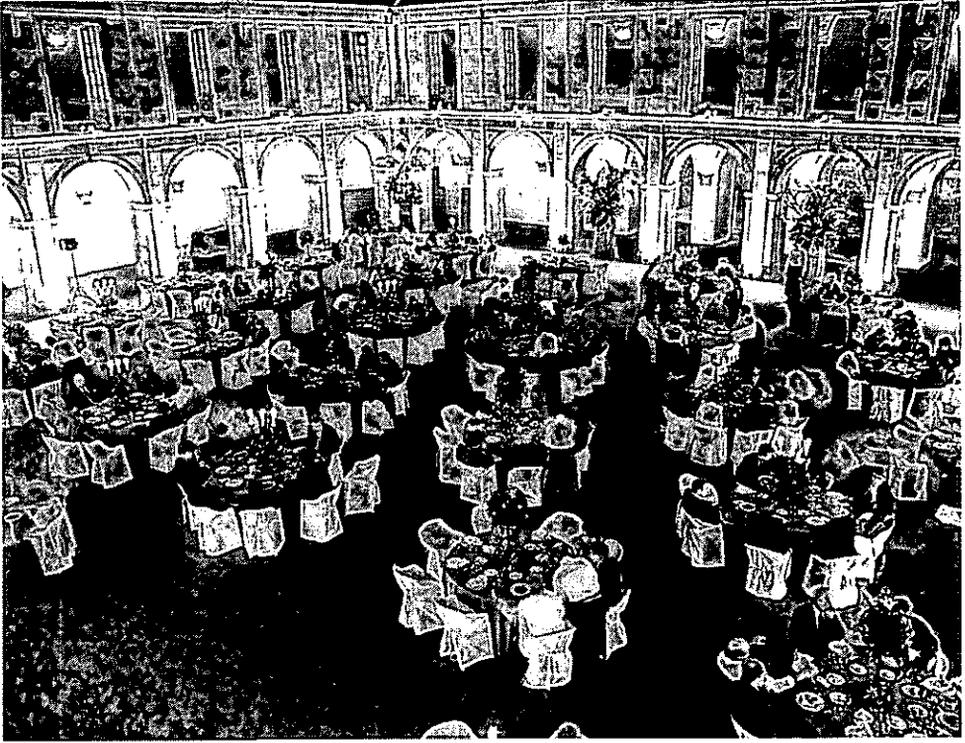


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Seated (left to right): L. Chepel (Executive Secretary), L. Vaarja, P. Gullestad, G. Grignon, V. Izmailov, A. Rusakevicius, M. Kucharski, F. See

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Lisbon, Portugal



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## **Annex 2. Agenda**

### **I. Opening Procedure**

1. Opening by Chairman, A. V. Rodin (Russia)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Admission of Observers
5. Publicity

### **II. Supervision and Coordination of the Organizational, Administrative and Other Internal Affairs**

6. Review of Membership
  - a) General Council
  - b) Fisheries Commission
  - c) Review of Reports from Contracting Parties on their communication with Bulgaria and Romania
7. Report of the Working Group on Transparency in NAFO Activities and Decisions
8. Administrative Report
9. Place of the 22nd Annual Meeting in the year 2000

### **III. Coordination of External Relations**

10. Communication with the United Nations (Resolutions 51/35 and 51/36)
11. NAFO Participation at other International Organizations (NAMMCO, ICES, CWP-FAO)

### **IV. Fishing Activities in the Regulatory Area Adverse to the Objectives of the NAFO Convention**

12. Consideration of Non-Contracting Parties activities in the NAFO Regulatory Area and agreement on the task of STACFAC at the current meeting
13. Report of STACFAC at the Annual Meeting and decisions on actions
14. Report of the Working Group on Dispute Settlement Procedures (DSP)
15. Report of the Working Group on Allocation of Fishing Rights and Chartering of Vessels

**V. Finance**

16. Report of STACFAD at the Annual Meeting
17. Adoption of the Budget and STACFAD recommendations for 1999

**VI. Closing Procedure**

18. Time and Place of Next Annual Meeting
19. Other Business
20. Press Release
21. Adjournment

### Annex 3. Press Release

1. The 20th Annual Meeting of the Northwest Atlantic Fisheries Organization (NAFO) was held in Lisbon, Portugal, during 06-18 September 1998, under the chairmanship of Alexander Rodin (Russia), President of NAFO. The NAFO constituent bodies - General Council, Fisheries Commission and Scientific Council convened their sessions at the Altis Hotel.
2. The meeting was attended by 200 participants from fifteen Contracting Parties - Canada, Cuba, Denmark (in respect of Faroe Islands and Greenland), Estonia, European Union, France (in respect of St. Pierre et Miquelon), Iceland, Japan, Republic of Korea, Latvia, Lithuania, Norway, Poland, Russia and United States of America.
3. Prior to the 1998 Annual Meeting, the following seven NAFO meetings were held: Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels between Contracting Parties (Brussels, March 1998); Scientific Council Workshop on Precautionary Approach (NAFO Headquarters, March 1998); General Council Working Group on Dispute Settlement Procedures (NAFO Headquarters, April 1998); Scientific Council/Fisheries Commission Working Group on Precautionary Approach (Copenhagen, May 1998); Standing Committee on International Control (STACTIC), (Copenhagen, May 1998); General Council Working Group on Transparency (Washington, D.C., May 1998); Regular Scientific Council Meeting (Dartmouth, Canada, June 1998). The reports and documents from the above-noted meetings were distributed to Contracting Parties for the preparation and discussions at the Annual Meeting.
4. The Scientific Council, under the chairmanship of H.-P. Cornus (EU-Germany), reviewed and assessed the state of 25 fish stocks in the NAFO Regulatory and Convention Areas. The scientific advice and recommendations for the management, conservation and utilization of the fishery resources were forwarded to the Fisheries Commission noting that all cod stocks remained at low abundance and should continue under moratoria in 1999. The Council also recommended continuation of moratoria in 1999 for 3LNO and 3M American plaice, 3LN Redfish, 3NO Capelin and 2J3KL Witch flounder.

The cod stock in 3M has collapsed and was put under a moratorium.

The Council also recommended that the 3LNO Yellowtail flounder TAC be increased from 4,000mt to 6,000mt and that the Flemish Cap redfish (3M) TAC be set significantly below (in the order of 50%) the current level of 20,000mt. The Greenland halibut stock is showing signs of improved recruitment and recommendation was that an increase in catch would not impede recovery.

The Scientific Council continued its progress in developing a precautionary approach to the management of NAFO stocks and proposed new elements to its Action Plan and schedule for new discussions during 1999.

5. The Fisheries Commission, under the chairmanship of P. Gullestad (Norway), considered the Scientific Council recommendations and agreed on joint international measures and actions for the conservation and utilization of the fishery resources in the Regulatory Area.

The Commission agreed to put under moratoria in 1999 on the following stocks: Cod in Divisions 3M and 3L (that portion within the Regulatory Area) and 3NO, Redfish in Div. 3LN, American plaice in Divisions 3M and 3LNO, Witch flounder in Div. 3NO and 3L

(that portion within the Regulatory Area) and Capelin in 3NO. The TAC for Greenland halibut increased to 33,000 mt (from 27,000mt) of which 24,444mt was allocated to the Regulatory Area. The Quota Table for 1999 was adopted (see attached).

New conservation and enforcement measures were agreed as follows:

- Concerning the shrimp fishery on the Flemish Cap in Division 3M, there was agreement that the existing effort allocation Scheme in the shrimp fishery would continue, and that the fishing days should be 90% of maximum number of those observed by Contracting Parties for their vessels in one of the years during 1993-1995 and these days should not be transferable between Contracting Parties. There will be no directed shrimp fishery in part of 3L.
- There was agreement on 100% coverage by observers, and satellite tracking devices should be installed on all vessels fishing in the Regulatory Area not later than 1 January 2001, with the understanding that the program will be reviewed for application in 2001 and thereafter. The NAFO Secretariat will be equipped in the near future with updated hardware and software to handle the satellite tracking information.
- Formats for Electronic Transmission of NAFO hail reports from Contracting Parties to the NAFO Secretariat were adopted and incorporated into the Conservation and Enforcement Measures.
- Contracting Parties of NAFO shall ensure that their fishing vessels do not receive transshipments of fish from non-Contracting Party vessels which have been sighted in fishing activities in the NAFO Regulatory Area.

On other important management issues, the Fisheries Commission considered that more accurate data, and control should be introduced to account for all discards and by-catches. It was the agreement in conjunction with the Scientific Council, on consistent formats and procedures for scientific data collection by observers on board fishing vessels. This information would provide additional tools for stock assessments.

On the subject of the precautionary approach, the Fisheries Commission jointly with the Scientific Council decided to call a special intersessional Working Group meeting in spring 1999. The meeting will progress further with the idea of "case specific studies" and develop a precautionary management strategies for three groundfish stocks (Cod 3NO, Yellowtail flounder 3LNO, Shrimp 3M).

6. The General Council, under the chairmanship of A. Rodin (Russia), deliberated several outstanding issues regarding internal and external NAFO policy and resolved the following:
  - For improving transparency in NAFO proceedings and decisions, the agreement was to continue the work in a Working Group to develop recommendations to the General Council at the 21<sup>st</sup> Annual Meeting, September 1999.
  - On dispute settlement procedures, the Council agreed that the Working Group should continue its work and report to the next Annual Meeting, 1999.

- NAFO should seek closer inter-regional cooperation with other regional fisheries organizations with the aim to share information and to promote respect for relevant conservation measures by Non-Contracting Party vessels.
- The President of NAFO, A. Rodin (Russia), signed diplomatic demarches to the Non-Contracting Party flag-States whose vessels fished in the NAFO Regulatory Area in 1998, namely Belize, Honduras, Panama and Sierra Leone.
- To improve control of the fisheries by the Contracting Parties, the General Council resolved to prohibit any charter vessel arrangements until a comprehensive set of rules is developed by NAFO.

7. The following elections of NAFO officers took place:

Chairman of the Standing Committee on Fishing  
Activity of Non-Contracting Parties in the  
Regulatory Area (STACFAC)  
Vice-Chairman of STACFAC

- Dr. J.-P. Plé (USA)  
(re-elected)
- Mr. D. Silvestre (France-  
in respect of St. Pierre et  
Miquelon)

Chairman of the Standing Committee on  
Fisheries and Environment (STACFEN)

- M. Stein (EU-Germany)  
(re-elected)

NAFO General Council  
18 September 1998

NAFO Secretariat  
Lisbon, Portugal

QUOTA TABLE. Total allowable catches (TACs) and quotas (metric tons) for 1999 of particular stocks in Subareas 3 and 4 of the NAFO Convention Area. The values listed include quantities to be taken both inside and outside the 200-mile fishing zone, where applicable.

Contracting Party	Cod		Redfish		American plaice		Yellowtail	Witch	Capelin	G. halibut	Squid ( <i>Illex</i> ) <sup>3,4</sup>	Subareas 3+4
	Div. 3M	Div. 3NO*	Div. 3M	Div. 3LN*	Div. 3M*	Div. 3LNO*						
1. Canada	0	0	500	0	0	0	5850 <sup>7</sup>	0	0	3 667	-	N.S. <sup>4</sup>
2. Cuba	0	-	1750	0	-	-	-	-	0	-	-	1 125
3. Denmark (Faroe Islands and Greenland)	0	-	69	-	-	-	-	-	-	-	-	-
4. European Union	0	0	3100	0	0	0	120 <sup>7</sup>	-	0	13 530	-	N.S. <sup>4</sup>
5. France (St. Pierre et Miquelon)	-	-	69	-	-	-	-	-	-	-	-	1 000
6. Iceland	-	-	400	-	-	-	-	-	0	2 506	-	1 125
7. Japan	-	-	69	-	-	-	-	-	0	-	-	1 000
8. Korea	0	-	-	-	-	-	-	-	0	-	-	-
9. Norway	0	-	-	-	-	-	-	-	0	-	-	500
10. Poland	0	-	-	-	-	-	-	-	0	-	-	-
11. Estonia	-	-	-	-	-	-	-	-	-	-	-	-
12. Latvia	0	0	13 850 <sup>1</sup>	0	0	0	-	0	0	-	-	2 500 <sup>1</sup>
13. Lithuania	-	-	-	-	-	-	-	-	-	-	-	-
14. Russia	-	-	-	-	-	-	-	-	-	-	-	-
15. United States of America	-	-	69	-	-	-	-	-	-	-	-	1 000
16. Others	0	0	124	0	0	0	30 <sup>7</sup>	0	-	1 624 <sup>5</sup>	-	1 750
Total Allowable Catch	*	*	13 000 <sup>6</sup>	*	*	*	6 000 <sup>8</sup>	*	*	24 444	*	75 000

<sup>1</sup> Quotas to be fished by vessels from Estonia, Latvia, Lithuania and the Russian Federation. The provisions of Part I, Section A.3 of the NAFO Conservation and Enforcement Measures shall apply.

<sup>2</sup> The opening date for the Squid (*Illex*) fishery is 1 July.

<sup>3</sup> Any quota listed for squid may be increased by a transfer from any "coastal state" as defined in Article 1, paragraph 3 of the NAFO Convention, provided that the TAC for squid is not exceeded. Transfers made to Contracting Parties conducting fisheries for squid in the Regulatory Area shall be reported to the Executive Secretary, and the report shall be made as promptly as possible.

<sup>4</sup> Not specified because the allocation to these Contracting Parties are as yet undetermined, although their sum shall not exceed the difference between the total of allocations to other Contracting Parties and the TAC.

<sup>5</sup> Of which no more than 40% (650 t) may be fished before 1 May 1999 and no more than 80% (1299 t) may be fished before 1 October 1999.

<sup>6</sup> Each Contracting Party shall notify the Executive Secretary bi-weekly of catches taken by its vessels from this stock. The Executive Secretary shall notify without delay all Contracting Parties of the date on which, for this stock, accumulated reported catch taken by vessels of the Contracting Parties is estimated to equal 100 percent of the TAC for that stock. At that date each Contracting Party, to which a quota has been allocated or which vessels are engaged in fishing under the "Others" quota, shall prohibit fishing by its vessels for that stock.

<sup>7</sup> Contracting Parties shall inform the NAFO Executive Secretary before 1 December 1998 of the measures to be taken to meet the advice of the NAFO Scientific Council.

<sup>8</sup> The provisions of Part I, Section A.5b) of NAFO Conservation and Enforcement Measures shall apply.

\*No directed fishing—The provisions of part I, Section A.5b) of NAFO Conservation and Enforcement Measures shall apply.

**Annex 4. List of Decisions and Actions by  
the General Council  
(20<sup>th</sup> Annual Meeting, 14-18 September 1998)**

Substantive issue (propositions/motions)	Decision/Action (GC Doc. 98/7, Part I; item)
1. Participation in NAFO by two Contracting Parties – Bulgaria and Romania	Contracting Parties <i>will continue their contacts</i> with the Bulgarian and Romanian authorities during 1999. The Executive Secretary shall investigate the practices of other International Bodies regarding membership provisions: item 2.1
2. Transparency of NAFO Activities and Decisions	The Working Group on Transparency will meet intersessionally (2-4 March 1999) at NAFO Headquarters; item 2.2
3. Report of STACFAC to the Meeting: - New diplomatic demarches to Belize, Honduras, Panama, Sierra Leone - Re-elect Dr. J.-P. Plé as STACFAC Chairman	Adopted; item 4.1  Agreed; item 3.1 Noted; item 4.4
4. Working Group on Allocation of Fishing Rights and chartering of vessels: - The mandate to decide on the issue of chartering fishing vessels by Contracting Parties to fish their allocations in the NAFO Regulatory Area. - Contracting Parties shall not charter fishing vessels to fish in the Regulatory Area until final resolution of this matter. - Working Group on Chartering	-Clarified by the Chairman of General Council- This issue will be considered and decided only within the General Council authority. Agreed; item 4.6 -Agreed; item 4.6  -The W.G. will meet intersessionally in USA (time will be specified later).
5. Report of STACFAD to the meeting: - Auditors' Report (1997) - Accumulated Surplus Account - Bulgaria's and Romania's non-collectible debt for 1998	Adopted; item 5.2a Adopted; maintain the level not less than \$75,000 Agreed: To write-off from the Accumulated Surplus Account.
6. Budget for 1999 - incl. special amount for satellite tracking	Adopted; item 5.5; \$1,092,000 Cdn \$35,000.00 Cdn
7. Term of the Executive Secretary of NAFO	Agreed: item 5.5; - the term of the present Executive Secretary extended for four (4) years (01.01.99-31.12.2002) - amendment to NAFO Staff Rules to include an extension of the NAFO Executive Secretary's term for one (1) additional four-year period.
8. Annual NAFO Meetings, 1999-2001	Agreed on time and place of the Annual Meetings; item 6.1 and Part II, item 13.

**PART II**  
(pages 65 to 121)

**Activities of the Fisheries Commission in 1998**

**List of Meetings**

The following meetings were held under the authority of the Fisheries Commission:

- Working Group on Precautionary Approach; Copenhagen, Denmark, 12-13 May.
- Standing Committee on International Control (STACTIC); Copenhagen, Denmark, 14-15 May.
- The Fisheries Commission and its subsidiary body (STACTIC); 20th Annual Meeting, Lisbon, Portugal, 14-18 September.



## Major Documents of the Fisheries Commission in 1998

<u>Serial No.</u>	<u>FC Doc. No.</u>	<u>Title</u>
N2976	98/1	Conservation and Enforcement Measures
N3067	98/2	Report of the Working Group on Precautionary Approach, 12-13 May 1998, Copenhagen, Denmark
N3072	98/3	Report of the Standing Committee on International Control (STACTIC), 14-15 May 1998, Copenhagen, Denmark
N3073	98/4	Status of Proposals and Resolutions of NAFO (as of July 1998)
N3075	98/5	Summary of Inspection Information for 1997
N3076	98/6	Summary of Undisposed Apparent Infringements for 1995 and 1997
N4014	98/7	NAFO Conservation and Enforcement Measures – Amendment re Part VI – Program for Observers and Satellite Tracking
N4015	98/8	Revisions to NAFO Conservation and Enforcement Measures re no trans-shipment of fish from Non-Contracting Party Vessels
N4016	98/9	Shrimp 3M Management
N4017	98/10	Standardized Formats for the Electronic Transmission of NAFO Hails and Satellite Tracking Reports from Contracting Parties to the NAFO Secretariat
N4018	98/11	Scientific Council Proposals/ Recommendations with the implication on the Conservation and Management of Fish Stocks in the NAFO Convention Area
N4037	98/12	Fisheries Commission's Request for Scientific Advice on Management in 2000 of Certain Stocks in Sub-areas 3 and 4
N4039	98/13	Report of the 20th Annual Meeting, 14-18 September 1998, Lisbon, Portugal



## **Working Group on Precautionary Approach 12-13 May 1998, Copenhagen, Denmark**

The Working Group on Precautionary Approach met at Eigtveds Pakhus, Copenhagen, Denmark on 12-13 May 1998 to discuss recent activities of the Scientific Council as they pertain to the Precautionary Approach, and the possible implications regarding resources managed by the Fisheries Commission. The meeting was chaired by P. Gullestad (Norway) Chairman of the Fisheries Commission with H.-P. Cornus (EU) Chairman of Scientific Council as co-Chair. Representatives from Canada, Denmark (in respect of the Faroe Islands and Greenland), Estonia, European Union, Iceland, Japan, Norway, Russia, and United States of America were present (Annex 1). Complete proceedings of this Meeting can be found in FC Doc. 98/2 and in the Meeting Proceedings, 1998.

### **Opening Procedures**

The Chairman welcomed participants and expressed gratitude to the host Contracting Party (Denmark in respect of the Faroe Islands and Greenland) for the invitation and excellent facilities.

B. Atkinson and B. Brodie (Canada) were appointed rapporteurs for the meeting.

After discussion, it was agreed that Agenda Item #5, originally worded as *Discussion of the Scientific Council Workshop recommendations for their practical implementation* would be changed to read *Discussion of the Scientific Council Workshop recommendations* as it was seen to be premature to consider any possible "practical implementation" at this meeting. After this change, the Agenda was adopted as proposed (Annex 2).

### **Introduction into the concept of "Precautionary Approach" and Management**

The Chairman of Scientific Council, H.-P. Cornus, gave an abbreviated overview of the information presented to the Fisheries Commission during the September 1997 Annual Meeting. He summarized the characteristics of the Precautionary Approach outlined in the FAO Code of Conduct and the UN Agreement on Straddling and Highly Migratory Fish Stocks.

The Chairman of the Fisheries Commission, P. Gullestad, summarized how he envisioned the concept of Precautionary Approach as a manager. He considered the concept to not yet be fully defined in that it is still often possible to more easily say what is not precautionary rather than what is. He acknowledged that there is a lot of work in this area internationally, for example in NAFO and ICES, and stressed that there needs to be co-ordination between these groups. He considered that NAFO must prioritize its activities and narrow its scope.

The areas of priority should be reference points and Harvest Control Rules (HCR's), but it is important to remember trade-offs such as economics when discussing target reference points. He believes that we can be "stupid" but still cautious. There must also be careful consideration of limit and buffer levels of target and by-catch species.

Spawning Stock Biomass (SSB) is perhaps the most important issue at present, and the target should be a sufficiently high SSB so the chance of good recruitment when conditions are right is high.

### Recommendations to the Fisheries Commission

The Working Group on Precautionary Approach recommended to the Fisheries Commission that priority for the Scientific Council be given to the following issues:

- Standardisation of concepts/nomenclature/abbreviations/definitions between ICES, NAFO and FAO as appropriate.
- Estimation of limit reference points
  - Biomass, specifically  $B_{lim}$  and  $B_{buf}$
  - Fishing mortality, specifically  $F_{lim}$  and  $F_{buf}$
- Calculate limit reference points and security margins which offer a high probability of not approaching established limit reference points
- Give the information as reflected in Figures 14a and 15 of the Workshop Report for as many stocks as possible.
- Review the Harvest Control Rule (HCR) concept provided by the Scientific Council Precautionary Approach Framework (SCS Doc. 97/12, Scientific Council Report 1997, page 35), considering the respective responsibilities of scientists and managers.
- Give additional examples of reopening simulations for 3LNO American plaice.
- Continuation of this Working Group as an instrument for a dialogue with the Scientific Council.

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**Annex 2. Agenda**

1. Opening by the Chairman, P. Gullestad (Norway)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Introduction into the concept of "Precautionary Approach" and management:
  - a) Presentation by the Chairman P.Gullestad, Chairman of the Fisheries Commission
  - b) Presentation by the Co-Chairman, H.-P. Cornus, Chairman of the Scientific Council
5. Discussion of the Scientific Council Workshop recommendations.
6. Discussion of the Contracting Parties' presentations on the possible management actions of precautionary approach regarding their national experience
7. Presentation of possible management actions and/or management options for the stocks in the NAFO Regulatory Area (from the Scientific Council Workshop in March 1998)
  - a) Relations between management objectives and advice on precautionary approach
8. Recommendations to the Fisheries Commission
9. Other matters
10. Adoption of Report
11. Adjournment

**Standing Committee on International Control (STACTIC)**  
**14-15 May 1998, Copenhagen, Denmark**

The complete proceedings of this Meeting are presented in FC Doc. 98/3 and Meeting Proceedings, 1998.

**Opening Procedures**

The Chairman, D. Bevan (Canada) opened the meeting at 0930 on 14 May 1998. Representatives from the following Contracting Parties were present: Canada, Denmark (in respect of the Faroe Islands and Greenland), Estonia, the European Union (EU), Iceland, Japan, Norway, Russia and the United States (Annex 1).

Paul Steele (Canada) was appointed Rapporteur.

The agenda was adopted as attached (Annex 2).

**Reports on the Pilot Project for Observers and Satellite Tracking  
and Evaluation of the Project**

Contracting Parties provided relevant updates of the reports that they had submitted last year.

The European Union representative listed the following questions which he asked each Contracting Party to address:

1. Who employs the observers, i.e. do they meet the requirements regarding independence and impartiality?
2. Is the 100% coverage requirement being adhered to?
3. Are all observer reports submitted to the NAFO Secretariat?
4. Are the observer reports available to scientists, and to what extent do they make use of the reports?
5. Are hailing requirements still being adhered to by all vessels, or are hails no longer required for vessels covered by satellite tracking?
6. Is satellite tracking data now being used to control fishing activity, e.g. to control effort days in the shrimp fishery?

The Chairman asked that reports on implementation of the pilot project be submitted by all Contracting Parties who were not in attendance at this meeting, as well as by any other Contracting Parties which have not yet submitted written reports and written responses be submitted to the six questions posed by the European Union representative.

The representative for the Executive Secretary pointed out that the NAFO Secretariat has not been receiving notification from Contracting Parties regarding the names of vessels which will be equipped with satellite tracking devices while fishing in the Regulatory Area (such notification is required under Part III.E.4 of the Conservation and Enforcement Measures). The Chairman asked that all Contracting Parties provide this information to the Secretariat in the future.

For evaluation of the Pilot Project, it was agreed that Contracting Parties would revise their individual evaluation framework tables, using a consistent methodology adopted by the committee, and that these individual reports would then be rolled up to produce a single evaluation framework table which could be submitted to the Fisheries Commission at the annual meeting in September, 1998. This approach was adopted on the understanding that the table is indicative and

does not pre-judge the weights to be attached to individual elements, that Contracting Parties would be able to add footnotes to explain and elaborate on the information in the table, and that the written evaluation reports previously submitted by Contracting Parties would still stand. Furthermore, the qualifications high, medium and low should not be taken to indicate whether schemes are insufficient or sufficient. The summary table adopted by the committee is attached as Annex 3.

It was also agreed that a composite table would be developed to provide an overall summary of costs involved in delivering the three surveillance options, i.e. observer coverage, satellite tracking and traditional enforcement methods. This summary table is attached as Annex 4.

#### **Scientific use of data collected by observers under a permanent scheme**

It was pointed out that there seems to be a lack of communication between STACTIC and the Scientific Council regarding the type of observer data needed by scientists and the best methods for transmitting the data to them. Although there is general agreement that the best possible use should be made of the information gathered by observers, it appears that this may not always be the case, as observer data is sometimes not brought forward for consideration by the Scientific Council.

It was agreed that further clarification is required from the Scientific Council regarding their data requirements in relation to NAFO observer programs. It was suggested that the Scientific Council should be asked to develop a protocol which would give guidance as to how observer data should be collected, the volume and type of data required, and harmonized sampling procedures. Such a protocol would also help to bring some consistency to the manner in which Contracting Parties carry out their observer programs in the Regulatory Area.

## Annex 1. List of Participants

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## Annex 2. Agenda

1. Opening Remarks and Introductions
2. Appointment of the Rapporteur
3. Adoption of the Agenda
4. Review of reports on the Pilot Project for Observers and Satellite Tracking
  - Outstanding reports on the implementation of the Pilot Project for Observers
  - Update of reports on the implementation of the Pilot Project for Satellite Tracking
5. Evaluation of the Pilot Project for Observers and Satellite Tracking
6. Possible amendments to improve the current scheme, and which may reduce cost without compromising conservation and enforcement effectiveness, to be considered at the 20<sup>th</sup> Annual Meeting of NAFO with a view to implementing such a scheme on a permanent basis effective January 1, 1999.
7. Consideration of means of allowing scientists access to and the use of data collected by observers under a permanent scheme
8. Other business
9. Adoption of the Report
10. Adjournment

Annex 3. Evaluation Framework Summary Table

Management Measures	Pilot Project Compliance Measures										Traditional methods of control (*)					
	Satellite Tracking					Observer Scheme										
	Relevance		Efficacy/Efficiency			Relevance		Efficacy/Efficiency			Relevance		Efficacy/Efficiency			
	YES	NO	H	M	L	YES	NO	H	M	L	YES	NO	H	M	L	
<b>Fishing location</b>	Y		<b>H</b>			Y		<b>H</b>			Y		<b>H</b>			
<b>Fishing activities</b>																
No. of operation	Y		No Consensus			Y		<b>H</b>			Y					L
Time in the area	Y		<b>H</b>			Y		<b>H</b>			Y		<b>H</b>			
Fishing Time	Y			<b>M</b>		Y		<b>H</b>			Y					L
Gear used		N				Y		<b>H</b>			Y			<b>M</b>		
<b>Catch retained</b>																
By species		N				Y		<b>H</b>			Y		No Consensus			
By live weight		N				Y		<b>H</b>			Y			<b>M</b>		
<b>Discards</b>																
Juveniles		N				Y		<b>H</b>			Y					L
By-catches		N				Y		<b>H</b>			Y					L
High-grading		N				Y		<b>H</b>			Y					L
<b>Processing</b>																
By species		N				Y		<b>H</b>			Y			<b>M</b>		
By presentation		N				Y		<b>H</b>			Y			<b>M</b>		
By production weight		N				Y		<b>H</b>			Y			<b>M</b>		
<b>Landing/Transshipment</b>																
Port/Location	Y		<b>H</b>			Y		<b>H</b>			Y		<b>H</b>			
Quantities Landed		N					N				Y		<b>H</b>			

Efficiency/Efficacy – H(High), M(Medium), L(Low)

\*Traditional means: fishing and processing logbook, landing/transshipment declaration, sightings and inspections at sea (either by vessel or aircraft), hail-system and communication of catches, single mesh size, inspection ashore, etc.

1. Bolded ratings reflect consensus view. subject to explanatory notes.
2. Shaded areas reflect no consensus on efficiency/efficacy.

No. of operations (satellite tracking) - Efficiency/efficacy dependant on number and frequency of transmissions.

Catch retained by species (traditional) - Efficiency/efficacy subject to level of surveillance and fishery (shrimp versus multiple species).

**Annex 4. Estimated Cost of Surveillance - NAFO Regulatory Area  
(Based on 1996 information)  
(in Canadian dollars)**

**Estimated Cost of Surveillance - NAFO Regulatory Area  
(Based on 1996 information)  
(in Canadian dollars)**

CONTRACTING PARTY	Secretariat 97/4	Norway 97/1, 97/2	Den(Grind) 97/3, 97/25	Canada 97/8, 97/32	Latvia 97/12	USA 97/29	Den(Far) 98/4	Japan 97/16	Estonia 97/17	Iceland 97/19	EU 97/33, 97/34	Russia	Total	Average
Reference Documents														
Satellite Tracking Technology														
Capital	\$ 21,000	\$ 100,000			\$ 12,000	\$ 70,000	\$ 22,000		\$ 24,000	\$ 200,000			\$ 449,000	
Operating Costs	\$ 6,000	\$ 20,000		\$ 150,000	\$ 4,000	\$ 20,000	\$ 1,000		\$ 8,000	\$ 24,000	\$ 500,000		\$ 753,000	
Operations Center							\$ 20,000						\$ 20,000	
Other	\$ 5,000				\$ 2,000				\$ 3,000				\$ 10,000	
Observer Coverage														
Operating Costs(\$/sea day)		\$ 400	\$ 388	\$ 350	\$ 350	\$ 352	\$ 200	\$ 530	\$ 350	\$ 318	\$ 320		\$ 3,558	\$ 356
Traditional Surveillance														
Vessels				\$ 3,800,000									\$ 6,100,000	
Aircraft				\$ 5,500,000							\$ 1,400,000		\$ 5,500,000	
Administration				\$ 1,500,000							\$ 150,000		\$ 1,650,000	
Total Inspections				278							97		375	
Cost/Inspection				\$ 19,000							\$ 24,000		\$ 43,000	\$ 18,000
Number of Vessels (WG WP 98/4)		15	6	8	3		15	2	6	39	47		141	
Number of observer and fishing days (WP 97/21)		1650	172	179	171		1693	320	1085	5964	7678		19002	
Total costs														
Satellite Technology														
One Time	\$ 21,000	\$ 100,000			\$ 12,000	\$ 70,000	\$ 22,000		\$ 24,000	\$ 200,000			\$ 440,000	
Annual	\$ 11,000	\$ 20,000		\$ 150,000	\$ 6,000	\$ 20,000	\$ 21,000		\$ 11,000	\$ 24,000	\$ 500,000		\$ 763,000	
Observer Coverage	\$ 605,000	\$ 67,000	\$ 63,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 377,000	\$ 171,000	\$ 380,000	\$ 1,696,000	\$ 2,456,000		\$ 6,076,000	\$ 320
Traditional Surveillance				\$ 10,800,000							\$ 2,350,000		\$ 13,150,000	\$ 692

1. Costs for NAFO Secretariat based on satellite technology at headquarters
2. Some Contracting Parties exceeded the 35% satellite requirement
3. Fishing days for some Contracting Parties decreased in 1997
4. Canadian vessel surveillance excludes military vessel support (estimated at \$5.0M)

## **Fisheries Commission Annual Meeting 14-18 September 1998, Lisbon, Portugal**

The 20th Annual Meeting of the Fisheries Commission was held in Lisbon, Portugal, 14-18 September 1998. Complete proceedings of this Meeting can be found in GC Doc. 98/13 and in Meeting Proceedings, 1998.

### **Opening Procedures (items 1-5 of the Agenda)**

The meeting was called to order by the Chairman, Mr. P. Gullestad (Norway) on 15 September 1998. Representatives from the following Contracting Parties were present: Canada, Cuba, Denmark (in respect of the Faroe Islands and Greenland), Estonia, the European Union (EU), France (in respect of St. Pierre et Miquelon), Iceland, Japan, the Republic of Korea, Latvia, Lithuania, Norway, Poland, Russia and the United States of America (Annex 1).

Ms. K. Rodrigues (USA) was appointed Rapporteur.

The provisional agenda was adopted (Annex 2).

### **Administrative (item 6)**

The review of the Commission membership was discussed at the opening session of the General Council (under the provisions of Article XIII.1 of the NAFO Convention). There were no new members to the fifteen members of the Fisheries Commission.

### **Conservation and Enforcement Measures (items 7-14)**

With respect to Agenda item 7, Report of the Working Group on Transparency in NAFO Activities and Decisions (participation of inter-governmental and non-governmental organizations), it was agreed that this item was covered during the previous session of the General Council and needed no further discussion by the Fisheries Commission.

With respect to Agenda items 8 and 9, Consideration on the Establishment of a Permanent Scheme for Observers and Satellite Tracking, the chair of STACTIC, Mr. D. Bevan (Canada), reported on two intersessional meetings of STACTIC following the 19th Annual Meeting.

The Fisheries Commission agreed to adopt the formats for the electronic transmission of NAFO Hails from Contracting Parties to the NAFO Secretariat (Annex 3).

STACTIC determined that, overall, the hail system has improved. To enable a comparative evaluation of the methods of inspection for presentation at this annual meeting, STACTIC agreed to a uniform approach to reporting the performance data of these programs.

The meeting noted that the evaluation of the pilot project contains strong empirical evidence of a positive change in compliance as demonstrated by the reduction in apparent infringements. Following an agreement which was reached during the Heads of Delegation meeting, the Fisheries Commission adopted a "Program for Observers and Satellite Tracking". The agreement requires all Contracting Parties to employ 100% observer coverage on their vessels fishing in the Regulatory Area as from January 1, 1999; and, as soon as possible but no later than January 1, 2001, to require all vessels fishing in the Regulatory Area to be equipped with satellite tracking devices (Annex 4).

It was agreed to amend the Conservation and Enforcement Measures requiring Contracting Parties to ensure their fishing vessels do not receive transshipments of fish from a Non-Contracting Party vessel engaged in fishing activities in the NAFO Regulatory Area (to implement the Scheme to Promote Compliance by Non-Contracting Party Vessels with the Conservation and Enforcement Measures Established by NAFO) (Annex 5).

With respect to Agenda item 11, Report of the Working Group on the Precautionary Approach, the Chairman of the Scientific Council, Mr. H. P. Cornus (EU) summarized the meetings relevant to the development of the precautionary approach in fisheries management. A Scientific Council Workshop involving worldwide participation was held 17-27 March 1998. This Workshop reviewed developments on the precautionary approach elsewhere, discussed the theoretical basis of the precautionary approach and the application of this approach to NAFO-managed stocks. A joint FC/SC Working Group on the Precautionary Approach met in Copenhagen in May 1998 where it agreed that dialogue between scientists and managers was important and recommended to the Fisheries Commission a continuation of the joint Working Group through an intersessional meeting in the spring of 1999.

The Chair of the Fisheries Commission summarized his reflections on the Joint Working Group meeting. He noted the difference in the process of the Working Group from the normal one of formalized question and answer. In this case, it was a joint working group where scientists and managers were sitting at the same table as two functions trying to work together.

The discussions of the Joint Working Group revealed that the perception of what the precautionary approach is and how it should be applied and implemented varied much between participants. The Working Group focused on the question of how to apply the precautionary approach when setting a TAC or, more generally, when developing a management strategy or a decision rule for a certain stock which, in turn, will apply when fixing the TAC. In this context the precautionary approach is typically relevant when the stock or spawning stock biomass is at a low level. The precautionary approach has therefore to be an element integrated into whatever explicit or implicit management strategies NAFO applies for various stocks.

The Working Group also discussed the respective roles of managers and scientists. It was generally agreed that when a stock is beneath a threshold level where it is threatened by depletion, then biology and the precautionary approach should be decisive, whereas when the stock is in good shape, bioeconomics, stability in catches, socioeconomic considerations, etc. are taken into account.

Sophisticated theoretical models and tools that in theory could be helpful for the development of reference points seldom are so in real life because of insufficient input data, specific stock peculiarities, etc., exposing the need to develop more pragmatic and thorough reference points on a stock by stock basis. It is also necessary to take into account explicitly the uncertainties of both stock assessment and stock projections when considering precautionary reference points. Managers must assess the risk of bringing a stock into a depleted state when making management decisions.

The Chair concluded his thoughts by noting a proposal by the Scientific Council to the Fisheries Commission to continue the Joint Working Group through an intersessional meeting. The Joint Working Group would develop a precautionary approach for 3 model stocks: one for closed fisheries (3NO cod), one for which a fishery is open, (3LNO yellowtail), and one for which there is only limited data (3M shrimp).

It was agreed to hold an intersessional meeting of the Joint Scientific Council and Fisheries Commission Working Group in the spring of 1999.

With respect to Agenda item 12, no agreement was reached regarding an increase of inspection presence in the NAFO Regulatory Area.

With respect to FC Agenda item 13, Report of the Working Group on Allocation of Fishing Rights and Chartering of Vessels, the Chair noted that this issue was dealt with by the General Council and there were no new interventions.

With respect to item 14 of the FC Agenda, Consideration and Improved Planning and Control of Research Vessels in the Regulatory Area, the Representative of Canada expressed the view that scientific research can be effective using commercial vessels and that a protocol to guide such research should be developed to avoid potential abuses. The Representative from the USA agreed and suggested that the Scientific Council consider guidelines that research vessels should follow. It was **agreed** to include this item as a request for advice to the Scientific Council.

#### **Conservation of Fish Stocks in the Regulatory Area (items 15-19)**

The Chairman of the Scientific Council, Mr. H. P. Cornus (EU) presented a summary of NAFO SCS Doc. 98/17, "Report of the Scientific Council, 3-18 June, 1998" which provides the scientific advice for the management of stocks in the NAFO Regulatory Area for 1999 and addresses special requests to the Scientific Council. He summarized this advice as in the table below:

American Plaice 3M	no directed fishery + lowest possible bycatch
Cod 3M	no directed fishery + lowest possible bycatch
Redfish 3M	reduce TAC by 50% + lowest possible bycatch of juveniles in the shrimp fishery (10,000t)
Shrimp 3M	catch should not exceed 30,000t
Cod 3NO	no directed fishery + lowest possible bycatch
Witch flounder 3NO	no directed fishery + lowest possible bycatch
Redfish 3LN	no directed fishery + lowest possible bycatch
American plaice 3LNO	no directed fishery + lowest possible bycatch
Capelin 3NO	no advice possible
Yellowtail flounder 3LNO	catch should not exceed 6,000t
Short-finned squid SA 3+4	using low abundance model catch should be set between 19,000 - 34,000t
Greenland halibut 2 +3KLMNO	catch of about 30,000t should not impede recovery
Shrimp 3LNO	no advice possible
Cod 2J+3KL	no advice requested
Witch flounder 2J+3KL	no directed fishery

This presentation was followed by clarification of several outstanding issues.

With regard to the special request for *Illex* squid, the information on this species is not sufficient to allow a specific TAC and additional research is needed to enable forecasting of the productivity level.

With regard to the Fisheries Commission request for an evaluation of the impact from 155mm versus 130mm mesh in the Greenland halibut fishery, Mr. Cornus stated that the insufficiency of data prevents the Scientific Council from an assumption other than that there would be no difference in its escapement mortality.

It was noted that the bycatch of Greenland halibut in the shrimp fishery is reduced almost to zero by the sorting grate. Experience in Norwegian waters shows great effectiveness even during periods of high abundance of groundfish and notes that the advice by the Scientific Council is cautious because the evaluation occurred from a period of low abundance.

Regarding shrimp fishery, the Representative of Denmark (in respect of the Faroe Islands and Greenland) tabled a paper proposing that the Western slope of the Flemish Cap be considered part of the 3L shrimp stock for management purposes, consistent with the scientific acceptance of the Flemish Cap as one unit stock. He proposed that a small portion of 3L should be incorporated into Division 3M and allowed to be fished under the 3M allocation.

Management Measures for Shrimp in Div. 3M for 1999 was adopted by the Fisheries Commission at the closing session, on 18 September 1998 (Annex 6).

Regarding Yellowtail fishery, Canada reported that it had taken several measures to protect juveniles and minimize bycatch of American plaice in the yellowtail fishery. Although there has not been time to evaluate the effectiveness of these steps, Canada is continuously monitoring bycatch, which is about 3% for American plaice during the August-early September fishery. Canada regards yellowtail as a positive story and recommends an increase in the TAC while maintaining a conservatively low exploitation rate. In response to a concern raised by the Representative of the EU, Canada noted that the bycatch of cod from the fishery is 0.4% and that every manner of restriction is put on the fishery to manage it conservatively.

A consensus was reached in the Heads of Delegation meeting on a package containing the following measures:

Cod 3M	no directed fishery
Redfish 3M	13,000t
American plaice 3M	no directed fishery
Shrimp 3M	effort limitation (with amendments in NAFO FC Working Paper 98/13-second revision). Portion of 3L division on the Flemish Cap may be fished under the effort limitation scheme.
Cod 3NO	no directed fishery
Redfish 3LN	no directed fishery
American plaice 3LNO	no directed fishery

Yellowtail flounder 3LNO	6,000t
Witch flounder 3NO	no directed fishery
Capelin 3NO	no directed fishery
Squid (Illex)(SA 3&4)	75,000t with the understanding that this is a transitional year .
Shrimp 3LNO	no directed fishery
Greenland halibut 3LMNO	24,444t
Cod 2J3KL in NRA	no directed fishery
Witch 2J3KL in NRA	no directed fishery

The Fisheries Commission then adopted the Quota Table (Annex 7).

Regarding item 18, Formulation of Request to the Scientific Council for the management of fish stocks in 1999, FC Working Paper 98/19 was adopted (Annex 8).

Regarding item 19, Transfer of Quotas between Contracting Parties, this item will be on the Agenda of the future Fisheries Commission meeting for discussion.

#### **Closing Procedures (items 20-22)**

Regarding item 20, the Fisheries Commission's Annual Meeting in 1999 would be held in Halifax, N.S., Canada from 13-17 September.

Under item 22, Adjournment, the Annual Meeting of the Fisheries Commission was adjourned at 1230 hrs on 18 September 1998.

The list of actions and decisions by the Fisheries Commission at the 20th Annual Meeting is presented in Annex 9.

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## **Annex 2. Agenda**

### **I. Opening Procedure**

1. Opening by the Chairman, P. Gullestad (Norway)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Admission of Observers
5. Publicity

### **II. Administrative**

6. Review of Commission Membership
7. Report of the Working Group on Transparency in NAFO Activities and Decisions

### **III. Conservation and Enforcement Measures**

8. Consideration on the establishment of a permanent scheme for observers and satellite tracking (in the NAFO Regulatory Area)
9. Report of STACTIC to the Fisheries Commission on its activities during the current year
  - a) Pilot Project for Observers and Satellite Tracking
  - b) Consideration of the recommendations of the STACTIC Working Group on Satellite Tracking (FC Doc. 97/15)
  - c) Other Business (discard/retention rules, sampling protocols, disposition of infringements, etc.)
10. Report of STACTIC at the Annual Meeting
11. Report of the Working Group on the Precautionary Approach
12. Increase of inspection presence in the NAFO Regulatory Area
13. Report of the Working Group on Allocation of Fishing Rights and Chartering of Vessels
14. Consideration on Improved Planning and Control of Research Vessels in the Regulatory Area

### **IV. Conservation of Fish Stocks in the Regulatory Area**

15. Summary of Scientific Advice by the Scientific Council

16. Management and Technical Measures for Fish Stocks in the Regulatory Area, 1999
  - 16.1 Cod in Div. 3M
  - 16.2 Redfish in Div. 3M
  - 16.3 American plaice in Div. 3M
  - 16.4 Shrimp in Div. 3M
  
17. Management and Technical Measures for Fish Stocks Straddling National Fishing Limits, 1999
  - 17.1 Cod in Div. 3NO
  - 17.2 Redfish in Div. 3LN
  - 17.3 American plaice in Div. 3LNO
  - 17.4 Yellowtail flounder in Div. 3LNO
  - 17.5 Witch flounder in Div. 3NO
  - 17.6 Capelin in Div. 3NO
  - 17.7 Squid (*Illex*) in Subareas 3 and 4
  - 17.8 Shrimp in Div. 3LNO
  - 17.9 Greenland halibut in Div. 3LMNO
  - 17.10 If available in the Regulatory Area:
    - i) Cod in Div. 2J3KL
    - ii) Witch flounder in Div. 2J3KL
  
18. Formulation of Request to the Scientific Council for:
  - a) Scientific advice on the management of fish stocks in 2000
  
19. Transfer of Quotas Between Contracting Parties

#### **V. Closing Procedure**

20. Time and Place of the Next Meeting
21. Other Business
22. Adjournment

**Annex 3. Amendment of the NAFO Conservation and Enforcement Measures (FC Doc. 98/1); Part III, Annex I to add Example 1 (6 pages) and Example 2 (1 page) (FC Doc. 98/10)**

Standardized Formats for the Electronic Transmission of NAFO Hails  
and Satellite Tracking Reports from Contracting Parties  
to the NAFO Secretariat

This document comprises the hail message and satellite tracking file/formats developed and recommended to the Fisheries Commission by the STACTIC Working Group, which met in Dartmouth, N.S., Canada, 28-30 October 1997.

The Fisheries Commission adopted the formats during its Annual Meeting in Lisbon, Portugal, 18 September 1998.

The document consists of the following elements:

Example 1

- Explanatory notes on formats
- Entry hail (report)
- Move hail
- Transzonal hail
- Exit hail
- Transshipment hail

Example 2

- File format for satellite tracking report

Example 1**Formats for the Electronic Transmission of NAFO Hails  
from Contracting Parties to the NAFO Secretariat**

Amendment of the NAFO Conservation and Enforcement Measures, FC Doc. 98/1; Part III, Annex 1:

## EXPLANATORY NOTES

- a) The formats herein conform with the requirements for the NAFO Hails System as set out in FC Document 97/1 Part III Annex I Hail System Message Format.
- b) The formats consist of variable length delimited records, and are based on systems currently in use in the EU, Iceland and Norway.
- c) The variable length record is preferred over a fixed length record as some Contracting Parties collect more information from their vessels than is required by NAFO, and are forwarding the entire record to NAFO. The format is conducive to extraction of the required data fields by the receiving parties.
- d) The following convention is used in this paper: //FIELD NAME/field value//, where the field name is shown in uppercase, followed by the character "/", followed by the field value in lowercase. Fields are separated by "//".
- e) Each record begins with the string //SR// to indicate the Start of the Record.
- f) Each record ends with the string //ER// to indicate the End of the Record.
- g) Character fields (CHAR) shall conform with the ISO 8859.1 character set standard.
- h) Country codes used for addressee (AD) and sender (FR) shall conform with the ISO 3166 (1993) standard. E/F 7.3 states that user-assigned country codes shall start with the character "X", therefore it is proposed that the code XNS be used to designate the NAFO Secretariat, the addressee for hail messages.

Example 1  
(continued)

## NAFO HAILS SYSTEM - Part III Annex I Hail System Message Format

## 1.1 ENTRY HAIL

//SR			Start Record
//FR/from	(ISO-3)		
//AD/addressee	XNS		
//SQ/sequence number	NUM(4)		
//NA/name of vessel	CHAR(40)		
//RC/call sign	CHAR(8)		
//XR/external identification letters and numbers	CHAR(14)		
//DA/date	CHAR(8)	YYYYMMDD	
//TI/time	NUM(4)	HHMM	UTC
//LA/latitude	CHAR(5)	NDDMM	
//LO/longitude	CHAR(6)	WDDMM	
//TM/indication of the message code	CHAR(3)	ENT	
//DI/NAFO Division into which the vessel is about to enter.	CHAR(2)		
//HO/total round weight of fish by species (3 alpha codes) on board in kilograms rounded to the nearest 100 kilograms. Allow several pairs of fields, consisting of species + weight, with each field separated by a space. e.g. //HO/species weight species weight species weight//			
	SPECIES	CHAR(3)	FAO Codes
	WEIGHT	NUM(7)	
//MA/name of the Master	CHAR(30)		
//DS/directed species (target species)	CHAR(3)	FAO Codes	
Allow several species to be entered, with the values separated by spaces, e.g. //DS/species species species//			
//ER//	-		End Record

Example 1  
(continued)

NAFO HAILS SYSTEM - Part III Annex I Hail System Message Format

1.2 MOVE HAIL

NOTE that FC Document 96/1 Part III states that vessels equipped with devices which enable the automatic transmission of their positions are exempt from the Hail requirements set out in Part III.

//SR	-	Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDDMM
//TM/indication of the message code	CHAR(3)	MOV
//DI/NAFO Division into which the vessel is about to enter.	CHAR(2)	
//MA/name of the Master	CHAR(30)	
//DS/directed species (target species)	CHAR(3)	FAO Codes
Allow several fields to be entered, with the fields separated by spaces, e.g. //DS/species species species//		
//ER//	-	End Record

Example 1  
(continued)

## NAFO HAILS SYSTEM - Part III Annex I Hail System Message Format

## 1.3 TRANSZONAL HAIL (between NAFO Divisions )

NOTE that FC Document 96/1 Part III states that vessels equipped with devices which enable the automatic transmission of their positions are exempt from the Hail requirements set out in Part III.

//SR	-	Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDMM
//TM/indication of the message code	CHAR(3)	ZON
//MA/name of the Master	CHAR(30)	
//DS/directed species (target species)	CHAR(3)	FAO Codes
Allow several fields to be entered, with the fields separated by spaces, e.g. //DS/species species//		
//ER//	-	End Record

Example 1  
(continued)

NAFO HAILS SYSTEM - Part III Annex I Hail System Message Format

1.4 EXIT HAIL

//SR	-	Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDDMM
//TM/indication of the message code	CHAR(3)	EXI
//DI/NAFO Division from which the vessel is about to leave.	CHAR(2)	
<p>//CA/catch in round weight taken in the Regulatory Area by species (3 alpha codes) in kilograms (rounded to the nearest 100 kilograms). Allow several pairs of fields, consisting of species + weight, with each field separated by a space. e.g. //CA/species weight species weight species weight//</p>		
	SPECIES	CHAR(3)
	WEIGHT	NUM(7)
		FAO Codes
//MA/name of the Master	CHAR(30)	
//ER//	-	End Record

Example 1  
(continued)

## NAFO HAILS SYSTEM - Part III Annex I Hail System Message Format

## 1.5 TRANSHIPMENT HAIL

//SR	-	Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDMM
//TM/indication of the message code	CHAR(3)	TRA
//KG/total round weight by species (3 alpha codes) to be transshipped in kilograms (rounded to the nearest 100 kilograms) Allow several pairs of fields, consisting of species + weight, with each field separated by a space. e.g. //KG/species weight species weight species weight//		
	SPECIES	CHAR(3)      FAO Codes
	WEIGHT	NUM(7)
//MA/name of the Master	CHAR(30)	
//ER//	-	End Record

Example 2

Amendment of the NAFO Conservation and Enforcement Measures, FC Doc. 98/1; Part III, Annex 1

Standardized File Format for Satellite Tracking Reports at the NAFO Secretariat

Definition of mandatory data elements

Data Element	Field Code	Maximum Width	Mandatory/Optional	Definition/Remarks
Start of Record	SR		M	
From	FR	3	M	Alpha-3 ISO country code
Addressee	AD	4	M	XNW
Sequence Number	SQ	4	M	
Name	NA	40	M	Vessel detail
International radio call sign	RC	8	M	Vessel detail
External identification	XR	14	M	Vessel detail
Flag State	FS	3	M	Alpha-3 ISO country code
Date	DA	8	M	YYYYMMDD
Time	TI	4	M	HHMM
Latitude	LA	5	M	NDDMM
Longitude	LO	6	M	WDDMM
Type of Message	TM	3	M	ENT/EXI/MOV
NAFO Division*	DI	2	M	NAFO division in which the vessel has entered
End Record	ER		M	

\*to be left blank if the report is an "exit"

Definition of optional data elements

Data Element	Field Code	Maximum Width	Mandatory/Optional	Definition/Remarks
Name of the Master	MA	30	O	
Target Species	DS	3	O	FAO codes; allowance for multiple main species

Note: Character set: ISO 8859.1. A data transmission is structured in the following manner: - a double slash ("/") and a field code indicate the start of a data element; - a slash ("/") separates the field code and the data. Optional data elements have to be inserted between "Start of record" and "End of record".

Example of messages based on the standardized file format

**##R/NOR##AD##XNS##SQ##345##RC/TELN##XR/V1-5943##NAVESSEL NAME##  
 FSRUS/DANYYMMDD##TJ0400##TM/MOV##ID##3M##LAN472##LOW04640##ER##  
 Optional elements: ##MA/MASTERS NAME##DS/DIRECTED SPECIES##**

NAFO Regulations; PART III.E. AND VI.B. OF THE CONSERVATION AND ENFORCEMENT MEASURES APPLIES

**Annex 4. Program for Observers and Satellite Tracking (FC Doc. 98/7)****NAFO CONSERVATION AND ENFORCEMENT MEASURES****AMEND PART VI – to read as follows****PART VI - PROGRAM FOR OBSERVERS AND SATELLITE TRACKING**

In order to improve and maintain compliance with the Conservation and Enforcement Measures for their vessels fishing in the Regulatory Area, Contracting Parties agree to a program of 100 percent observer coverage and to require all vessels fishing in the Regulatory Area to be equipped with satellite tracking devices as soon as possible and not later than January 1, 2001. The elements of this program are subject to review and revision, as appropriate, for application in 2001 and subsequent years.

**A. Observers**

1. Each Contracting Party shall require all its vessels fishing in the Regulatory Area to accept observers on the basis of the following:
  - a) each Contracting Party shall have the primary responsibility to obtain, for placement on its vessels, independent and impartial observers;
  - b) in cases where a Contracting Party has not placed an observer on a vessel, any other Contracting Party may, subject to the consent of the Contracting Party of the vessel, place an observer on board until that Contracting Party provides a replacement in accordance with paragraph a);
  - c) no vessel shall be required to carry more than one observer pursuant to this Program at any time.
2. Each Contracting Party shall provide to the Executive Secretary a list of the observers they will be placing on vessels in the Regulatory Area.
3. Observers shall:
  - a) monitor a vessel's compliance with the relevant Conservation and Enforcement Measures. In particular they shall:
    - i) record and report upon the fishing activities of the vessel and verify the position of the vessel when engaged in fishing;
    - ii) observe and estimate catches with a view to identifying catch composition and monitoring discards, by-catches and the taking of undersized fish;
    - iii) record the gear type, mesh size and attachments employed by the master;
    - iv) verify entries made to the logbooks (species composition and quantities, round and processed weight and hail reports).

- b) collect catch and effort data on a set-by-set basis. This data shall include location (latitude/longitude), depth, time of net on the bottom, catch composition and discards; in particular the observer shall collect the data on discards and retained undersized fish as outlined in the protocol developed by the Scientific Council.
  - c) carry out such scientific work (for example, collecting samples) as requested by the Fisheries Commission based on the advice of the Scientific Council;
  - d) within 30 days following completion of an assignment on a vessel, provide a report to the Contracting Party of the vessel and to the Executive Secretary, who shall make the report, available to any Contracting Party that requests it. Copies of reports sent to other Contracting Parties shall not include location of catch in latitude and longitude as required under 3 b), but will include daily totals of catch by species and division.
4. The observer shall monitor the functioning of, and report upon any interference with, the satellite system. In order to better distinguish fishing operations from steaming and to contribute to an *a posteriori* calibration of the signals registered by the receiving station, the observer shall maintain detailed reports on the daily activity of the vessel.
  5. When an apparent infringement of the Conservation and Enforcement Measures is identified by an observer, the observer shall, within 24 hours, report it to a NAFO inspection vessel using an established code, which shall report it to the Executive Secretary.
  6. Contracting Parties shall take all necessary measures to ensure that observers are able to carry out their duties. Subject to any other arrangements between the relevant Contracting Parties, the salary of an observer shall be covered by the sending Contracting Party.
  7. The vessel on which an observer is placed shall provide suitable food and lodging during the observer's deployment. Vessel masters shall ensure that all necessary cooperation is extended to observers in order for them to carry out their duties including providing access, as required, to the retained catch, and catch which is intended to be discarded.

#### B. Satellite Tracking

1. Each Contracting Party whose vessels fish, or plan to fish, in the Regulatory Area, shall:
  - a) require as soon as possible and not later than January 1, 2001 of its vessels fishing in the Regulatory Area to be equipped with an autonomous system able to transmit automatically satellite signals to a land-based receiving station permitting a continuous tracking of the position of the vessel by the Contracting Party of the vessel;
  - b) install at least one receiving station associated with their satellite tracking system;
  - c) transmit to the Executive Secretary, on a real time basis, messages of movement between NAFO divisions (as per the requirements of the Hail System outlined in Part III. E of these Measures) for its vessels equipped with satellite devices. The

Executive Secretary shall, in turn, transmit such information to Contracting Parties with an inspection vessel or aircraft in the Convention Area;

- d) cooperate with other Contracting Parties which have a NAFO inspection vessel or aircraft in the Convention Area, in order to exchange information on a real-time basis on the geographical distribution of fishing vessels equipped with satellite devices and, on specific request, information related to the identification of a vessel.
2. Subject to any other arrangements between Contracting Parties, each Contracting Party shall pay all costs associated with the satellite tracking system.

**Annex 5. Revisions to NAFO Conservation and Enforcement Measures**  
(FC Doc. 98/8)

Part I. Management – to add:

- I. Other Measures – No Transshipment of Fish From Non-Contracting Party Vessels
1. Contracting Parties shall ensure that their fishing vessels do not receive transshipments of fish from a Non-Contracting Party vessel which has been sighted and reported, as having engaged in fishing activities in the NAFO Regulatory Area.

Part IV. Scheme of Joint International Inspection and Surveillance – to add:

19. (i) Contracting Parties shall report to the NAFO Secretariat all sightings, made by inspectors, of Non-Contracting Party fishing vessels engaged in fishing activities (i.e. fishing, fish processing operations, the transshipment of fish or fish products, and any other activity in preparation for or related to fishing) in the NAFO Regulatory Area. Such reports shall include all information derived from the inspector's observations concerning the Non-Contracting Party fishing vessel's activities and be made using Part I of the surveillance report provided in Part IV, Annex VIII.
- (ii) The inspector shall attempt to inform the Non-Contracting Party fishing vessel that it has been sighted engaging in fishing activities, that a surveillance report has been completed, that there may be consequences for the vessel, and that this information will be distributed to all NAFO Contracting Parties and to the flag-State of the vessel.
- (iii) In the event that the Non-Contracting Party vessel, which has been sighted and reported as engaged in fishing activities in the NAFO Regulatory Area, is boarded by inspectors, the findings of the inspectors shall be transmitted to the Executive Secretary. The Executive Secretary will transmit this information to all Contracting Parties within 72 hours of receiving this information, and to the flag-State of the boarded vessel as soon as possible.

### PART IV - ANNEX VIII- SURVEILLANCE REPORT

1. The forms for the Surveillance Report shall be collated in a booklet with each page having an original and two self-carbon copies (preferably coloured and preferably 1 golden rod and 1 blue).
2. Page packets are to be perforated at the top and bottom of the page for easy removal.
3. Booklets should be bound preferably with 50 copies of the surveillance report.
4. The size of every page, after removal from the packet, should be 355.5 mm (14") in length by 216 mm (8 1/2") in width.

#### FISHERIES COMMISSION OF THE NORTHWEST ATLANTIC FISHERIES ORGANIZATION

#### SURVEILLANCE REPORT

#### PART I

#### AUTHORIZED INSPECTORS

1. Name(s) ..... Document Identity No.(s).....  
.....  
.....  
Contracting Party.....
2. Identification/Call Sign of Surveillance Craft .....  
Patrol Originating in Reg. Area at (Posn) .....on (Date) (time) UTC  
Patrol Leaving Reg. Area at (Posn) .....on (Date) (time) UTC

#### DETAILS OF VESSEL OBSERVED

3. Contracting Party/Non-Contracting Party/Flag State.....
4. Vessels Name and Letters and Numbers of Registration.....
5. Other Identifying Features (Type of vessel, colour of hull, superstructure, etc.  
.....  
.....  
.....
6. Date/Time UTC When First Identified ..... Course & Speed .....  
Position at Time at First I.D. NAFO Sub Div.....  
Lat. ....  
Long. ....

Equipment used in Determining Position .....

7. WEATHER CONDITIONS

Wind Dir..... Sea State.....

Wind Speed..... Visibility.....

8. DETAILS OF PHOTOGRAPHS TAKEN

	Date/Time	Posn.	Altitude in case of air surveillance
a.	.....	.....	.....
b.	.....	.....	.....
c.	.....	.....	.....
d.	.....	.....	.....

PART II

(to be completed by the inspector not less than 72 hours  
following the observation recorded in Part I)  
(NOT APPLICABLE TO NON-CONTRACTING PARTIES)

I hereby certify that to date, in respect of the fishing vessel .....,  
information received by the ..... authorities from the competent  
authorities of the Contracting Party ..... pursuant to paragraph 2 of  
Part ..... Section ..... of the Conservation and Enforcement Measures (Hail System), does not  
correspond with the observation recorded in Part I of this report.

Authorized Inspector: .....

Signature: .....

**Annex 6. Management for Shrimp 3M**  
(FC Doc. 98/9)

**NAFO CONSERVATION AND ENFORCEMENT MEASURES**

**AMEND PART I.F – to read as follows:**

F. Other Measures - Management Measures for Shrimp in Div. 3M

1. Vessels fishing for shrimps in Division 3M in 1999 shall use nets with a minimum mesh size of 40 mm.
2. Vessels fishing for shrimp in Division 3M in 1999 shall use sorting grids or grates maximum spacing between the bars of 22 mm.
3. In the event that total by-catches of all regulated groundfish species in any haul exceed 5 percent by weight, vessel shall immediately change fishing area (minimum of 5 nautical miles) in order to seek to avoid further by-catches of regulated groundfish.
4.
  - a) Each Contracting Party shall limit in 1999 the number of vessels fishing for shrimp in Div. 3M to the number that have participated in this fishery in the period from 1 January 1993 to 31 August 1995.
  - b) Each Contracting Party shall, in 1999, limit the number of fishing days by its vessels fishing for shrimp in Div. 3M to 90% of the maximum number of fishing days observed for their vessels in one of the years 1993, 1994 or 1995 (until 31 August 1995). However, for Contracting Parties with a track record in the period from 1 January 1993 to 31 August 1995, a minimum level of 400 fishing days is permitted.
  - c) Contracting Parties with no track record in the shrimp fishery in the period from 1 January 1993 to 31 August 1995 may, in 1999, fish for shrimp with one vessel in 100 fishing days.
  - d) Each Contracting Party shall communicate the number of fishing days to the Executive Secretary before 1 November 1998 that are available to that Contracting Party for 1999. The number of days shall be counted from the hail reports of vessels fishing for shrimp in Div. 3M and shall include the days of entry and exit from the Regulatory Area. In the case where vessels fishing for shrimp and other species on the same trip the number of days shall be counted from the day the vessel entered the shrimp fishery to the day the vessel ceased that fishery.

The Executive Secretary shall scrutinize the communications from the Contracting Parties, work with the relevant Contracting Parties if discrepancies are revealed, and by 1 December 1998 notify the number of vessels and fishing days applicable to all Contracting Parties.

- e) Vessels fishing for 3M shrimp may fish this stock in 1999 in Division 3M and in the area defined by the coordinates in footnote 1.

- f) For vessels conducting trans-zonal fishery for shrimps between Div. 3M and the area defined in footnote 1, the same regulations as in NAFO Conservation and Enforcement Measures, Part III – Annex I – Hail System Message Format, no. 1.3., shall apply.
- g) Each Contracting Party shall in 1999 closely monitor its vessels fishing for shrimp and close the fishery when the number of fishing days available to that Party is exhausted.

The number of fishing days shall be counted from the hail reports of vessel fishing for shrimp and shall include the days of entry or moves into Div. 3M and the area defined in footnote 1 and the days of moves or exit from Div. 3M and the area defined in footnote 1.

- h) In the case where a vessel is fishing for shrimp and other species on the same trip, the change of fishery shall be hailed and the number of fishing days counted accordingly.
- i) Fishing days are not transferable between Contracting Parties.

---

Point No.	Latitude	Longitude
1	47°20'0	46°40'0
2	47°20'0	46°30'0
3	46°00'0	46°30'0
4	46°00'0	46°40'0

## Annex 7. Quota Table for 1999

QUOTA TABLE: Total allowable catches (TACs) and quotas (metric tons) for 1999 of particular stocks in Subareas 3 and 4 of the NAFO Convention Area. The values listed include quantities to be taken both inside and outside the 200-mile fishing zone, where applicable.

Contracting Party	Cod		Redfish		American plaice		Yellowtail		Witch		Capelin		Ci. haitbut Squid (Illex) <sup>2,3</sup>	
	Div. 3M	Div. 3NO*	Div. 3M	Div. 3LN*	Div. 3M*	Div. 3LNO*	Div. 3LNO	Div. 3NO*	Div. 3NO*	Div. 3LNO	Div. 3NO*	Div. 3LNO	Div. 3LNO	Subareas 3+4
1. Canada	0	0	500	0	0	0	5850 <sup>7</sup>	0	0	3 667	N.S. <sup>4</sup>	1 125		
2. Cuba	0	-	1750	0	-	-	-	-	-	0	-	-		
3. Denmark (Faroe Islands and Greenland)	0	-	69	-	-	-	-	-	-	-	-	-		
4. European Union	0	0	3100	0	0	0	120 <sup>7</sup>	-	-	13 530	N.S. <sup>4</sup>	-		
5. France (St. Pierre et Miquelon)	-	-	69	-	-	-	-	-	-	-	-	-	1 000	
6. Iceland	-	-	-	-	-	-	-	-	-	-	-	-	-	
7. Japan	-	-	400	-	-	-	-	-	-	2 506	1 125	-		
8. Korea	-	-	69	-	-	-	-	-	-	-	-	-	1 000	
9. Norway	0	-	-	-	-	-	-	-	-	-	-	-	-	
10. Poland	0	-	-	-	-	-	-	-	-	-	-	-	500	
11. Estonia	-	-	-	-	-	-	-	-	-	-	-	-	-	
12. Latvia	0	0	13 850 <sup>1</sup>	0	0	0	-	0	0	-	-	-	2 500 <sup>1</sup>	
13. Lithuania	-	-	-	-	-	-	-	-	-	-	-	-	-	
14. Russia	-	-	69	-	-	-	-	-	-	-	-	-	-	
15. United States of America	0	0	124	0	0	0	30 <sup>7</sup>	0	0	1 624 <sup>5</sup>	1 750	-		
16. Others	-	-	69	-	-	-	-	-	-	-	-	-	-	
Total Allowable Catch	*	*	13 000 <sup>6</sup>	*	*	*	6 000 <sup>8</sup>	*	*	24 444	*	*	75 000	

<sup>1</sup> Quotas to be fished by vessels from Estonia, Latvia, Lithuania and the Russian Federation. The provisions of Part I, Section A.3 of the NAFO Conservation and Enforcement Measures shall apply.

<sup>2</sup> The opening date for the Squid (Illex) fishery is 1 July.

<sup>3</sup> Any quota listed for squid may be increased by a transfer from any "coastal state" as defined in Article 1, paragraph 3 of the NAFO Convention, provided that the TAC for squid is not exceeded. Transfers made to Contracting Parties conducting fisheries for squid in the Regulatory Area shall be reported to the Executive Secretary, and the report shall be made as promptly as possible.

<sup>4</sup> Not specified because the allocation to these Contracting Parties are as yet undetermined, although their sum shall not exceed the difference between the total of allocations to other Contracting Parties and the TAC.

<sup>5</sup> Of which no more than 40% (650 t) may be fished before 1 May 1999 and no more than 80% (1299 t) may be fished before 1 October 1999.

<sup>6</sup> Each Contracting Party shall notify the Executive Secretary bi-weekly of catches taken by its vessels from this stock. The Executive Secretary shall notify without delay all Contracting Parties of the date on which, for this stock, accumulated reported catch taken by vessels of the Contracting Parties is estimated to equal 100 percent of the TAC for that stock. At that date each Contracting Party, to which a quota has been allocated or which vessels are engaged in fishing under the "Others" quota, shall prohibit fishing by its vessels for that stock.

<sup>7</sup> Contracting Parties shall inform the NAFO Executive Secretary before 1 December 1998 of the measures to be taken to meet the advice of the NAFO Scientific Council.

<sup>8</sup> The provisions of Part I, Section A.5b) of NAFO Conservation and Enforcement Measures shall apply.

\*No directed fishing - The provisions of part I, Section A.5b) of NAFO Conservation and Enforcement Measures shall apply.

**Annex 8. Fisheries Commission's Request for Scientific Advice on  
Management in 2000 of Certain Stocks in Subareas 3 and 4**  
(FC Working Paper 98/19)

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 1999 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2000:

Redfish (Div. 3M)  
Yellowtail flounder (Div. 3LNO)  
Squid (Subareas 3 and 4)  
Shrimp (Div. 3M)  
Greenland halibut (Subareas 2 and 3)

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, the Scientific Council is requested to conduct the assessment of these six stocks as follows:

- In 1999, all six stocks will be assessed. The assessment advice, however, will pertain to different time periods to allow the introduction of the new scheme over the next three years.
- In 1999, advice will be provided for 2000 and 2001 for American plaice in 3LNO, cod in 3NO and redfish in 3LN. The next assessment of these stocks will thus be conducted in 2001.
- In 1999, advice will be provided for 2000 for cod in 3M, American plaice in 3M and witch flounder in 3NO. The next assessment of these stocks will be conducted in 2000 with advice provided for 2001 and 2002. 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  $F_{0.1}$ ,  $F_{1998}$  and  $F_{max}$  in 2000 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 2000 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 Sub-areas 3 and 4 is a short-lived species such that a change in productivity could be sudden. The Fisheries Commission and Coastal States request that the Scientific Council provide advice on the approach that could be used on an ongoing basis to allow timely identification of the onset of a new productivity level (higher or lower). It is also requested that the Scientific Council advise on catch levels that would be appropriate for different levels of productivity (e.g. low, medium and high). Further, the

Scientific Council is requested to evaluate the potential impacts of fisheries for squid in Subareas 3 and 4 on the portion of the squid (*Illex*) resource in Subareas 5 and 6.

4. 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 to 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 1999 report, the following information for the 1999 Annual Meeting of the Fisheries Commission for all stocks under its responsibility (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 of Annex II of the Agreement; 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.
5. The Fisheries Commission requests that the Scientific Council develop criteria to be evaluated during any consideration of possible fisheries re-openings.
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. 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 distribution inside and outside the NAFO Regulatory Area;
  - d) advise on reference points and conservation measures that would allow for exploitation of this resource in a precautionary manner;

- e) identify and delineate fishing areas and exclusion zones where fishing would not be permitted, with the aim of reducing the impact on the groundfish stocks which are under moratorium, particularly juveniles;
- f) provide information on annual yield potential for this stock;
- g) determine the appropriate level of research that would be required to monitor the status of this resource on an ongoing basis with the aim of providing catch options that could be used in the context of management by Total Allowable Catches (TAC); and
- h) provide advice on whether shrimp found in the area of the Flemish Cap defined by the following geographical coordinates

Point	Latitude	Longitude
1	47° 20' 0	46° 40' 0
2	47° 20' 0	46° 30' 0
3	46° 00' 0	46° 30' 0
4	46° 00' 0	46° 40' 0

are considered to represent a part of the overall Flemish Cap shrimp resource, and determine the potential impact on groundfish resources in terms of by-catch of juveniles and loss of potential yield that could result from the exploitation of shrimp in that area.

- 8. The Scientific Council is requested to provide information on the types of fisheries research activities being conducted or that may be conducted in the future in the NAFO Regulatory Area. Further, the Scientific Council is requested to outline any guidelines and protocols which should be followed when conducting such research.

**Annex 9. List of Decisions and Actions by the  
Fisheries Commission  
(20<sup>th</sup> Annual Meeting, 14-18 September 1998)**

Substantive issue (propositions/motions)	Decision/Action (FC Doc. 98/13, Part I; item)
1. Transparency of the FC decision-making process (Participation of Intergovernmental and Non-Governmental Organizations)	Agreed to refer this issue to the General Council; item 3.1
2. NAFO Conservation and Enforcement Measures:	
- Scheme for observers and satellite tracking	Adopted; Proposal in FC W.P. 98/18 and official FC Doc. 98/7; item 3.8.
- Transshipment by Non-Contracting Parties in the Regulatory Area	Adopted; Proposal in FC W.P. 98/17 and official FC Doc. 98/8 – Contracting Party vessels shall not receive transshipments from Non-Contracting Party vessels engaged in fishing in the Regulatory Area; item 3.9
- STACTIC Report at the Meeting	Adopted; item 3.10
3. Implementation of Precautionary Approach to NAFO-managed stocks	Agreed; Intersessional meeting of the Joint Scientific Council and Fisheries Commission Working Group will be held in San Sebastian, Spain; 3-5 May 1999.
4. Change of stock assessment schedule	Agreed to implement a biennial schedule for certain stocks and November assessment for shrimp; item 3.14
5. Working Group on Allocation of Fishing Rights and Chartering of Vessels	Noted: This issue was considered within the General Council; item 3.16
6. TACs and Regulatory Measures for major stocks in the Regulatory Area for 1999	Discussed/Adopted; item 4.1-4.22
- Cod 2J3KL in the Regulatory Area	no directed fishery
- Cod 3M	no directed fishery
- Redfish 3M	13,000 tons
- American plaice 3M	no directed fishery
- Shrimp 3M	effort limitation; portion of 3L division on the Flemish Cap may be fished under the effort limitation scheme
- Cod 3NO	no directed fishery
- Redfish 3LN	no directed fishery
- American plaice 3LNO	no directed fishery
- Yellowtail flounder 3LNO	6,000 tons
- Witch flounder 3NO	no directed fishery
- Capelin 3NO	no directed fishery
- Squid ( <i>Illex</i> ) SubAreas 3+4	75,000 tons with the understanding that this is a transitional year
- Shrimp 3LNO	no directed fishery
- Greenland halibut 3LMNO	24,444 tons
- Witch 2J3KL in the Regulatory Area	no directed fishery

- |  |  |
|--|--|
| 7. Schedule 1 – Quota Table, 1999; NAFO Conservation and Enforcement Measures                                  | Adopted; item 4.23   |
| 8. Request to the Scientific Council for Scientific Advice on management of fish stocks in 2000; FC Doc. 98/12 | Adopted; item 4.26   |
| 9. Transfer of quotas between Contracting Parties  | Referred to future Fisheries Commission Meetings for discussion; item 4.27 |
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**PART III**  
(pages 123 to 199)

**Activities of the Scientific Council in 1998**

**List of Meetings**

The following meetings were held under the authority of the Scientific Council:

- Workshop on Precautionary Approach; NAFO Headquarters, Dartmouth, N.S., Canada, 17-27 March.
- Scientific Council/Fisheries Commission Working Group on Precautionary Approach; Copenhagen, Denmark, 12-13 May.
- Scientific Council; Keddy's Inn, Dartmouth, N.S., Canada, 3-18 June.
- Symposium: Variations in Maturation, Growth, Conditions and Spawning Stock Biomass Production in Groundfish; Lisbon, Portugal, 9-11 September.
- Annual Meeting; Lisbon, Portugal, 6-18 September.
- Scientific Council; Copenhagen, Denmark, 6-10 November.



**Workshop on Precautionary Approach (PA)**  
**17-27 March 1998, Dartmouth, N.S., Canada**

The Workshop was held at NAFO Headquarters, 17-27 March 1998, with Scientific Council Chairman, H.-P. Cornus (EU-Germany) as Chairman. Forty-seven participants attended from 13 countries (Annex 1). The report of the Workshop after editorial modifications was issued as SCR Doc. 98/76.

The following terms of reference were given to the Workshop by the Scientific Council and Fisheries Commission:

- Description of procedures for determining reference point
- Determination of reference points for all stocks under the responsibility of the Fisheries Commission
- Specification of decision rules
- Developing criteria for fisheries re-openings
- Identification of data collection and monitoring activities
- Definition of research requirements
- Indication of time frames and funding

The Workshop was structured in two parts. In Part 1, a general review of progress to-date of the implementation of Precautionary Approach (PA) in other fora was made. These were from ICES, ICCAT, USA and FAO.

The Workshop reviewed methods for calculation of reference points. These were based on general production, yield and SSB per recruit. Also other methods incorporating qualitative criteria or utilizing biological parameters, such as length and growth, were discussed.

There was agreement that there was no need for separate criteria for re-opening of fisheries in the PA context. However, the reproductive dynamics of a stock may be different "on the way up" compared to "on the way down". Therefore there might be the need for different management actions. The "half-way point" criterion (half way between point of closure and long-term average) proposed by the Canadian FRCC (Fisheries Resource Conservation Council) for re-opening of fisheries was considered as a valuable procedure in case of data limitations. It was stressed that the Scientific Council framework is not limited to SSB and F parameters as criteria for re-opening, but that biological parameters should be considered as complementary information.

Other aspects of PA like exploitation pattern, stock age and length composition as well as growth, maturity and mortality, species interactions and technical interactions were discussed.

Exploitation pattern is an important factor in the PA context. For instance, changes in mesh size and selectivity imply changes in reference points. A mesh size decided by the management is an important decision as it determines the survival rate of the youngest year-class entering the fisheries. There is also an optimum mesh size and selectivity related to a management objective.

Stock age and length composition should also be considered as parameters relevant for the PA. Truncated age and length distributions are a common feature in NAFO stocks which have declined drastically in recent years. These declines coincide with age and length at 50% maturity, resulting in fish spawning at smaller sizes and younger ages. This implies different reference points related to historical stock compositions compared to current ones.

The Scientific Council Workshop also considered technical interactions in the PA context. The most important issue in this context was the by-catch problem. Well known in existing fisheries, this problem is inevitably expected in new developing fisheries as has been observed when a shrimp

fishery quickly developed in recent years on Flemish Cap. It gets a high priority in the context of re-opening fisheries in an area where other stocks are still under moratoria. An actual example in the NAFO area is the yellowtail flounder fishery on the Grand Banks.

Part 2 dealt with NAFO specific issues of the PA. For NAFO stocks precautionary reference points and harvest control rules (decision rules) as well as future development were discussed.

The Workshop agreed to select one stock for detailed consideration and the development of ideas which can be used also to address the other stocks. For all other stocks, attempts were made to determine reference points and propose decision rules as data allowed. Of these, four stocks were also handled in more detail. The American plaice stock in Div. 3LNO was selected as the stock for detailed consideration because the data for this stock were sufficient to apply all considered methods. Other stocks (Greenland halibut in Subarea 2 and Div. 3KLMNO, shrimp in Div. 3M, redfish in Div. 3M and short-finned squid in Subareas 3 to 6) were selected for more detailed discussion because of the problems experienced with the assessments.

For the NAFO stocks, general remarks were made. In the case of poor data the Annex II of the UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks (1995) proposes provisional reference points. It was noted not simply to take the lowest observed biomass from survey series as biomass limit reference point. In the NAFO area those values can be too low to serve as limit reference points. In such a situation thorough investigations are required. A non-parametric PA framework was reviewed which allows to develop a set of rules to adjust catch levels. However, this requires sufficient long time series.

In the case of developing fisheries, conservative caps on fishing capacity and fishing mortality should be installed unless there is a reliable basis of knowledge for increasing the fishery.

If there is a management decision to re-open a fishery, catches should be constrained in a rebuilding phase to guarantee a precautionary development of the re-opened fishery. In addition by-catches of species under closure in the area in which the re-opened fishery operates have to be considered in the management considerations.

There may be a change in production dynamics after a collapsed stock recovered. In such a situation reference points have to be recalculated.

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**Scientific Council/Fisheries Commission W.G. on the Precautionary Approach  
to Fisheries Management, 12-13 May 1998, Copenhagen, Denmark**

The Workshop met in Copenhagen, Denmark, during 12-13 May 1998. There were two Co-chairs of the Workshop: H.-P. Cornus, Chairman of the Scientific Council, and P. Gullestad, Chairman of the Fisheries Commission. Full report is presented in FC Doc. 98/2 (under the Fisheries Commission authority).

The Chairman of Scientific Council repeated the presentation (abbreviated) of the framework for implementation of the PA in the advice by Scientific Council which he had given at the Fisheries Commission Meeting during the Annual Meeting in September 1997 in St. John's, Newfoundland. The Chairman of the Fisheries Commission added a presentation of his view of the PA.

In the discussion following the presentations a number of different perspectives were put forward. It was noted that a lack of information should not be a reason to not use the PA and that the information gap should be closed as appropriate. The potential role of buffer points (security margins) was emphasized in that they provide warnings before the stock gets to the limit points. It was agreed that where buffer points are reached, remedial actions would be taken but that this may not necessarily imply automatic closures of fisheries. It was suggested that the PA cannot mean conservation at any cost; economic and social aspects need to be considered. It was also noted that although discussion had focussed on reference points and harvest control rules, there were other possible precautionary measures such as closed areas, fish size restrictions, gear regulations and effort controls which may also be implemented. The Working Group agreed that in addition to development and implementation of harvest control rules and reference points, other management tools and concepts need to be identified to enable the wide application of the PA within NAFO. The importance of continued separation of the roles of science and management was emphasized. For example, science should provide managers with explicit expressions of uncertainty associated with the determination of buffer reference points. The importance of consistent terminology between, for example, NAFO and ICES was also stressed.

Activities in relation to PA of various Contracting Parties including national and international interactions were considered.

The Working Group was not in a position to discuss specifically possible management actions or the relationships between management objectives and advice during the meeting. Nonetheless, the Working Group considered it important to clarify the respective roles of scientists and managers in the process of implementation of the PA. The respective roles were discussed and are tabulated below:

Scientific Council	Fisheries Commission
1. Determine status of stocks.	1. Specify management objectives, select target reference points, and set limit reference points.
2. Classify stock status with respect to biomass/fishing mortality zones.	2. Specify management strategies (courses of actions) for biomass/fishing mortality zones.
3. Calculate limit reference points and security margins.	3. Specify time horizons for stock rebuilding and for fishing mortality adjustments to ensure stock recovery and/or avoid stock collapse.
4. Describe and characterize uncertainty associated with current and projected stock status with respect to reference points.	4. Specify acceptable levels of risk to be used in evaluating possible consequences of management actions.
5. Conduct risk assessments.	

Generally the managers emphasized the need to be provided by Scientific Council with options of buffer reference points relating to different levels of probability to be off a limit reference point. In addition options of stock specific harvest control rules should be developed. It was agreed that this would be best achieved incorporating managers and scientists together in the developing process.

The Working Group recommended to the Fisheries Commission that following priority issues be given to the Scientific Council:

- Standardization of concepts/nomenclature/abbreviations/definitions between ICES, NAFO and FAO as appropriate.
- Estimation of limit reference points
  - Biomass, specifically  $B_{lim}$  and  $B_{buf}$
  - Fishing mortality, specifically  $F_{lim}$  and  $F_{buf}$
- Calculate limit reference points and security margins which offer a high probability of not approaching established limit reference points.
- Give the information as reflected in Fig. 14b and 15 of the Workshop Report (SCR Doc. 98/76) for as many stocks as possible.
- Review the Harvest Control Rule (HCR) concept provided by the Scientific Council Precautionary Approach Framework (SCS Doc. 97/12, Scientific Council Report 1997, page 35), considering the respective responsibilities of scientists and managers.
- Give additional examples of re-opening simulations for American plaice in Div. 3LNO.
- Continuation of this Working Group as an instrument for a dialogue with the Scientific Council.

**Scientific Council Meeting**  
**3-18 June 1998, Dartmouth, N.S., Canada**

The Scientific Council met at the Keddy's Dartmouth Inn, 9 Braemar Drive, Dartmouth, Nova Scotia, Canada, during 3-18 June 1998, to consider the various matters in its agenda (SCS Doc. 98/17).

Representatives attended from Canada, Cuba, Denmark (in respect of Faroe Islands and Greenland), European Union (France, Germany, Portugal, Spain and United Kingdom); Japan, Russian Federation and United States of America (Annex 1). The Assistant Executive Secretary was rapporteur.

The agenda, with proposed revisions, was adopted (Annex 2).

In introducing the plan of work, the Chairman described the approach being taken will be such that STACFIS will conduct the assessments, prepare responses to special requests of Fisheries Commission and Coastal States and provide guidance on developing advice. The Council will then address the tasks of developing prognoses on those assessments, determining Reference Points for the PA and providing advice and recommendations.

**FISHERIES ENVIRONMENT**

The overview of environmental conditions in 1997 was presented containing information on several long-term oceanographic and meteorological data sets. The overview presentation reported that annual air temperatures were above normal in 1997 in the Labrador Sea region but down from their 1996 levels. Along the Atlantic coast, air temperature sites revealed colder-than-normal conditions. Opposite air temperature anomaly trends over the Labrador Sea and the Middle Atlantic Bight have been observed in most of the past 30 years.

The atmospheric circulation pattern weakened resulting in the anomaly of the NAO index being negative. This was the second consecutive year with a below normal NAO index.

Off Newfoundland and Labrador ice left early by more than a month but in much of the Gulf of St. Lawrence the ice remained later-than-normal. Ice conditions were more severe than in 1996 but less than during the early-1990s.

Temperatures in 1997 throughout most of the water column off Newfoundland were below normal, except near bottom where they were slightly above normal. Temperatures were generally cooler than in 1996.

The volume extent of the CIL water off Newfoundland during the summer was near its lowest value on record, similar to 1996.

Deep water temperatures on the Scotian Shelf (Emerald Basin) and in the Gulf of Maine remained high during 1997 while in the Cabot Strait they remained near or slightly above normal. The high temperatures on the Scotian Shelf and in the Gulf of Maine were related to the influence of warm slope waters penetrating onto the shelf.

Cold Labrador slope waters replaced warm slope water along the shelf edge off the Scotian Shelf during the autumn. This water did not penetrate onto the Shelf during 1997.

Both the shelf/slope front and the north wall of the Gulf Stream were seaward of their long-term mean positions.

The Council recognized the need to incorporate environmental information into fisheries management, and felt that increased effort is required to establish more of the links between fisheries and oceanographic variability.

### FISHERY SCIENCE

The Council again expressed serious concerns with the non-availability of STATLANT 21A data for the assessment work. The Council once again regretted that the general review of fishery trends could not be adequately completed at this meeting, and the usual long-term summary by Division will be omitted from this report.

Note (by the NAFO Secretariat): The general fishery trend in 1998 was comparable to 1996-1997. There was a low number of fishing vessels conducting a limited fishery in the NAFO Regulatory Area. As the result, all TAC(s) in the NAFO Area have been utilized in the range of 3-80%. The table below demonstrates the trend:

(from NAFO monthly reports)  
1998

Contracting Party	Cod 3M		Redfish 3M		Yellowtail 3LNO		G. halibut 3LMNO	
	Quota	Catch	Quota	Catch	Quota	Catch	Quota	Catch
1. Bulgaria	-	-	-	-	-	-	-	-
2. Canada	16	0	650	0	3900	2602	3 000	610
3. Cuba	74		2 275		-		-	
4. Denmark (Faroe Islands and Greenland)	447	0	90	0	-	0	-	39
5. European Union	997	455	4 030	446	80	617	11 070	10447
6. France (St. Pierre et Miquelon)	-		90		-		-	
7. Iceland	-	0	-	0	-	0	-	0
8. Japan	-	0	520	438	-	0	2 050	2050
9. Korea	-		90		-		-	
10. Norway	185	0	-	0	-	0	-	0
11. Poland	77	0	-	0	-	0	-	0
12. Estonia		0		0		0	-	0
13. Latvia		0		0		0	-	0
14. Lithuania	196 <sup>1</sup>	0	18005 <sup>1</sup>	0	-	0	-	0
15. Russia		4		15		0	2 550	1889
16. United States of America	-		90		-		-	
15. Others	8		160		20		1 330	
TAC and Catch	2000	459	26000	899	4000	3219	20 000	15035
% of utilization of TAC		23		3		80		75

<sup>1</sup>"Block quota"

The data from the above table indicate that all stocks of the Regulatory Area have not been overfished in 1998. The stocks recommended for moratoria, "no directed fishery", (Cod, A. plaice, Witch, Capelin) were taken in small quantities of by-catch (not to exceed 5% or 1250kg per cargo). The similar trend of fishing/catches should be noted for the previous year, 1997.

### Assessment of Finfish Stocks and Squid

The Council agreed on the assessments of 19 (18 finfish and 1 squid) stocks in Subareas 0-4 as requested by the Fisheries Commission, and the Coastal States Canada and Denmark (in respect of the Faroe Islands and Greenland), and had advised on catch levels corresponding to reference levels according to the different requests. Management advice, based on the reference levels, could not be provided for several stocks due to insufficient data. Detailed assessments are given in the summary sheets on pages 134-151.

### Cod (*Gadus morhua*) in Divisions 2J, 3K and 3L

Cod in these Divisions are considered a single stock complex. However, genetic and tagging data suggest the existence of relatively discrete sub-components. Extensive migrations occur, particularly between the inshore and the offshore. Some fish over-winter inshore. The relationship between inshore and offshore fish is poorly understood.

**Fishery and Catches:** The rapid decline in the resource in the early-1990s led to reduced TACs and eventually to a moratorium on commercial fishing in 1992. Some non-commercial fishing was permitted in 1993, 1994 and 1996 but not in 1995 and 1997.

	Catch <sup>1</sup> ( <sup>1</sup> 000 tons)	TAC ( <sup>1</sup> 000 tons)	
		Recommended	Agreed
1995	0.3	nf	0
1996	1.5	nf	0
1997	0.5	nf	0
1998	-	nf	0

<sup>1</sup> Provisional.

nf No fishing.

**Data:** Abundance and biomass indices were available from several surveys. Removals at age were available from the limited by-catch and the sentinel survey. Data on growth and maturity were also available.

**Assessment:** Stock status was estimated based on research vessel abundance indices, sentinel survey data and biological data. No acceptable analytical assessment could be provided.

**Recruitment:** The number of 3-year-olds estimated by previous SPAs indicates that recruitment has been very low since 1987. There is some evidence from the inshore that the 1990 year-class may have been less weak, however, very few survivors from this year-class appeared in the offshore at age 3 and older based on research survey data. Survey data have continued to indicate very low recruitment in recent years. The 1996 year-class appears to be extremely weak. Pelagic juvenile surveys indicated the 1997 year-class to be intermediate between the values in 1995 and 1996.

**Biomass:** Autumn research vessel survey index of biomass in Div. 2J+3KL declined abruptly in the early-1990s. The 1997 estimate is slightly lower than the previous year and therefore remains extremely low. Biomass in the spring research vessel survey was the highest since 1992, but remains at an extremely low level.

**State of the Stock:** The stock remains at a very low level with only very weak year-classes entering the mature population and very few older fish. Even under the moratorium, in place since 1992, total mortality is estimated to be high. Given low recruitment and high mortality, the spawner biomass could decline further in 1998. While a number of factors appear to contribute to the high mortality their relative contribution is unknown.

**Cod (*Gadus morhua*) in Division 3M**

**Fishery and Catches:** Catches exceeded the TAC from 1988 to 1994, however, were below the TAC since 1995. Large numbers of small fish were caught by the trawl fishery in most recent years. By-catches were estimated to be low in the shrimp fishery since 1993.

	Catch <sup>1</sup> ( <sup>000 tons)</sup>	TAC ( <sup>000 tons)</sup>	
		Recommended	Agreed
1995	10	ndf <sup>2</sup>	11
1996	3		11
1997	3	ndf	6
1998		ndf	2

<sup>1</sup> Provisional.

<sup>2</sup> TAC in the vicinity of 1995 TAC.

ndf No directed fishery and by-catch of cod kept at lowest possible level.

**State of the Stock:** The stock has collapsed. The total stock biomass in 1996 and 1997 are the lowest on record. Recruitment at age 3 was poor from 1995 to 1997 and it is expected to be even poorer in 1998 and 1999. The decrease in the age-at-maturity of the stock is interpreted as a reaction of the population to the decline of the stock.

**Recommendation:** No directed fishery for cod in Div. 3M in 1999. Also, by-catch of cod in fisheries directed to other species on Flemish Cap must be kept at the lowest possible level.

**Special Comments:** The continuation of fisheries contrary to the advice of Scientific Council has contributed to the critical condition of this stock. Part of this overall problem is due to continued fishing by non-Contracting Parties. Continued fishing by these fleets will not allow rebuilding.

### Cod (*Gadus morhua*) in Divisions 3N and 3O

This stock occupies the southern part of the Grand Bank of Newfoundland. Cod are found over the shallower parts of the bank in summer, particularly in the Southeast Shoal area (Div. 3N) and on the slopes of the bank in winter as cooling occurs.

**Fishery and Catches:** There has been no directed fishery since mid-1994.

	Catch <sup>1</sup> ( <sup>000 tons</sup> )	TAC ( <sup>000 tons</sup> )	
		Recommended	Agreed
1995	0.2	nf	0
1996	0.2	ndf	0
1997	0.4	ndf	0
1998	-	ndf	0

<sup>1</sup> Provisional.

<sup>2</sup> TAC in the vicinity of 1995 TAC.

<sup>ndf</sup> No directed fishery and by-catch of cod kept at lowest possible level.

**State of the Stock:** The stock remains close to its historical low with weak representation from all year-classes.

**Recommendation:** There should be no directed fishing for cod in Div. 3N and 3O in 1999. By-catches of cod in fisheries targeting other species should be kept at the lowest possible level.

### Redfish (*Sebastes spp.*) in Subarea 1

There are two species of commercial importance in Subarea 1 golden redfish (*Sebastes marinus*) and deep-sea redfish (*Sebastes mentella*). Relationships to other north Atlantic redfish stocks are unclear.

**Fishery and Catches:** During the last decade, redfish were taken mainly as by-catch in the trawl fisheries for cod and shrimp. Both redfish species golden redfish and deep-sea redfish were included in the catch statistics since no species specific data were available. Recent catch figures do not include the weight of substantial numbers of small redfish discarded by the trawl fisheries directed to shrimp. For July-August 1997 the discard of redfish in the shrimp fishery was assessed to 30 million individuals (870 tons).

	Catch <sup>1</sup> ( <sup>000 tons)</sup>	TAC ( <sup>000 tons)</sup>	
		Recommended	Autonomous
1995	0.9	ndf	19
1996	0.9	ndf	19
1997	1	ndf	19
1998	-	ndf	19

<sup>1</sup> Provisional.

ndf No directed fishing, by-catch at the lowest possible level.

**Assessment of Golden Redfish:** No analytical assessment of *Sebastes marinus* was possible.

**State of the Golden Redfish Stock:** The stock of golden redfish in Subarea 1 remains severely depleted. There are indications that the probability of future recruitment is reduced at the current low SSB. Short term recovery is very unlikely.

**Assessment of Deep Sea Redfish:** No analytical assessment of *Sebastes mentella* was possible.

**State of the Deep Sea Redfish Stock:** The spawning stock of deep sea redfish in Subarea 1 remains severely depleted and an increase is unlikely in a short term.

**Recommendation for Golden and Deep Sea Redfish Stocks:** No directed fishery should occur on redfish in Subarea 1 until the stocks have recovered substantially. By-catches in the shrimp fisheries should be at the lowest possible level.

**Special Comments:** The probability of recovery of the redfish stocks in Subarea 1 should increase if the by-catches taken by the shrimp fishery are reduced.

Due to a lack of appropriate data, limit or target reference points for fishing mortality or spawning stock biomass of the golden and deep sea redfish stocks in Subarea 1 could not be proposed. Nevertheless, the recently depleted spawning stocks as derived from survey results are considered far below appropriate levels of  $B_{lim}$ .

### Redfish (*Sebastes spp.*) in Divisions 3L and 3N

There are two species of redfish, *Sebastes mentella* and *Sebastes fasciatus* which occur in Div. 3LN and are managed together. These are very similar in appearance and are reported collectively as redfish in statistics. The relationship to adjacent NAFO Divisions, in particular to Div. 3O, is unclear and further investigations are necessary to clarify the integrity of the Div. 3LN management unit.

**Fishery and Catches:** The 1997 catch was about 600 tons, the second lowest historically.

	Catch <sup>1</sup> ( <sup>1</sup> 000 tons)	TAC ( <sup>1</sup> 000 tons)	
		Recommended	Agreed
1995	2	14	14
1996	0.5	14	11
1997	0.6	14	11
1998	-	ndf	0

<sup>1</sup> Provisional.

ndf No directed fishery and by-catch kept at current low level.

**State of the Stock:** Based on the available data, the stock appears to be at a very low level. There are indications of some increase in Div. 3N due to growth of the relatively strong 1986-87 year-classes.

**Recommendation:** No directed fishing for redfish in Div. 3LN in 1999, and by-catches be at the lowest possible level.

**Special Comments:** The continuing uncertainties regarding the relationship between redfish in Div. 3LN and Div. 3O have important impacts on interpretation of available data.

The most recent relatively good year-classes, those of 1986-87, are recruiting to the SSB. These same year-classes will make up the greatest proportion of the SSB in the near future.

Assessments of Div. 3LN redfish would be improved by data on the size of the pelagic component of this stock. Appropriate research is needed to eliminate this gap.

### Redfish (*Sebastes spp.*) in Division 3M

There are three species of redfish which are commercially fished on Flemish Cap: deep-water redfish (*Sebastes mentella*), golden redfish (*Sebastes marinus*) and Acadian redfish (*Sebastes fasciatus*). The term beaked redfish is used for *S. mentella* and *S. fasciatus* combined. All redfish species are reported combined in the commercial fishery.

**Fishery and Catches:** The redfish fishery in Div. 3M increased from 20 000 tons in 1985 to 81 000 tons in 1990, falling continuously through 1997, when a catch of only 1 300 tons was reported, mostly as by-catch in the Greenland halibut fishery. The decline in the Div. 3M redfish catches from 1990 to 1997 is related to the reduction of fishing effort.

	Catch <sup>1</sup> (‘000 tons)	TAC (‘000 tons)	
		Recommended	Agreed
1995	13	20	26
1996	6	20	26
1997	1.3	20	26
1998	-	20	20

<sup>1</sup> Provisional.

**State of the Stock:** The stock declined as a result of high catches during the late-1980s and early-1990s. The spawning stock biomass is currently at a low level.

**Recommendation:** To allow the recovery of the Div. 3M redfish spawning biomass through the survival and maturity of fish from the abundant 1990 to 1992 cohorts, Scientific Council advises that it would not be prudent to increase the exploitation of redfish from the recent low level. Therefore, Scientific Council recommends a TAC for redfish in Div. 3M in 1999 significantly below (in the order of 50%) the current TAC of 20 000 tons.

Scientific Council also recommends that by-catch of juvenile redfish in the shrimp fishery should be kept at the lowest possible level

**Special Comments:** The recovery of these stocks will be severely jeopardized if uncontrolled exploitation by the fleet of non-Contracting Parties continues.

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

Historically, American plaice in Div. 3LNO has comprised the largest flatfish fishery in the Northwest Atlantic.

**Fishery and Catches:** In most years the majority of the catch has been taken by offshore otter trawlers.

	Catch <sup>1</sup> ( <sup>1</sup> 000 tons)	TAC ( <sup>1</sup> 000 tons)	
		Recommended	Agreed
1995	0.6	nf	0
1996	0.9	nf	0
1997	1.4	nf	0
1998	-	nf	0

<sup>1</sup> Provisional.

nf No fishing.

**State of the Stock:** Canadian spring and autumn surveys showed a large decline in biomass since the mid-1980s. Total mortality remains high and the stock is composed mainly of fish that are less than 7 years old. Biomass is not increasing, and abundance continues to decrease.

**Recommendation:** No fishing on American plaice in Div. 3LNO in 1999.

**Special Comments:** Scientific Council cautions that by-catches of American plaice have more than doubled since 1995. Most of this increase is due to by-catches in the Greenland halibut fishery and unregulated skate fishery. There will also be a by-catch in the reopened yellowtail flounder fishery.

**American Plaice (*Hippoglossoides platessoides*) in Division 3M**

**Fishery and Catches:** Catches are taken mainly by otter trawl, primarily in a by-catch fishery of the Contracting Parties since 1992.

	Catch <sup>1</sup> ( <sup>1</sup> 000 tons)	TAC ( <sup>1</sup> 000 tons)	
		Recommended	Agreed
1995	1.3	1	1
1996	0.3	0	0
1997	1.2	0	0
1998	-	ndf	0

<sup>1</sup> Provisional.

ndf No directed fishing and by-catch kept at lowest possible level.

**State of the Stock:** The stock is at a very low level. It is anticipated that SSB will decrease in the near future because of recent poor recruitment.

**Recommendation:** There should be no directed fishery on American plaice in Div. 3M in 1999. By-catch should be kept at the lowest possible level.

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

The stock mainly occurs in Div. 3O along the deeper slopes of the Grand Bank. It has been fished mainly in winter- and spring-time on spawning concentrations.

**Fishery and Catches:** Catches exceeded the TAC by large margins during the mid-1980s, but since then have been near the level of the TAC

	Catch <sup>1</sup> ( <sup>000 tons</sup> )	TAC ( <sup>000 tons</sup> )	
		Recommended	Agreed
1995	0.3	nf	0
1996	0.4	nf	0
1997	0.5	nf	0
1998	-	nf	0

<sup>1</sup> Provisional.

nf No fishing.

**State of the Stock:** Stock appears to remain at a low level. The most recent data from the longest time series trend suggests the stock may be continuing to decline. The 1998 value is the lowest observed.

**Recommendation:** No fishing on witch flounder in 1999 in Div. 3N and 3O to allow for stock rebuilding. By-catches be kept at the lowest possible level.

**Special Comments:** No ageing data were available since 1993 and none are anticipated in the near future.

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

The stock is mainly concentrated on the southern Grand Bank and is recruited from the Southeast Shoal area nursery ground, where the juvenile and adult components overlap in their distribution.

**Fishery and Catches:** There has been a moratorium on directed fishing from 1994 to 1997.

Catch <sup>1</sup> ( <sup>000 tons</sup> )		TAC ( <sup>000 tons</sup> )	
		Recommended	Agreed
1995	0.1	ndf	0
1996	0.3	ndf	0
1997	0.8	ndf	0
1998	-	4	4

<sup>1</sup> Provisional.  
ndf No directed fishery.

**State of Stock:** Based on 7 additional surveys since the 1997 assessment, the current view is that the stock size has increased over the past year. The stock is perceived to be at a level close to that of the mid-1980s.

**Recommendation:** The stock should be able to sustain a fishery in 1999. Scientific Council noted that any directed fishery for yellowtail flounder would result in a by-catch of American plaice and cod. A precautionary approach would be to limit the size of yellowtail flounder fishery to minimize by-catches. Therefore, Scientific Council recommends that the exploitation rate in the yellowtail flounder fishery in 1999 in Div. 3LNO not exceed that advised for 1998.

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

The Greenland halibut stock in Subarea 0 + Div. 1A offshore and Div. 1B-1F is part of a common stock distributed in Davis Strait and south to Subarea 3.

**Fishery and Catches:** Due to an increase in offshore effort, catches increased from 2 000 tons in 1989 to 18 000 tons in 1992 and have remained at about 10 500 tons annually since.

	Catch <sup>1</sup> ( <sup>000</sup> tons)	TAC ( <sup>000</sup> tons)	
		Recommended	Autonomous
1995	11	11	11
1996	10	11	11
1997	11	11	11
1998		11	

<sup>1</sup> Provisional.

**State of the Stock:** The age composition in the catches has been stable in recent years. The decline in the stock observed until 1994 seems to have stopped and the stock has apparently stabilised at a lower level compared to the late-1980s and early-1990s.

**Recommendation:** The TAC for 1999 should not exceed the current level of 11 000 tons for Greenland halibut in Subarea 0 + Div. 1A (offshore) + 1BCDEF, based on the relative stability of the stock.

### Greenland Halibut (*Reinhardtius hippoglossoides*) in Division 1A, inshore

The inshore stock is dependent for recruitment on immigration from the offshore nursery grounds and the spawning stock in Davis Strait.

**Fishery and Catches:** The fishery is mainly conducted with longlines and to a varying degree gillnets. Effort has increased in all areas. There was no offshore catch in 1996 or 1997.

	Catches ('000 tons) <sup>1,2</sup>			TAC 98
	1995	1996	1997	
Disko Bay	7.4	7.8	8.6	-
Uummannaq	7.2	4.6	6.3	-
Upernavik	3.3	4.8	4.9	-
Total 1A	17.9	17.3	19.8	-

<sup>1</sup> Provisional.

<sup>2</sup> No TAC advised.

**State of the Stock:** The stock components in all three areas consist of a large number of age groups. However, age compositions of the catches appear to be shifting towards younger age groups.

*Disko Bay:* The stock is still considered growth overfished.

*Uummannaq:* There is indication of growth over-fishing of the stock.

*Upernavik:* Data are insufficient to determine the status of the resource.

**Recommendation:** Landings have continually increased, and there is concern that the presumed associated increase in effort will incur the risk of a significant reduction of the available stock.

Scientific Council still considers that separate TACs are appropriate for each of the three areas. In order to prevent escalating effort it is recommended that a TAC for each inshore area for 1999 should not exceed the average of the catches for 1995-97; Disko Bay 7 900 tons, Uummannaq 6 000 tons and Uper-navik 4 300 tons. This gives a total TAC of 18 200 tons in Div. 1A inshore.

**Special Comments:** The continuing increase in total landings generates concern, especially because lack of effort data from the commercial fishery impedes the assessment of the stocks.

Because the stock is dependent on recruitment from Davis Strait, exploitation of the spawning stock and by-catches in the shrimp fishery should be taken into account when managing the fishery in the fjords.

**Greenland Halibut (*Reinhardtius hippoglossoides*) in Subarea 2 and Divisions 3KLMNO**

The Greenland halibut stock in Subarea 2 and Div. 3KLMNO is considered to be part of a biological stock complex which includes Subareas 0 and 1.

**Fishery and Catches:** Catches increased sharply in 1990 due to a developing fishery in the Regulatory Area in Div. 3LMN and continued at high levels during 1991-94. The catch was only 15 000 to 20 000 tons per year in 1995 to 1997 as a result of lower TACs under management measures introduced by the Fisheries Commission. Catches have been well below TACs in 1995-97.

Catches show best estimates.

Catch <sup>1</sup>		TAC <sup>2</sup> ('000 tons)	
		Recommended	Agreed
	('000 tons)		
1995	15	<40	27
1996	19	-	27
1997	20	-	27
1998	-	-	27

<sup>1</sup> Provisional.

<sup>2</sup> Established autonomously by Canada in 1993-94 and NAFO Fisheries Commission in 1995-97.

**State of the Stock:** Above average recruitment is indicated for all year-classes from 1990 to 1995. Indices of fishable biomass were below average in 1997, but should increase in 1998-99 as some of these year-classes recruit to the fishable stock.

**Recommendation:** With the substantial reduction in F experienced in 1995-97, and low level anticipated in 1998, combined with improved recruitment prospects, the fishable stock should continue to increase. While the Council is unable to advise on a specific TAC for Greenland halibut in Subarea 2 and Div. 3KLMNO for 1999, an increase in catch from 1996-97 levels (20 000 tons) to about 30 000 tons should not impede recovery.

The Council again recommends that measures be considered to reduce, as much as possible, the exploitation of juvenile Greenland halibut in all fisheries, including the use of exclusion devices (grates) in the shrimp fishery. Measures should also be taken to reduce the by-catch of American plaice in the Greenland halibut fishery.

**Special Comments:** The Council reiterates its concern that the catches taken from this stock consist mainly of young, immature fish of ages several years less than that at which sexual maturity is achieved, and that such exploitation results in foregoing much potential yield. It was also noted that a large increase in the Canadian shrimp fishery in Div. 3K was projected for 1998 over 1997 levels, and that this fishery was likely to occur in areas where small Greenland halibut are distributed.

### Roundnose Grenadier (*Coryphaenoides rupestris*) in Subareas 0 + 1

The roundnose grenadier (*Coryphaenoides rupestris*) stock in Davis Strait is probably connected to other stocks in the North Atlantic. The stock component found in Subareas 0+1 is at the margin of the distribution area. Canadian and Russian surveys that covered both Subareas 0 and 1 showed that most of the biomass generally was found in Subarea 1.

**Fishery and Catches:** Recommended TACs have been at 8 000 tons in the period 1977-95. The advice since 1996 has been that the catches should be restricted to by-catches in fisheries targeting other species. There has been no directed fishery for this stock since 1978. An unknown proportion of the reported catches are roughhead grenadier (*Macrourus beglax*).

	Catch <sup>1</sup> ( <sup>000 tons</sup> )	TAC ( <sup>000 tons</sup> )	
		Recommended	Autonomous <sup>2</sup>
1995	0.3	8.0	5.5
1996	0.1	ndf	3.4
1997	0.2	ndf	3.4
1998		ndf	3.4

<sup>1</sup> Provisional.

<sup>2</sup> Set by Greenland for Subarea 1.

ndf No directed fishing, catches restricted to by-catch in other fisheries.

**State of the Stock:** The stock of roundnose grenadier seems to be at a very low level.

**Recommendation:** There should be no directed fishing for roundnose grenadier in Subareas 0 and 1 in 1999. Catches should be restricted to by-catches in fisheries targeting other species.

**Roundnose Grenadier (*Coryphaenoides rupestris*) in Subareas 2 and 3  
[including information on Roughhead grenadier (*Macrourus berglax*)]**

Roundnose grenadier are found throughout Subareas 2 and 3 although the request for advice applies only to that portion of the resource lying within Canada's 200-mile economic zone. It is believed that only one stock occupies the entire area including the Regulatory Area although there are different areas of concentration.

**Fishery and Catches:** The traditional fishery prior to 1990 occurred in Canadian waters in Div. 2GH and 3K. Catches since 1991 have been taken as by-catch in Greenland halibut fisheries. About 50 tons were reported for 1996 and 1997.

	Catch <sup>1</sup> (‘000 tons)	TAC <sup>2</sup> (‘000 tons)
1995	0.2	3
1996	+	1
1997	+	0 <sup>3</sup>
1998		

<sup>1</sup> Provisional reported catches, <50 tons for 1996-97.

<sup>2</sup> Canadian zone only.

<sup>3</sup> Under Moratorium.

**State of the Stock:** Due to limited data not possible to determine.

**Recommendation:** Not possible to provide any advice for roundnose grenadier in Subareas 2 and 3 for 1999.

**Special Comments:** It has been reported that roughhead grenadier is a long-lived species. Catches of roughhead grenadier have averaged about 4 000 tons since 1992 as by-catch primarily in the Div. 3LMNO Greenland halibut fishery. Roughhead grenadier is an unregulated species and the impact of this catch level should be investigated.

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

Within the NAFO Regulatory Area, the capelin spawning occurs in the area of the Southeast Shoal in Div. 3N.

**Fishery and Catches:** The fishery was closed during 1979-86 and again since 1993.

Catch ( <sup>'000 tons</sup> )	TAC ( <sup>'000 tons</sup> )	
	Recommended	Agreed
1995 -	ndf	0
1996 -	ndf	0
1997 -	na	0
1998 -	na	0

ndf No directed fishery.

na No advice possible.

**Data:** No recent data available.

**Assessment:** No assessment was possible.

**Recommendation:** No advice possible.

### Short-finned Squid (*Illex illecebrosus*) in Subareas 3 and 4

The northern short-finned squid (*Illex illecebrosus*) is an annual species (1-year life cycle) that is considered to comprise a unit stock throughout its range in the northwest Atlantic Ocean, from Newfoundland to Florida including NAFO Subareas 3-6.

**Fishery and Catches:** Catches in Subareas 3 and 4 increased during the late-1970s, averaging 81 000 tons during 1976-81, and peaking at 162 000 tons in 1979. Catches in Subareas 3+4 declined to 111 tons in 1986, ranged between 600 and 11 000 tons during 1987-95, and increased to 8 700 tons in 1996 and to 15 500 tons in 1997. A TAC for Subareas 3+4 was first established in 1975 at 25 000 tons but was increased in 1978, 1979 and 1980. Since 1980, the Subareas 3+4 TAC has remained at 150 000 tons.

	Catch <sup>1</sup> ( <sup>000</sup> tons)	TAC ( <sup>000</sup> tons)	
		Recommended	Agreed
1995	1	na	150
1996	9	na	150
1997	15	na	150
1998	-	na	150

ndf No directed fishery.

na No advice provided.

**State of the Stock:** Based on the survey data, the squid resource in Subareas 3+4 has remained at a low level. Increased catches in 1996 and 1997 may be indicative of some recent increase in abundance or availability.

**Recommendation:** The Scientific Council is unable to advise on a specific level of catch for 1999. However, based on available information (including an analysis of the upper range of yields that might be expected under the present low productivity regime), the Council advises that the TAC for 1999 for squid in Subareas 3+4 be set between 19 000 tons and 34 000 tons.

The advised TAC range (19 000-34 000 tons) is applicable only in periods of low productivity. In periods of high productivity, much higher catches and TAC levels are appropriate.

**Special Comments:** It is important to note that short-finned squid in Subareas 3-6 (and further south to Florida) are considered to comprise a unit stock, and that the current assessment only applies to part of the area.

**Research Recommendation:** Given the life cycle of this species, the Council recommended additional research on the factors that affect recruitment and that would assist, if taken into consideration, in forecasting the onset of high productivity period.

### Other Finfish in Subarea 1

The resources of other finfish in Subarea 1 are mainly Greenland cod (*Gadus ogac*), American plaice (*Hippoglossoides platessoides*), Atlantic and spotted wolffishes (*Anarhichas lupus* and *A. minor*), starry or thorny skate (*Raja radiata*), lump sucker (*Cyclopterus lumpus*), Atlantic halibut (*Hippoglossus hippoglossus*) and sharks.

**Fishery and Catches:** Greenland cod are taken inshore by directed fisheries. Other species are mainly taken as by-catch offshore in trawl fisheries directed to shrimp, cod, redfish and Greenland halibut. In 1997, reported catches of other finfishes amounted to 4 246 tons representing an increase by 26 %, compared to the 1996 catch (3 367 tons). The catch figures do not include the weight of fish discarded by the trawl fisheries directed to shrimp.

**State of the American plaice stock:** The stock remains severely depleted with an indication of increased recruitment.

**Assessment of Atlantic wolffish:** No analytical assessment was possible.

*Recruitment:* Indices increased almost continuously over the time series. Apart from 1995 the recruitment estimates were at or above the average level since the early-1990s.

**State of the Atlantic wolffish stock:** The stock remains severely depleted although recruitment has increased almost steadily since the early-1980s. This suggests ongoing high mortality prior to maturation.

**Assessment of spotted wolffish and starry or thorny skate:** No analytical assessment was possible.

*Biomass Indices:* Survey results revealed dramatic declines for spotted wolffish and starry or thorny skate to a very low level.

**State of the stocks of spotted wolffish and starry or thorny skate:** The stocks of spotted wolffish and starry or thorny skate remain severely depleted.

**Recommendation for the stocks of American plaice, Atlantic wolffish, spotted wolffish and starry or thorny skate:** No recommendations can be made for Greenland cod, lump sucker, Atlantic halibut and sharks. No directed fishery in Subarea 1 for American plaice, Atlantic wolffish, spotted wolffish and starry or thorny skate should occur until the stocks have recovered substantially. By-catches of these species in the shrimp fisheries should be at the lowest possible level.

**Special Comments:** The probability of stock recovery should increase if the by-catches taken by the shrimp fishery are reduced.

Due to a lack of appropriate data, limit or target reference points for fishing mortality or spawning stock biomass of the stocks American plaice, spotted wolffish and starry or thorny skate in Subarea 1 could not be proposed. Nevertheless, the recently depleted spawning stocks as derived from survey results are considered far below appropriate levels of  $B_{lim}$ .

### Special Requests for Scientific Advice from Coastal States (Canada & Denmark)

**TAC levels for Greenland halibut throughout Subareas 0-3, separately for Subareas 0+1, for Subarea 2+Div. 3K and for Div. 3LMNO, and recommendations on the distribution of fishing effort within each of these three geographic areas.**

Scientific Council was able to provide some information on the distribution of the resource. The Canadian autumn surveys in 1996-97 covered almost all the stock range in Subareas 2 and 3. The survey results indicated that about 81% of the surveyed biomass was located in Subarea 2 + Div. 3K, and about 19% in Div. 3LMNO with only slight differences between 1996 and 1997. About two-thirds of the estimated biomass was comprised of fish smaller than 36 cm in both years.

**Precautionary approach for Greenland halibut in Subareas 0+1 and Roundnose grenadier in Subareas 0+1**

#### *Greenland halibut Subareas 0 and 1 (Div. 1A inshore)*

A yield-per-recruit analysis could not be used to estimate reference points owing to lack of reliable input data. An XSA was presented in 1996 but was considered to be unsuitable for assessment, and hence for estimating reference points, owing to high log-catchability residuals and standard errors and a systematic shift in the residuals. Runs in 1997 and 1998 (not presented) showed no significant improvement in the outcome of the analysis. An attempt to estimate  $MSY$  and  $F_{msy}$  by a production model (ASPIC) was not successful probably because there was a small range in the input data. This lack of contrast due to small range in CPUE and biomass estimates also hampered estimation of precautionary reference points based on CPUE and biomass.

#### *Roundnose grenadier (Subareas 0 and 1)*

The trawlable biomass was in the order of 100,000 tons in Div. 1CD in 1986-87. Since the fishery has been at a very low level since the late-1970s, the stock could in 1986-87 be considered as virgin. Under this assumption, current trawlable biomass is about 5% of virgin stock size. Trial runs of a surplus production analysis were done using commercial catch and effort data from 1968 to 1978, but the results were considered unrealistic. Although it was not possible to estimate a limit biomass level, it is most probable that any limit biomass would be substantially greater than 5% of the virgin level, the current situation as suggested by the survey data. Therefore it is considered that the current stock size is well below the limit biomass.

**Status of the cod stock in Div. 2J+3KL and estimates of the current size of the total spawning stock biomass, together with a description of recent trends**

(please see above stock assessment for 2J+3KL cod)

**Spawning times and locations as well as nursery areas for Greenland halibut in Subareas 0+1 and the relationships with the Greenland halibut resources in the southern areas**

Greenland halibut is widely distributed in the Northwest Atlantic from 78°N in the north to the Gulf of Maine in the south, and is considered to constitute a single spawning complex. The main spawning area is believed to be located at great depth (up to 2 000 m) in the central part of the Davis Strait, although spawning has also been observed along the Canadian continental slope and in the Flemish Pass. Based on observations of pelagic eggs and larvae, and on maturity development during the year, the spawning time in the Davis Strait has been inferred as winter and early spring. Studies suggest that the eggs and larvae drift with currents along the West Greenland

and Canadian coasts, and post-larvae settle on the slopes of the banks off Greenland and Canada. Greenland halibut then gradually move towards deeper water and the presumed spawning area as they grow, reaching the spawning area as mature fish. The main nursery area in Subarea 1 is on the northern part of the 'Store Hellefiske Banke' (the northern part of Div. 1B) and the southern part of 'Disko Banke' (the southern part of Div. 1A). Although small Greenland halibut have been observed throughout its range of distribution, no other major nursery areas have been identified.

**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**

Although only two major nursery areas have been identified, small Greenland halibut have been found throughout the range of Greenland halibut distribution. Therefore, any shrimp fishery within this range may impact the Greenland halibut resource.

Based on survey data in 1997 the by-catch of Greenland halibut offshore at West Greenland in July-August was estimated at 287.8 tons or 3.3 million fish. A further 304.1 tons (4.5 million) were estimated from by-catch in Disko Bay for the same period; it is however unknown whether those fish would eventually have recruited to inshore or offshore stocks. The offshore by-catch was largest in Div. 1C in terms of weight (0.090 kg Greenland halibut per kg shrimp), but largest by numbers in the nursery area in Div. 1B (1.1 fish per kg shrimp). In the nursery area the by-catch was comprised almost exclusively of fish < 20 cm, probably 1 or 2 years old.

The by-catch in the shrimp fishery in Div. 0A and Div. 0B was estimated at 42 tons (0.45 % of the shrimp catches) in 1997. Lengths ranged from 6 to about 40 cm. In Div. 0A two modes were seen around 7 and 20 cm, while the length distribution was dominated by a single mode at 18 cm in Div. 0B. Separator grates with a bar separation of 22 mm have been mandatory since 1997 in the shrimp fishery in Subarea 0.

The potential loss in yield and contribution to the spawning stock due to by-catch could not be estimated because the annual total by-catch of Greenland halibut and the age distribution in the by-catch is not known.

Separator grates appear to be effective in reducing the by-catch of Greenland halibut in the shrimp fishery in Subarea 0. Separator grates with a bar separation of 22 mm will be mandatory in the offshore shrimp fishery in Subarea 1 in the near future.

**Research required to adequately answer these and related questions regarding the status of the stock of Greenland halibut throughout the Davis Strait area**

During the period 1987-95 joint Japan/Greenland surveys were conducted in Subarea 1. Former USSR and GDR conducted surveys covering parts of Subareas 0 and 1 in the late-1980s and 1990. The most recent survey to cover Subareas 0 and 1 extensively, was conducted by Canada in 1986. In 1997 Greenland initiated a survey series covering Div. 1CD (where the commercial offshore fishery in Subarea 1 takes place). (The nursery areas for Greenland halibut are covered by the Greenland shrimp trawl survey). In order to get an overall view of the stock status in Subareas 0 and 1, and to estimate trawlable biomass and its distribution among the Subareas, it is necessary to survey the whole area, preferably using the same vessel and gear throughout. A survey will also give information about size and age distribution in the stock. To follow developments in the stock, the survey should be conducted annually in order to establish a time series.

**Research required to allow the Council to provide advice on TAC levels for Roundnose grenadier in Subareas 0 and 1**

Roundnose grenadier is widely distributed in the Davis Strait south of 67°N. There is now no commercial fishery for roundnose grenadier. Historically the fishery took place in Div. 0B and ICD. In order to advise on TAC levels at least a survey estimate of biomass is needed. This area was surveyed in 1986 by Canada, but there have since been no surveys covering the entire area where the commercial fishery took place. To estimate the trawlable biomass and its distribution between the two Subareas and to get information on size and age distribution in the stock, it is necessary to survey the whole area, preferably using the same vessel and gear throughout. To follow developments in the stock, the survey should be conducted annually in order to establish a time series. A survey designed for Greenland halibut in Subareas 0 and 1 would cover most of the distribution area of roundnose grenadier.

Denmark (Greenland) made a special request with respect to Greenland halibut in Subareas 0 and 1. The Council was asked to: *provide further information on following topics:*

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

Concerning a), no new data were available since Div. 0B has not been surveyed in recent years (see STACFIS report on Greenland halibut Subarea 0 + Div. 1B-F and NAFO Sci. Coun. Rep., 1994, p. 110). The possibility of the existence of an isolated inshore population in Cumberland Sound (Div. 0B) is under investigation.

Concerning b), 99% of the inshore catches in Subarea 1 are taken in the inshore areas of Div. 1A.

Scientific Council considers that separate TACs are appropriate for each of the three areas. In order to prevent escalating effort it is recommended that *a TAC for each inshore area for 1999 should not exceed the average of the catches for 1995-97; Disko Bay 7 900 tons, Uummannaq 6 000 tons and Upernavik 4 300 tons. This gives a total TAC of 18 200 tons in Div. 1A inshore* (see also Summary Sheet).

## **RESEARCH ACTIVITIES**

### **NAFO/ICES Working Group on Harp and Hooded Seals**

The Council extended its appreciation to G. Stenson (Canada), Chairman of the Working Group, for preparing an informative report, and to D.B. Atkinson (Canada) for the detailed presentation of the report of the Working Group meeting which was held in Copenhagen, Denmark during 28 August-3 September 1997. The Council noted and endorsed several recommendations of the Working Group as they pertain to seals in the NAFO Area.

The Council confirmed that the Chairman of the NAFO/ICES Working Group on Harp and Hooded Seals should routinely present information pertinent to the Council, in time for consideration at the June Meeting of the Scientific Council.

### **Comparative Campelen survey trawl and Spanish survey gear**

The Council noted STACFIS considered a proposal for comparative fishing trials between Spanish and Canadian research vessels, to allow comparisons of results of bottom trawl surveys conducted

independently by each country. It was proposed that this work should commence in spring 1999 and be repeated in subsequent years to develop an acceptable database.

#### **Campelen survey trawl and trawls used in the industry-sponsored surveys**

The Council noted that no specific actions have been taken to develop comparative fishing trials between the Canadian Department of Fisheries and Oceans trawl and trawls used in the industry-sponsored surveys.

#### **Japan and Greenland surveys on Greenland halibut**

The Council noted that comparative fishing trials between Japan and Greenland research vessels were not carried out during 1997.

#### **Ageing Studies**

The Council noted STACFIS will review the report on age validation of roughhead grenadier (SCR Doc. 98/33) during its September 1998 Meeting, although it was presented and briefly reviewed at this meeting.

### **RESEARCH COORDINATION**

#### **Fishery Statistics**

The Council stressed that timely submission of STATLANT data is of paramount importance to the Scientific Council, since they are used extensively during its June meetings for stock assessments and other scientific evaluations. Noting the tabulations prepared by STACREC of data that have not been received, the Council endorsed the STACREC recommendation and agreed to submit the text of the STACREC report regarding this matter to the Fisheries Commission.

With respect to establishing a website to facilitate the dissemination of STATLANT and other statistical data, the Council noted the progress that had been made at the Secretariat. With respect to security of scientific data and information, the Council endorsed the recommendation of STACREC 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.

The Council also agreed with the STACREC request that the Secretariat checks that all hardware and software are year 2000 compliant, and that the database modifications and further developing of the Secretariat capabilities be addressed.

With respect to Inter-agency data harmonization (NAFO/FAO), it was noted that collaboration had eliminated many of the discrepancies between the FAO and NAFO catch databases. The Council also noted that there were some serious discrepancies still remaining and that the NAFO and FAO Secretariats should be contacting national authorities for advice in certain cases.

The Council recognized the value of this work in safeguarding the credibility of the databases and endorsed the STACREC recommendation 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. The Council also endorsed the STACREC recommendation 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.

### **Biological Sampling**

The Council noted that the Secretariat, in accordance with its June 1997 recommendation, had prepared the listings of biological sampling data for 1996 and 1997 received by 30 May 1998. Data from commercial fisheries pertinent to stock assessments were also tabulated and National Representatives reported their sampling programs for the 1997 commercial fisheries to STACREC.

The Council endorsed the STACREC recommendation that the Secretariat examine the various datasets compiled by NAFO, 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.

The Council noted the request from Canada regarding the inclusion of a new country component code for Canada, Central and Arctic and endorsed the STACREC recommendation that the Secretariat make provision for a new code for Canada - Central and Arctic.

### **Biological Surveys**

An inventory of biological surveys conducted in 1997 was compiled by the Secretariat and that more detailed accounts of survey data for 1997 were tabled by National Representatives and Designated Experts for the stocks for which they have responsibility.

An inventory of biological surveys planned for 1998 and early-1999, as submitted by National Representatives and Designated Experts, was compiled by the Secretariat.

### **Non-traditional Fishery Resources in the NAFO Area**

A paper describing the skate fishery and survey results in Div. 3NO was reviewed and noting the increasing world-wide interest in elasmobranchs, endorsed the STACREC recommendation 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.

### **Report on the CITES Meeting on the Co-ordination of Shark Data Collection**

The Council noted the CITES resolution requesting regional fishery agencies to improve the collection of data on shark catches and the responses by ICES and by ICCAT. The Council also noted that the CITES resolution had been discussed at the CWP 17<sup>th</sup> Session. The CWP had highlighted that identification of some elasmobranch species could be problematic, and the Council endorsed the STACREC recommendation that NAFO encourage training in identification and reporting of elasmobranchs.

### **Report on Northwest Atlantic/Gulf/Caribbean Regional Shark Management Workshop**

As recommended by the Council, F. M. Serchuk (USA) attended the Northwest Atlantic, Gulf of Mexico and Caribbean Sea Regional Strategy Development Workshop for the Conservation and Management of Sharks held on 4-5 December 1997 at the Mote Marine Laboratory, Sarasota, Florida, USA, as a NAFO observer, and gave a presentation on the history and mandate of NAFO.

The information developed at the Workshop was subsequently used in preparing background documents for the meeting of the FAO Technical Working Group (TWG) on the Conservation and Management of Sharks held 23-27 April 1998 in Tokyo, Japan. The principal remit of the TWG

meeting was to (1) formulate guidelines for the conservation and management of sharks (including data and research needs) at the national and regional levels; and (2) develop a global Plan of Action for the conservation and management of sharks.

#### **Catch-data Collection of Elasmobranchs**

In response to the CITES resolution on shark data collection, the Council endorsed the STACREC recommendation 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.

The Council also noted that catch data on elasmobranchs from the NAFO Convention Area by Subarea from 1992 to 1996 summarized by the Secretariat indicated that substantial catches were reported.

#### **Species Breakdown of Grenadier Fisheries Statistics**

The Council noted that in Subarea 3 south of Div. 3K, the catch composition of grenadiers is 80%-90% roughhead grenadier, whereas catches are reported as roundnose grenadier. Noting that accurate reporting of catches is of paramount importance to stock assessments, the Council endorsed the STACREC recommendation that identification of grenadiers should be publicized, and that Scientific Council consider for 1999 that members with data on roughhead grenadier bring such data to its June 1999 Meeting to attempt an assessment on this species.

#### **Scientific Data from Pilot Observer Program**

The Council noted that a meeting of the Standing Committee on International Control (STACTIC) had taken place during May 1998 and that the report of that meeting showed no knowledge of the Council's detailed protocol developed for the Pilot Observer Program at the June 1997 Meeting and the subsequent document (FC WP 97/8) presented to STACTIC, and that STACTIC had requested the same details again.

The Council endorsed the STACREC recommendation that the Fisheries Commission be informed that the information being requested had previously been furnished.

#### **Conversion Factors**

The Council noted that the information being compiled by EUROSTAT and FAO on the factors used to convert landings data to the live weight equivalent, may soon be published together with the factors used by FAO in the compilation of food balance sheets for fishery products and reports on two studies on conversion factors commissioned by FAO.

Noting the importance of conversion factors in compiling catch statistics, the Council welcomed the advances made in this work.

#### **Description of Fishing Effort**

The Council noted a new proposal for recording fishing effort for boat seines (Danish seine, etc.) was suggested. The Council endorsed the STACREC recommendation that the following definition of fishing effort for boat seines (Danish, etc.) should be referred to the CWP to determine its suitability for global definitions: Boat seines (Danish seine etc.). Effort measure:

hours fishing per day. Definition: number of times the gear was set or shot per day times the estimated mean set or shot duration.

## **PUBLICATIONS**

Scientific Council was pleased to note the progress on scientific publications since the June 1997 meeting. The Council also noted the discussions on budgetary issues, particularly with respect to mailing costs and computer expenditures. 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.

## **FUTURE SCIENTIFIC COUNCIL MEETINGS**

### **Precautionary Approach Meeting in Spring 1999**

The Council will conduct a meeting on the Precautionary Approach in spring 1999. The venue and dates will be discussed during the Council Meeting in September 1998.

### **Scientific Council Meeting in June 1999**

The Council reconfirmed its agreed dates of 2-17 June 1999. It was, however, noted that these June assessment meetings are long. It was agreed that the Council will review the timing, contents and logistic of the June 1999 Meeting, at its meeting in September 1998. It was also agreed meeting facilities and computer requirements would be discussed at that time.

### **Annual Meeting and Symposium in 1999**

The Council agreed on the provisional dates of 5-7 September 1999 for its meeting on the assessment of Shrimp in Div. 3M, and 13-17 September 1999 for the rest of its Annual Meeting agenda.

The Scientific Council Symposium on '*Pandalid Shrimp Fisheries - Science and Management at the Millennium*' is scheduled for 8-10 September 1999, in conjunction with the Annual Meeting.

### **Scientific Council Meetings in Year 2000**

It was tentatively noted that the June Meeting of the Council would be during 7-22 June 2000, however, it was noted that the Scientific Council will at its September 1998 Meeting review the structure and duration of June Meetings.

The Council also noted the tentative date for the Annual Meeting for year 2000 would be 10-12 September for Shrimp in Div. 3M, and 18-22 September 2000 for the rest of the agenda, while the proposed Special Session dates would be 13-15 September 2000.

## **NOMINATION AND ELECTION OF OFFICERS**

For the office of Chairman of STACFEN, the Council elected M. Stein (EU-Germany) by unanimous consent. The Council extended its gratitude to M. Stein for accepting to continue in the Chair for another term in office.



**SCIENTIFIC COUNCIL MEETING, 3-18 JUNE 1998**

**PARTICIPANTS: (from left to right)**

- Back:** E. de Cárdenas, C. M. Jones, M. C. S. Kingsley, V. A. Rikhter, L. Motos, A. A. Vaskov, P. A. Shelton, M. Perotti, J.-C. Mahé, S. J. Walsh  
R. Alpoim, D. Cross, D. Maddock-Parsons, A. Avila de Melo, C. S. Simonsen, H.-J. Rätz, A. Vazquez, E. F. Murphy, H. Siegstad, O.  
Jørgensen, W. R. Bowering, H. P. Cornus
- Front:** V. N. Shibanov, R. Mayo, S. Junquera, E. Valdes, H. Inomata, G. V. Gusev, L. C. Hendrikson, D. B. Atkinson, W. B. Brodie, D. E.  
Stansbury, M. A. Treble, J. Casey, D. Power, T. Amaratunga, M. Stein

## Annex I. List of Participants

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## Annex 2. Agenda

- 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 Attachment 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 (Attachment 1) (Shrimp in Div. 3M will be undertaken later in the year. **Note:** also Attachment 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 Attachment 1, item 7)
  - Greenland halibut (Subareas 2 and 3)
  - [**Note** also Attachment 1, item 5 concerning cod in Div. 2J+3KL]
  - [**Note** also Attachment 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 (Attachment 2):
  - Roundnose grenadier (Subareas 2 and 3)
  - [**Note** also Attachment 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 (Attachment 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 (Attachments 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 (Attachment 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 (Attachments 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, Attachment 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

**ATTACHMENT 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.*

**ATTACHMENT 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

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**ATTACHMENT 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

**Symposium on "Variations in Maturation, Growth, Condition  
and Spawning Stock Biomass Production in Groundfish"  
9-11 September 1998, Lisbon, Portugal**

The Symposium on "Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish" was held during 9-11 September 1998 at Hotel Altis, Lisbon, Portugal, with E. Aro (Finland), J. Burnett (USA) and M. J. Morgan (Canada) as co-convenors. There were 77 participants from Brazil, Canada, Denmark, Faroe Islands, Finland, France, Federal Republic of Germany, Greenland, Iceland, Japan, Norway, Portugal, Russian Federation Spain, Turkey, United Kingdom and the United States of America (Annex 1).

The Symposium was opened by H. P. Cornus (EU-Germany), Chairman of Scientific Council, who on behalf of the Scientific Council welcomed participants to Lisbon. Co-convenors were E. Aro (Finland), J. Burnett (USA) and J. Morgan (Canada).

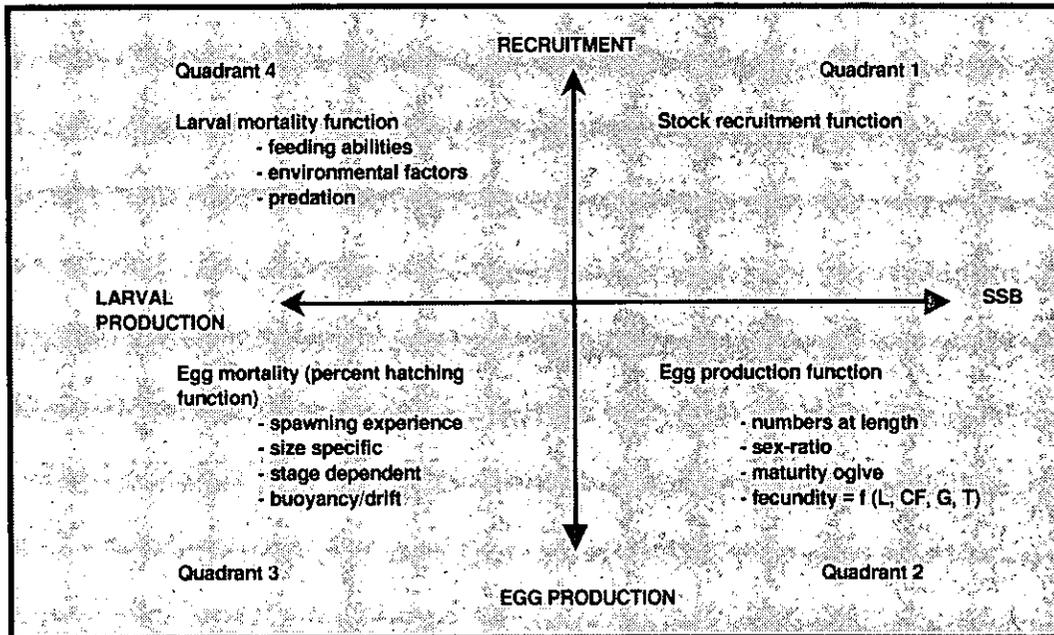
Changes in maturation, growth and condition, duration of spawning stocks and the spatial distribution of spawning stock have been observed in several groundfish stocks, particularly in the North Atlantic. These variations have direct implications for spawner biomass production per recruit and management strategies that incorporate these parameters. The purpose of this Symposium was to discuss the causes and consequences of such variations, including evidence of environmental, density-dependent, predation or size-selective fishing effects and consequences for spawner biomass per recruit and population growth rate, as well as implications for management strategies. There were 35 contributed presentations (Annex 2).

#### **Implications for Assessment and Management**

For the management of fish stocks, changes in demographic parameters and vital rates of fish stocks can profoundly affect the assessment and management of these resources. Changes in these parameters have implications for all areas of stock assessment, including short-term projections, equilibrium calculations, retrospective analyses, and rebuilding strategies. The nature of the variability observed for these parameters (i.e. high or low frequency, trended, predictability) may dictate which methodological approaches to assessment calculations should be undertaken (e.g. running averages, annual estimates, predictive models).

#### **Recommendations**

In recent decades, stock assessment and management has taken into account Quadrant 1 and some factors in Quadrant 2 in the figure below. However, it is evident that more research is needed to fill the gaps in Quadrant 3 and 4 as well as in Quadrant 2 such as age/size at maturity.



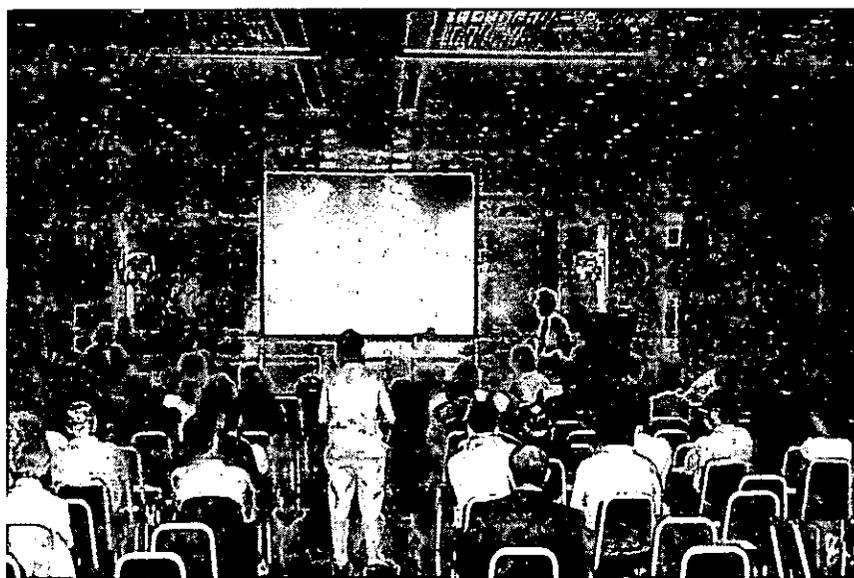
The Symposium recommended that the NAFO Scientific Council should establish a Working Group in order to:

- 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.



Symposium Co-conveners: J. Burnett, M. J. Morgan and E. Aro.



NAFO 1998 Symposium, in sessions at Hotel Altis, Lisbon.

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## Annex 2. Presentations

Wednesday, 9 September 1998

**CHAIRPERSON: M. J. MORGAN**

- 0900-0930 **Opening** – Welcome (Scientific Council Chairman H.-P Cornus)  
Introductory Remarks
- 0930-1030 **Keynote Address:** O. S. KJESBU. Reproductive investment in Atlantic cod (*Gadus morhua* L.): comparisons between two different stocks and wild, captive and artificially-reared specimens.
- 1030-1050 Break
- 1050-1110 OUELLET, P., I. BERUBE, and Y. LAMBERT. Cod egg characteristics and viability related to maternal size and nutritional condition.
- 1110-1130 SOLEMDAL, P., O.S. KJESBU, and M. FONN. Long-term studies on reproduction in cod: egg and early larvae mortality related to the batch spawning and the effect of multiple spawning.
- 1130-1150 AJIAD, A., O. NAKKEN, and T. JAKOBSEN. Sexual difference in maturation of Northeast Arctic cod.
- 1150-1330 Lunch break

**CHAIRPERSON: E. ARO**

- 1330-1350 SABORIDO-REY, F., O.S. KJESBU and A. THORSEN. Buoyancy of Atlantic cod (*Gadus morhua*) larvae in relation to spawning experience: first and second time spawners.
- 1350-1410 JUNQUERA, S., E. ROMAN and X. PAZ. Changes in Greenland halibut growth, condition and fecundity in Flemish Cap - Flemish Pass area.
- 1410-1430 GUNDERSEN, A.C., O.S. KJESBU, A. STENE, and K.H. NEDREAAS. Fecundity of Northeast Arctic Greenland halibut (*Reinhardtius hippoglossoides*).
- 1430-1450 KORSBREKKE, K. Variations in maturity of haddock in the Barents Sea in relation to year class strength, age, size, sex and area.
- 1450-1510 ROCHET, M-J. Fishing effects on maturity and fecundity in teleosts: their consequences for stock-recruitment relationships and spawning biomass per recruit.
- 1510-1530 Break
- 1530-1550 O'BRIEN, L. Factors influencing rates of maturation in the Georges Bank and Gulf of Maine Atlantic cod stocks.
- 1550-1610 MURAWSKI, S.A., P. J. REGO, and E.A. TRIPPEL. Why are western Atlantic groundfish maturing younger?

- 1610-1630 WALSH, S.J. and M.J. MORGAN. Variation in maturation, sex ratios and age/size composition of yellowtail flounder (*Pleuronectes ferruginea*).

**Thursday, 10 September 1998**

***Chairperson: J. Burnett***

- 0900-1000 **Keynote Address:** TRIPPEL, E.A. Parent-progeny relationships: challenges for groundfish stock assessments.
- 1000-1020 SABORIDO-REY, F., G. PEREZ-GANDARAS, and S. JUNQUERA. Spawning biomass variation in Atlantic cod (*Gadus morhua*) in relation with changes in growth and maturation in Flemish Cap.
- 1020-1040 Break
- 1040-1100 COOK, R. and P. KUNZLIK. Growth and maturity for North Sea cod.
- 1100-1120 MACKENZIE, B.R., J. TOMKIEWICA, F. KOSTER, and A. NISLING. Quantifying and disaggregating the 'spawner' effect: incorporating stock structure, spatial distribution and female influences into estimates of annual population egg production.
- 1120-1140 MARTEINSDOTTIR, G., A. GUNDMUNSDOTTIR, V. THORSTEINSSON, and G. Stefansson. Spatial variation in abundance, size composition and viable egg production of spawning cod (*Gadus morhua* L.) in Icelandic waters.
- 1140-1200 RIKHTER, V.A. On interpretation of plots of 'stock recruitment' relation of silver hake (*Merluccius bilinearis*) near the North-western Atlantic.
- 1200-1330 Lunch break

***Chairperson: E. Aro***

- 1330-1350 TAYLOR, L. and G. STEFFANSON. Growth and maturation of haddock in Icelandic waters.
- 1350-1410 GODØ, O.R. and T. HAUG. Growth rate and sexual maturity in cod (*Gadus morhua*) and Atlantic halibut (*Hippoglossus hippoglossus*).
- 1410-1430 BURTON, M.P.M. Potential errors in measuring spawning stock biomass: determining the effects of non-participatory adults for some Atlantic groundfish species.
- 1430-1450 AJIAD, A. and T. JAKOBSEN. Management implications from sexual differences in maturation and spawning mortality of Northeast Arctic cod.
- 1450-1530 Poster viewing and Break
- 1530-1550 OZBILGIN, H., R.S.T. FERRO, and J.R. HUTCHEON. Seasonal variation in the biological condition and trawl codend selectivity of North Sea haddock, *Melanogrammus aeglefinus*.

- 1550-1610 WIGLEY, S.E., J. BURNETT, and P. J. RAGO. An evaluation of maturity estimates derived from two sampling schemes: are the observed maturation changes fact or artifact?
- 1610-1630 MORGAN, M.J. The effect of a change in perception of length distribution of a population on maturity at age, weight at age and spawning stock biomass.

**Friday, 11 September 1998**

***Chairperson: J. Burnett***

- 0900-1000 **Keynote Address:** DUTIL, J-D., M. CASTONGUAY, Y. LAMBERT and D. GILBERT. Growth, condition and mortality relationships in Atlantic cod: should we factor in latitudinal and temporal variations in stock productivity?
- 1000-1020 SHELTON, P.A., G.R. LILLY, and E. COLBOURNE. Patterns in annual growth of 2J3KL cod and possible prediction for stock projections.
- 1020-1040 Break
- 1040-1100 RATZ, H-J., M. STEIN, and J. LLORET. Variation in growth and recruitment of Atlantic cod (*Gadus morhua*) off Greenland during the second half of the 20<sup>th</sup> century.
- 1100-1120 YARAGINA, N.A., and C.T. MARSHALL. Trophic influences on seasonal and interannual variation in the hepatosomatic index of Northeast Arctic cod.
- 1120-1140 MARSHALL, C.T., and N.A. YARAGINA. Consequences of variation in the liver condition for recruitment dynamics of Northeast Arctic cod.
- 1140-1200 LAMBERT, Y., and J-D. DUTIL. Energetic consequences of reproduction in Atlantic cod (*Gadus morhua*) in relation to pre-spawning level of energy reserve.
- 1200-1330 Lunch Break

***Chairperson: M. J. Morgan***

- 1330-1430 **Keynote Address:** SERCHUK, F. and S. MURAWSKI. Implications of variations in maturation, growth, condition and spawning stock biomass production on groundfish management strategies: some real world examples. INVITED PAPER
- 1430-1600 Discussion and Summing up Symposium



**Scientific Council Annual Meeting  
6-18 September, Lisbon, Portugal**

The Scientific Council met at the Hotel Altis, Lisbon, Portugal, during 6-18 September 1998. Representatives attended from Canada, Denmark (in respect of Faroe Islands and Greenland), Estonia, European Union (France, Germany, Portugal and Spain), Iceland, Japan, Norway, Russian Federation and the United States of America (Annex 1).

The Executive Secretary was appointed rapporteur.

At its opening the Council noted that the meeting during 6-8 September 1998 would be devoted to considerations of shrimp in Div. 3M and the special request from the Fisheries Commission on Div. 3LNO shrimp. STACFIS would carry out the assessment and the Council would then develop and adopt the advice recommendations before adjourning for the Special Session of 9-11 September 1998.

Mr. U.N. Wijkström, Chief Fishery Development Planning Service, FAO, was invited as an observer to present an update on the forthcoming "FAO Consultation on the Management of Fishery Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries" of 26-30 October 1998.

The agenda was adopted (Annex 2).

Brief summaries of the Standing Committee Reports and other matters considered by the Scientific Council are given below.

**FISHERY SCIENCE**

**Assessment of Shrimp (*Pandalus borealis*) in Division 3M**

**Background:** The fishery for shrimp on Flemish Cap began in April 1993, although occurrence of shrimp in the area has been known for many years.

**Fishery and Catches:** This multi-national fishery produced provisional catches as follows:

Year	Catch <sup>1</sup> ( <sup>000</sup> tons)	TAC	
		Recommended	Agreed
1993	28	na	-
1994	24	tm	tm
1995	33	tm	tm
1996	49	ndf	er
1997	27	lpl	er
1998 (to August) <sup>2</sup>	19	lpl	er

<sup>1</sup> STACFIS estimates.

<sup>2</sup> STACFIS estimate to end of 1998 is about 30,000 tons.

na No advice.

ndf No directed fishery.

er Effort regulations.

lpl Lowest possible level.

tm Technical measures.

The proportion of males in the catches increased such that they dominated the catches since 1994. The fishery was unregulated in 1993. Sorting grates and a related by-catch regulation were introduced in 1994. Effort regulations were implemented in 1996 and have continued since then.

**State of the Stock:** Scientific Council is not able to predict the biomass of the 1994 and 1995 year-classes, which will remain in 1999. Scientific Council also is unable to estimate the size of subsequent year-classes or predict possible recruitment. Although CPUE information has been used previously as an indicator of stock size, there are concerns about these data due to the technological changes which have occurred in the fishery but are not accounted for in the present model. It is therefore not possible for Scientific Council to provide any estimate of current or future stock size.

**Recommendation:** Scientific Council is unable to determine the absolute size of the stock. However, available data suggest the size of the stock is relatively stable or possibly showing an increase in biomass in 1998. The perception is now more optimistic than in 1997, although the Scientific Council is still concerned about the high proportion of males in the commercial catches. The average catch reported during the apparent period of stability was about 30 000 tons, and the Scientific Council recommends that the catch in 1999 should not exceed 30 000 tons.

**Special Comments:** Scientific Council considers it important to recognize that its ability to assess the resource will not improve until a time series of research surveys directed for shrimp is developed which can allow for the prediction of recruitment.

### Shrimp in Divisions 3LNO

*Distribution:* In Div. 3LNO northern shrimp occur mainly along the slope of the Grand Bank, primarily in depths between 150 and 500 m. Research vessel surveys showed that the distribution was widespread with densities greatest in Div. 3L. Occasional large catches occurred in Div. 3N, and few shrimp were caught in Div. 3O.

*Catches:* Catches of shrimp in Div. 3L from the Faroese experimental fishery totaled 355 tons in 1994, 83 tons in 1996, 482 tons in 1997, and 336 tons to date in 1998. Catches of shrimp in Div. 3LNO from other sources are negligible.

*By-catches:* By-catches of groundfish were estimated from the Faroese fishery in 1996 and 1997. The following table illustrates results, in kg of by-catch per tone of shrimp:

	Greenland halibut	Redfish	American plaice	Cod
With no grate	203.9	42.0	No data	25.6
With 22 mm grate	24.2	1.2	2.1	0.01

The data collected from trawls using a grate represented an average of 4 periods from November 1996 to August 1997, while the data collected from trawls without a grate came from November 1996. Scientific Council noted that these data were collected only in a portion of the NAFO Regulatory Area (NRA) in Div. 3L, and that results from other areas in Div. 3LNO could be very different, given the different distributions of juvenile groundfish on the Grand Bank. It was also noted that the abundance of redfish, American plaice and cod in Div. 3LNO is presently low relative to historic levels, making it difficult to judge the effectiveness of grates in reducing by-catch during periods of higher fish abundance.

*Biomass Indices:* Biomass indices from Canadian autumn surveys in 195-97 indicated that more than 90% of the resource was located in Div. 3L. The biomass index increased substantially over this period from about 6 300 tons in 1995 to 47 000 tons in 1997.

Biomass indices from Faroese surveys in spring 1997 and 1998 in a portion of the NRA (180-500 m) in Div. 3L were 3 300 tons in 1997 and 4 600 tons in 1998. However, these are not directly comparable due to differences in the trawls used in the two years.

*Yield Potential:* The shrimp resource in areas north of the Grand Bank (Div. 2J and 3K) expanded greatly in recent years and it is likely that the increase in the shrimp abundance on the adjacent Grand Bank is connected with this expansion. The production and recruitment of several strong year-classes of the late-1980s and early-1990s accounts for the increase, but the dynamics are not fully understood. Until the stock relationship is properly elucidated, it will not be possible to determine estimates of sustainable yield or to evaluate appropriate reference points.

### DEVELOPMENT OF PRECAUTIONARY APPROACH

The Scientific Council will meet in Spring 1999 to further address issues on the Precautionary Approach (PA). Recognizing the need to coordinate the outcome of this meeting with the views of the Fisheries Commission on the PA, Scientific Council agreed to the following Terms of Reference for the work during 5 days:

- 1) Hands-on with software implementation of methods relevant to PA.
- 2) Progress on development of reference points for NAFO stocks.
- 3) Address recommendations from May 1998 Meeting of the Joint Scientific Council and Fisheries Commission Working Group.
- 4) Case specific studies;
  - a) Stock with closed fishery (cod in Div. 3NO)
  - b) Stock with open fishery (yellowtail flounder Div. 3LNO)
  - c) Stock for which qualitative methods are required (shrimp in Div. 3M)
- 5) Preparation for joint Scientific Council and Fisheries Commission Working Group on the PA (to be held immediately after the 5-day meeting).

It is proposed the meeting will first be limited to Scientific Council members, and the outcome of these deliberations be forwarded by a select group of the Scientific Council members to the Fisheries Commission members.

In accordance with the proposed Spring 1999 Meeting Terms of Reference (given above), the Scientific Council proposed that a Joint Scientific Council and Fisheries Commission Working Group Meeting on the Precautionary Approach be held in advance of the June 1999 Scientific Council Meeting.

It was proposed that the duration be 2 days, (note: the Fisheries Commission decision of 18 September 1998 revised this to 3 days), and the Scientific Council be represented at this meeting by a subgroup of members who participated in the meeting mentioned above.

#### Terms of Reference:

- 1) Development of options for decision rules (management strategies) for each case-specific study;
  - a) Stock with closed fishery (cod in Div. 3NO)
  - b) Stock with open fishery (yellowtail flounder Div. 3LNO)
  - c) Stock for which only limited data are available (shrimp in Div. 3M)

## RESEARCH COORDINATION

The recommendations endorsed by the Council are:

- 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 (in the STACREC Report). The work is to be undertaken by correspondence under the direction of the Chairman (E. De Cárdenas, EU-Spain) an progress be reported at the June 1999 meeting.
- an expanded list of individually identified species of elasmobranchs be included in the STATLANT 21A questionnaire and that the national authorities be requested to submit catch statistics with a maximum degree of detail.

## PUBLICATIONS

The recommendations endorsed by the Scientific Council as relevant to the General Council are:

- the Scientific Council report on the 1998 Symposium be placed on the NAFO website.
- the Scientific Council advice given in 1998 for various stocks should be placed on the NAFO website.

## OTHER MATTERS

It was agreed a more rigid approach be taken regarding the deadlines for submission of papers to the Council. In this regard, it was agreed that papers should be submitted to the Secretariat and relevant Designated Experts, at least 10 days before the beginning of the meetings. However, it was noted that some papers, for example preliminary assessment papers and papers being submitted to STACFEN, may not be available within these time frames.

The Council also noted that the timing and data availability from research surveys conducted particularly in the spring and in mid/late summer would present difficulties in preparing scientific reports in advance of the meeting.

The Council proposed that beginning in 1999 a schedule for providing bi-annual (every two years) advice be initiated. The Council prepared and submitted a complete schedule to the Fisheries Commission for six stocks as follows:

Stock	1999	2000	2001	2002	2003
A. plaice in Div. 3LNO	✓		✓		✓
Cod in Div. 3NO	✓		✓		✓
Redfish in Div. 3LN	✓		✓		✓
Cod in Div. 3M	✓	✓		✓	
A. plaice in Div. 3M	✓	✓		✓	
Witch in Div. 3NO	✓	✓		✓	

For several years, the Scientific Council was not in a position to provide advice for Capelin in 3NO due to the absence of data. The Scientific Council proposes that it will give no advice until appropriate data are available.

### **Review of Proposed Intersessional Activities**

The Chairman noted the Council will at on any response from STACTIC Chairman regarding developing better communications between the Council and STACTIC.

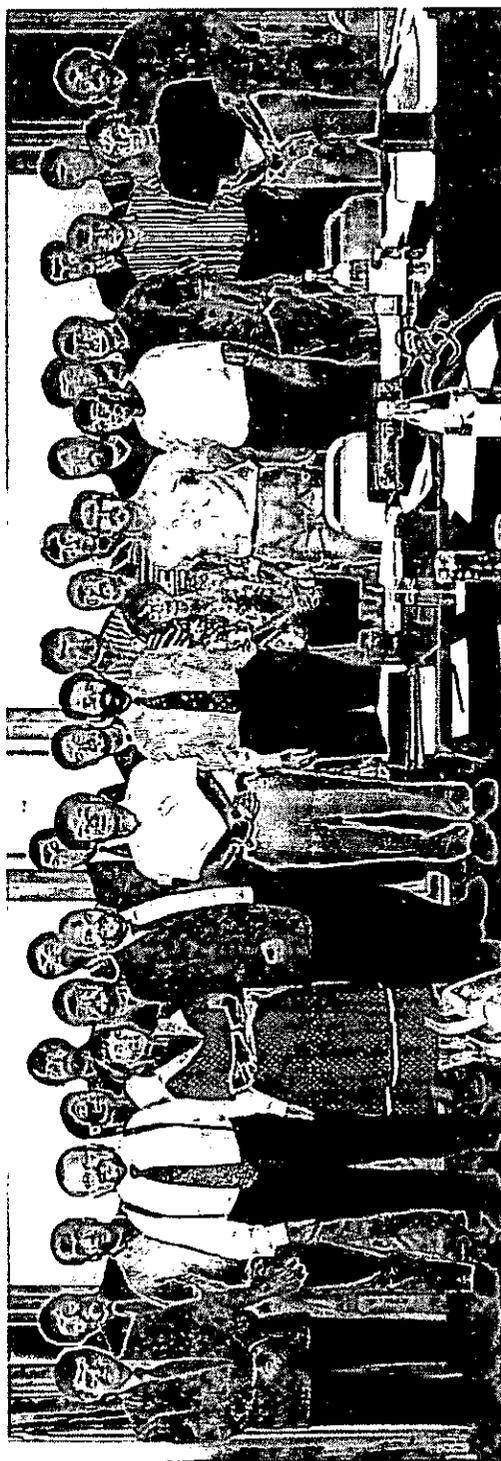
The Council noted the recent catch data of elasmobranchs in the NAFO area had been summarized by the Secretariat for this meeting. It was noted in this preliminary tabulation only two elasmobranchs were identified on the species level.

It was noted that steps needed to be taken to develop training programs in identification of elasmobranchs. The Council was pleased the Chairman had brought an identification key which could be printed for this purpose. This publication needed funding, and the Chairman proposed he would solicit this during this Annual Meeting.

### **Scientific data collection in the Observer Program**

With regards to STACTIC discussion on data collection in the Observer Program, the Council was pleased to send representatives to the STACTIC meeting on the 17 September 1998. This was particularly to exchange views of how best the Fisheries Commission Observer Program data collection can address the data needs of the Scientific Council. Resulting from the exchange of information at the STACTIC Meeting, the Scientific Council will outline the specific data it would need. It was agreed that data collected by the Observer Program should be in a format harmonized among Contracting Parties, and that the pertinent data should be submitted to the Scientific Council via the Secretariat, in an electronic form. The Council noted that the data needed for scientific work did not require confidential information such as country and vessel name. In conclusion, it was agreed the Chairman of the Council will prepare a submission outlining the data needs to STACTIC.

Note (from the Secretariat): On January 8, 1999, the Executive Secretary circulated his letter (GF/99-024) with emphasis on this issue and asking all Contracting Parties fishing in the NAFO Regulatory Area to organize the data collection in accordance with the Protocol developed by the Scientific Council (See Report 1997).



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 D.B. Atkinson, D.G. Parsons, R. Alpoim, O.R. Godø, V.N. Shibanov  
 Front Row: A. Vazquez, A. Nicolajsen, U. Skúladóttir, E. de Cárdenas, S. Kawahara, F.M. Serchuk, S. Junquera, D. Rivard,  
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**Annex 2. Agenda**

- 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
    - b) Information on Shrimp in Divisions 3LNO
  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
  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

## Scientific Council Meeting 6-10 November 1998, Copenhagen, Denmark

The Scientific Council met at Greenland Home Rule Government, Denmark Office, Pilestræde 52, Copenhagen, Denmark, during 6-10 November 1998. Representatives attended from Canada, Denmark (in respect of Greenland), Estonia, European Union, Iceland and the United States of America (Annex 1).

The Executive Secretary was appointed rapporteur.

The Provisional Agenda was considered. It was noted that informal discussions among NAFO and ICES experts immediately after this Scientific Council Meeting will consider general problems in relation to the Precautionary Approach for shrimp stock. The Council also agreed to consider the progress on the Pandalid Symposium of September 1999, and the time and venue of the November 1999 Meeting for shrimp assessments. The Agenda was adopted (Annex 2).

### FISHERY SCIENCE

The Council adopted the Report of the Standing Committee, STACFIS, which summary is presented below:

#### **Shrimp (*Pandalus borealis*) in Subareas 0 and 1**

**Background:** A small scale inshore fishery began in SA 1 during the 1930s. Since 1969 an offshore fishery has developed and the shrimp fishery is now the most important in Davis Strait.

**Fishery and Catches:** This fishery is conducted mainly by Greenland and Canada. Recent catches from the stock are as follows:

Year	Catch ('000 tons)			TAC ('000 tons)
	Inshore	Offshore	Total	Recommended
1991	16.3	59.6	75.9	50.0 <sup>1</sup>
1992	20.6	66.2	86.8	50.0 <sup>1</sup>
1993	17.9	57.8	75.7	50.0 <sup>1</sup>
1994 <sup>2</sup>	18.1	58.5	76.6	50.0 <sup>1</sup>
1995 <sup>2</sup>	16.4	54.3	70.7	60.0
1996 <sup>2</sup>	17.4	51.9	69.2	60.0
1997 <sup>2</sup>	13.5	51.0	64.5	60.0
1998 <sup>2,3</sup>				55.0

<sup>1</sup> Only offshore.

<sup>2</sup> Provisional.

<sup>3</sup> Projected total catch for 1998 is 65 000 tons.

**State of the Stock:** The perception of the status of the stock is more optimistic than in 1997. Based on the available commercial and survey data on CPUE and recruitment, the stock appears to have remained stable or has possibly increased slightly in recent years.

**Recommendation:** Catches in 1997 and projected catches in 1998 average about 65 000 tons. Given the uncertainty of the absolute size of incoming recruitment, Scientific Council recommends that catches of shrimp in Subareas 0 and 1 in 1999 should not exceed this average.

**Special Comments:** There is now a change of the perception of the state of the stock. The CPUE index, previously believed to be declining, is now thought to be at least stable or increasing slightly. Given the range of variability in survey biomass estimates, there appears to be no evidence of a decline in biomass in recent years.

### Shrimp (*Pandalus borealis*) in Denmark Strait

**Background:** The fishery for shrimp started in areas north of 65°N in Denmark Strait in 1978. The fishery started exploiting new areas south of 65°N after 1992.

**Fishery and Catches:** This fishery soon became a multi-national fishery with recent catches and TACs as follows:

Year	Catch ( <sup>1</sup> 000 tons)	TAC ( <sup>1</sup> 000 tons)	
		Agreed <sup>2</sup>	Recommended
1992	7.5	13.0	8
1993	7.6	9.6	5
1994 <sup>1</sup>	9.8	9.6	5
1995 <sup>1</sup>	9.5	9.6	5
1996 <sup>1</sup>	9.6	9.6	5
1997 <sup>1</sup>	11.6	9.6	5
1998 <sup>1</sup> (to 1 Oct)	6.6	9.6	5

<sup>1</sup> Provisional.

<sup>2</sup> Only for Greenland EEZ.

**State of the Stock:** Standardized CPUE data from both the northern and the southern areas indicate a general increasing trend in fishable biomass since 1993. Several year-classes of male and female shrimp are evident in the sampling data in recent years.

**Recommendation:** Average catches for the years 1993 to 1997, a period coinciding with increasing catch-rates, were 9 600 tons. Scientific Council recommends that catches of shrimp in Denmark Strait in 1999 should not exceed this average.

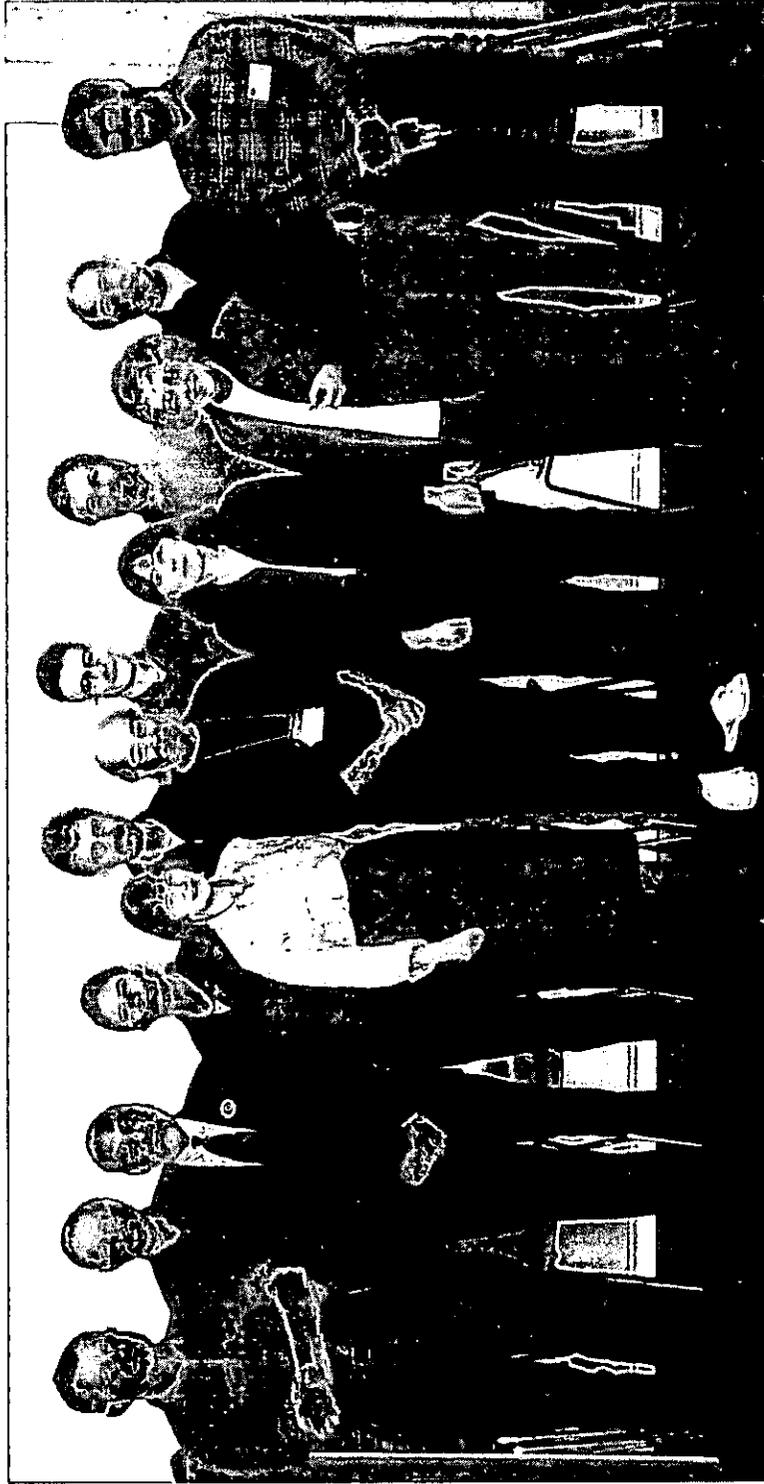
**Special Comments:** The perception of the stock is now more optimistic than in the recent years. Scientific Council notes, however, that uncertainty on stock structure and lack of surveys in 1997 and 1998 make assessment of this stock difficult.

### OTHER MATTERS

The Council was presented with a brief report on the progress made in preparation for the Symposium on "Pandalid Shrimp Fisheries – Science and Management at the Millennium" of September 1999. The Council was informed that the co-convener P. A. Koeller (Canada) had been in consultation with the other co-conveners and that plans for the joint NAFO, ICES and PICES Symposium were progressing well.

It was agreed the November 1999 meeting would require an additional 2 days for the assessment of shrimp in Div. 3M, and accordingly scheduled the meeting for 11 to 17 November 1999 (which includes Saturday, 13 November 1999 as a working day).

Participants of Scientific Council Meeting, 6-10 November 1998, Copenhagen, Denmark



Left to Right: D. M. Carlsson, P. Kannevorff, T. Amaratunga, H. Siegstad, U. Skúladóttir, C. Hvingel, R. Mayo, O. Folmer, L. Savard, H.-P. Cornus, D. C. A. Auby, D. G Parsons, M. C. S. Kingsley.



L to R: H. P. Cornus (Chairman, Scientific Council), U. Skuladottir (Designated Expert), H. Siegstad (Designated Expert) and R. Mayo (Chairman, STACFIS)



STACFIS at work on shrimp in Subareas 0 and 1 and Denmark Strait stock assessments.

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**Annex 2. Agenda**

- I. Opening (Chairman: H.-P. Cornus)
  1. Appointment of Rapporteur
  2. Adoption of Agenda
  3. Plan of work
  
- II. Fishery Science (STACFIS Chairman: R. K. Mayo)
  1. Stock assessments
    - 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



**PART IV**  
(pages 201 to 214)

**Administrative and Financial Report  
for the year ended 31 December 1998**



## Administrative Report for the Year Ended 31 December 1998

### Meetings and NAFO Secretariat Activities

1. The Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties, Brussels, Belgium, 4-6 March 1998.
2. The Scientific Council Workshop on Precautionary Approach, NAFO Headquarters, Dartmouth, N.S., Canada, 17-27 March 1998.
3. The Working Group on Dispute Settlement Procedures (DSP), NAFO Headquarters, Dartmouth, N.S., Canada, 22-24 April 1998.
4. The Working Group on Precautionary Approach, Copenhagen, Denmark, 12-13 May 1998.
5. The Standing Committee on International Control (STACTIC), Copenhagen, Denmark, 14-15 May 1998.
6. The International Fisheries Commission Pension Society Annual Meeting, La Jolla, California, USA, 20-22 May 1998. The NAFO Secretariat was represented by Mr. F. D. Keating and Mr. S. M. Goodick.
7. The Working Group on Transparency, Washington, D.C., USA, 27-29 May 1998.
8. The Scientific Council and its Standing Committees, Keddy's Dartmouth Inn, 3-18 June 1998.
9. Symposium on "Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish", Lisbon, Portugal, 9-11 September 1998.
10. The Annual Meeting of the Organization including all constituent bodies - the General Council, the Fisheries Commission, the Scientific Council, Lisbon, Portugal, 14-18 September 1998.
11. The Scientific Council, Copenhagen, Denmark, 6-10 November 1998.

The NAFO Secretariat made all necessary arrangements for the above-mentioned meetings and prepared all documents in accordance with the provisions of the NAFO Convention and Rules of Procedure.

### Publications

The publications listed below are prepared and printed at the NAFO Secretariat. It has been estimated that 1.5 million pages have been circulated from the NAFO Secretariat as printing matter in the form of documents, circular letters and publications during 1998. The basic publications were the following:

- a) *NAFO Annual Report* for the year 1997 (192 pages) was distributed in March 1998.
- b) *NAFO Meeting Proceedings* for the year 1997 (336 pages) was distributed in February 1998.

- c) *NAFO Scientific Council Reports* for 1997 (274 pages) was distributed in January 1998.
- d) *NAFO Journal of Northwest Atlantic Fishery Science* Volume 22 (387 pages) was distributed in December 1997.
- e) *NAFO Journal of Northwest Atlantic Fishery Science* Volume 23 (273 pages) was distributed in October 1998.
- f) *NAFO Journal of Northwest Atlantic Fishery Science* Volume 24 (97 pages) was distributed in November 1998.
- g) *NAFO Newsletter "NAFO News"* No. 7 for July-December 1997 issued in January 1998, No. 8 for January-June 1998 was issued in July 1998, and No. 9 for July-December 1998 was issued in January 1999.

### **Fishery Statistics**

The NAFO statistical database is at the NAFO Secretariat and available in computer diskette form or hard copies to the Contracting Parties.

The data reports for the preceding year of fishing, STATLANT 21A reports (preliminary annual catches in the NAFO Convention Area by species and divisions), due 15 May have not been received from: for 1994 - USA; for 1995 - USA; for 1996 - USA; for 1997 - Cuba, Great Britain and USA.

The data reports for the preceding year of fishing, STATLANT 21B reports (final annual catches in the NAFO Convention Area by species, month, effort), due 30 June have not been received from: for 1989 EU-France (M); for 1994 - USA; for 1995 - Denmark (Faroes) and USA; for 1996 - Denmark (Faroes), Denmark, Great Britain, USA; for 1997 - Canada (N), Cuba, Denmark (Faroes), Denmark, Great Britain, Lithuania, USA and questions with Norway and Poland.

## Financial Report for the Year Ended 31 December 1998

An audit of the NAFO accounts for the fiscal year 1998 was completed by the firm of Deloitte and Touche, Chartered Accountants.

The auditor's report is as follows:

### **To the Chairman and Members of the General Council of Northwest Atlantic Fisheries Organization**

We have audited the balance sheet of the Northwest Atlantic Fisheries Organization as at December 31, 1998 and the statements of revenue and expenditures, accumulated surplus and changes in financial position for the year then ended. These financial statements are the responsibility of the Organization's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. These standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

As outlined in Note 4 to the financial statements, the Organization has not recorded a liability for enhanced employee termination benefits, as approved as part of the Staff Rules by General Council at its annual meeting in September, 1991. At December 31, 1998, these enhanced benefits amounted to approximately \$70,300. Failure to record this amount as a liability in 1998 is not in accordance with the Organization's stated accounting principles. Had the liability been recorded \$70,300 would have been reflected as a prior period adjustment and the accumulated surplus at the end of the year would have been reduced by \$70,300.

In our opinion, except for the effects of the Organization's failure to record the liability referred to in the preceding paragraph, these financial statements present fairly, in all material respects, the financial position of the Organization as at December 31, 1998 and the results of its operations and the changes in its financial position for the year then ended in accordance with the accounting principles disclosed in the notes to the financial statements.

We further report as required by Rule 7.1 of the Financial Regulations of the Organization, that in our opinion, the financial statements are in accordance with the books and records of the Organization; the financial transactions reflected in the statements have, in all significant respects, been in accordance with the Financial Regulations and the budgetary provisions of the Northwest Atlantic Fisheries Organization; and the monies on deposit and on hand have been verified by certificate received directly from the Organization's depositories or by actual count.

February 18, 1999

Deloitte & Touche  
Chartered Accountants

**Statement of Revenue and Expenditures  
(Year Ended 31 December 1998)**

(Expressed in Canadian Dollars)

	Budget 1998	Actual 1998	Actual 1997
<b>Revenue</b>			
Contributions assessed Contracting			
Parties (Note 5).....	\$ 913,574	\$ 913,574	\$ 867,968
Allocation from surplus for operations.....	163,426	163,426	138,532
Personal income taxes			
Federal .....	-	106,169	104,830
Provincial.....	-	49,424	46,059
Interest .....	-	23,544	14,654
Sales of publications.....	-	<u>8,920</u>	<u>8,484</u>
	<u>1,077,000</u>	<u>1,265,057</u>	<u>1,180,527</u>
<b>Expenditures</b>			
Salaries.....	620,000	642,162	602,077
Vacation pay increase (decrease).....	1,000	402	(1,854)
Superannuation (Note 6).....	84,000	73,649	76,994
Additional help.....	1,000	-	-
Group medical and insurance plan.....	47,000	44,218	42,666
Termination benefits (Note 4).....	32,500	27,632	26,259
Travel.....	26,000	22,324	12,022
Transportation.....	1,000	765	915
Communications.....	61,000	52,377	54,630
Publications .....	27,000	27,456	25,140
Contractual services .....	34,000	34,237	33,812
Materials and supplies.....	30,000	27,547	32,470
Equipment.....	5,000	4,287	4,943
Meetings .....	57,500	91,611	58,501
Computer services .....	<u>50,000</u>	<u>13,992</u>	<u>17,892</u>
	<u>1,077,000</u>	<u>1,062,659</u>	<u>986,467</u>
Excess of revenue over expenditures before provision for uncollectible accounts .....	-	202,398	194,060
Provision for uncollectible accounts and write-off of contributions .....	<u>32,244</u>	<u>32,244</u>	<u>30,634</u>
<b>Excess of revenue over expenditures.....</b>	<u>\$ (32,244)</u>	<u>\$ 170,154</u>	<u>\$ 163,426</u>

**Statement of Accumulated Surplus  
(Year Ended 31 December 1998)**

(Expressed in Canadian Dollars)

	1998	1997
<b>Balance, beginning of year</b> .....	\$ 238,426	\$ 213,532
Allocations		
To operations .....	<u>163,426</u>	<u>138,532</u>
	75,000	75,000
Excess of revenue over expenditures .....	<u>170,154</u>	<u>163,426</u>
<b>Balance, end of year</b>	<u>\$ 245,154</u>	<u>\$ 238,426</u>

**Balance Sheet as at 31 December 1998**

(Expressed in Canadian Dollars)

	1998	1997
<b>ASSETS</b>		
<b>Current</b>		
Cash and short-term deposits .....	\$ 219,748	\$ 220,898
Contributions receivable (Note 3).....	30,736	28,681
Accounts receivable .....	11,285	6,389
Accrued interest receivable .....	10,695	4,741
Grant receivable-Province of Nova Scotia .....	49,424	-
Prepaid expenses .....	<u>19,679</u>	<u>18,822</u>
	341,567	279,531
<b>Investments segregated for employee termination benefits</b>	<u>256,600</u>	<u>240,727</u>
	<u>\$ 598,167</u>	<u>\$ 520,258</u>
<b>LIABILITIES</b>		
<b>Current</b>		
Accounts payable and accrued liabilities.....	\$ 37,640	\$ 17,345
Accrued vacation pay payable .....	8,289	7,887
Advance contributions .....	<u>22,852</u>	<u>-</u>
	68,781	25,232
<b>Provision for employee termination benefits (Note 4) .....</b>	<u>284,232</u>	<u>256,600</u>
	<u>353,013</u>	<u>281,832</u>
<b>EQUITY</b>		
<b>Accumulated Surplus.....</b>	<u>245,154</u>	<u>238,426</u>
	<u>\$ 598,167</u>	<u>\$ 520,258</u>

**Statement of Changes in Financial Position**  
**(Year Ended 31 December 1998)**

(Expressed in Canadian Dollars)

	1998	1997
<b>Net inflow (outflow) of cash related to the following activities:</b>		
<b>Operating</b>		
Excess of revenue over expenditures.....	\$ 170,154	\$ 163,426
Item not affecting cash		
Allocation from surplus.....	<u>(163,426)</u>	<u>(138,532)</u>
	6,728	24,894
Changes in non-cash operating working capital items (Note 9).....	<u>(19,637)</u>	<u>37,421</u>
	<u>(12,909)</u>	<u>62,315</u>
<b>Investing</b>		
Increase in investments segregated for employee termination benefits.....	<u>(15,873)</u>	<u>(240,727)</u>
<b>Financing</b>		
Increase in provision for employee termination benefits.....	<u>27,632</u>	<u>26,259</u>
<b>Net cash outflow</b> .....	(1,150)	(152,153)
<b>Cash position, beginning of year</b> .....	<u>220,898</u>	<u>373,051</u>
<b>Cash position, end of year</b> .....	<u>\$ 219,748</u>	<u>\$ 220,898</u>

**Notes to the Financial Statements**  
(Year Ended 31 December 1998)

(Expressed in Canadian Dollars)

**1. Authority and Objective**

The Northwest Atlantic Fisheries Organization was established by the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries which came into force on January 1, 1979.

The objective of the Organization is to contribute through cooperation and consultation to the conservation, rational management and efficient utilization of the fishery resources in the Convention. For that purpose, it compiles statistics, maintains research programs, establishes management goals, and promotes and co-ordinates international surveillance.

**2. Accounting Policies**

These financial statements have been prepared in accordance with Canadian generally accepted accounting principles and reflect the following significant accounting policies:

**a) Contributions Assessed Contracting Parties**

Contributions are assessed annually and are recorded as revenue in the year for which billings apply.

**b) Allowance for Uncollectible Accounts**

As approved by the General Council, an allowance for uncollectible accounts is recorded for contributions that are one payment in arrears.

**c) Accumulated Surplus**

The Chairman of the General Council, after consultations with representatives of all members of the General Council, may authorize expenditures from accumulated surplus for unforeseen and extraordinary expenses necessary to the good conduct of the business of the Organization. Such funds may not be in excess of 20% of the annual budget for the current financial year.

**d) Publications**

Costs of publications are charged to expense as incurred.

**e) Office Furniture and Equipment**

Costs of office furniture and equipment are charged to expense when purchased. Leases for equipment, which transfer substantially all of the benefits and risks of ownership to the Organization, are not treated as asset purchases (capital leases). Lease payments are charged in the year paid to the contractual services expenditure categories.

f) **Personal Income Taxes**

Federal

According to an Order in Council (P.C. 1980-132) issued by the Government of Canada, the Organization comes under the jurisdiction of the Convention on the Privileges and Immunities of the United Nations. Article V, Section 18(b) of this Convention exempts officials of the United Nations organizations from taxation on the salaries and emoluments paid to them. However, the Order in Council (Section 3.(3)) does not exempt a Canadian citizen, residing or ordinarily resident in Canada, from liability for any taxes or duties imposed by any law in Canada.

Accordingly, as is customary for international organizations, the Organization credits revenue with an amount equal to the Canadian federal income taxes that would be otherwise assessed on its employees.

Provincial

The Organization deducts provincial income taxes from the salaries of Canadian employees and remits amounts deducted on a regular basis to the Province of Nova Scotia. At the end of each year, the Organization applies to the provincial government for an ex gratia grant equal to the amount of provincial personal income taxes paid. Such grants are accrued when ultimate receipt is assured.

g) **Pension Plan**

The Organization has a defined benefit pension plan and current contributions plus the payments for the unfunded portion of the plan are expensed annually.

**3. Contributions Receivable**

This account reflects current assessments due from Contracting Parties as follows:

	<u>1998</u>	<u>1997</u>
Bulgaria .....	\$ 16,122	\$ 15,317
Cuba .....	17,931	15,576
Lithuania .....	-	13,105
Romania .....	16,122	15,317
United States of America .....	<u>12,805</u>	<u>-</u>
	62,980	59,315
Less: Allowance for uncollectible assessments .....	<u>32,244</u>	<u>30,634</u>
	<u>\$ 30,736</u>	<u>\$ 28,681</u>

#### 4. Provision for Employee Termination Benefits

The Organization provides its staff members with certain entitlements on termination of service based on the employee's position and years of service with the Organization.

At its annual meeting in September, 1991, the General Council approved in the Staff Rules an enhanced employee termination benefit package to be effective January 1, 1992. At December 31, 1998, the additional liability resulting from this enhancement amounted to approximately \$70,300, which amount has not been recorded in the accounts of the Organization.

The Organization is funding this liability at the rate of \$10,000 per annum as approved by the General Council (19th Annual Meeting, September, 1997).

#### 5. Contributions Assessed Contracting Parties

	<u>1998</u>	<u>1997</u>
Bulgaria .....	\$ 16,122	\$ 15,317
Canada .....	347,092	347,358
Cuba .....	17,931	15,890
Denmark (in respect of the Faroe Islands and Greenland) .....	117,641	98,594
Estonia .....	18,753	16,098
European Union .....	34,814	62,448
France (in respect of St. Pierre et Miquelon) .....	16,186	15,382
Iceland .....	22,754	16,984
Japan .....	19,411	17,556
Republic of Korea .....	16,122	15,317
Latvia .....	16,889	15,630
Lithuania .....	16,889	15,942
Norway .....	25,769	23,337
Poland .....	16,122	15,317
Romania .....	16,122	15,317
Russian Federation .....	23,960	21,566
United States of America .....	<u>170,997</u>	<u>139,915</u>
	<u>\$ 913,574</u>	<u>\$ 867,968</u>

#### 6. Superannuation

The Organization has a defined benefit pension plan which covers all employees. The last actuarial valuation was performed as at January 1, 1996. At that time, the accrued pension obligation was \$1,570,000 while the assets were valued at \$1,487,000, resulting in an unfunded pension liability of \$83,000. The estimated accrued pension obligation and value of the assets at December 31, 1998 are \$1,961,459 and \$1,949,459 respectively, resulting in an unfunded pension liability of \$12,000. The remaining unfunded pension liability will be funded in 1999.

### 7. Operating Lease Obligations

The Organization is committed to lease payments for certain equipment, as follows:

<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
\$27,950	\$17,740	\$14,870	\$5,175

### 8. Services Provided Without Charge

Accommodation for the Organization's secretariat in Dartmouth, Nova Scotia is provided without charge by the Canadian Department of Fisheries and Oceans. Accordingly, the related costs, which include, rent, grants-in-lieu of property taxes, heat, electricity and cleaning services, are not reflected in these financial statements.

### 9. Changes in Non-Cash Operating Working Capital Items

	<u>1998</u>	<u>1997</u>
Contributions receivable .....	\$ (2,055)	\$ 6,733
Accounts receivable .....	(4,896)	(3,344)
Accrued interest receivable .....	(5,954)	(4,174)
Accrued <i>ex gratia</i> grant receivable .....	(49,424)	43,234
Prepaid expenses .....	(857)	3,290
Accounts payable and accrued liabilities .....	20,295	11,112
Accrued vacation pay .....	402	(1,854)
Advance contributions – 1999 Scientific Council Symposium – Pandalid Shrimp Fisheries .....	<u>22,852</u>	<u>(4,110)</u>
	<u>\$ (19,637)</u>	<u>\$ 37,421</u>

### 10. Capital Assets

Capital assets are expensed on acquisition. Capital assets held at December 31, 1998 include computer hardware and software, and office furniture and equipment. An analysis of the approximate acquisition costs of all capital assets up to December 31, 1998, and the amortization of them over the same period, is reflected in the following:

	<u>Cost</u>	<u>Accumulated Amortization</u>	<u>Net Book Value</u>
Computer equipment	\$ 67,500	\$ 40,288	\$ 27,212
Office furniture and equipment	<u>205,141</u>	<u>151,548</u>	<u>53,593</u>
	<u>\$ 272,641</u>	<u>\$ 191,836</u>	<u>\$ 80,805</u>

These assets are not included in the financial statements, although new accounting requirements of the Canadian Institute of Chartered Accountants require that they be recorded beginning in 1998. The Organization had not discussed this matter with its members in 1998, but will seek to obtain the authorization of its Member states to set up the capital assets in their financial statements, retroactively, beginning in their December 31, 1999 fiscal year.

### **11. Uncertainty Due to the Year 2000 Issue**

The Year 2000 Issue arises because many computerized systems use two digits rather than four to identify a year. Date-sensitive systems may recognize the year 2000 as 1900 or some other date, resulting in errors when information using year 2000 dates is processed. In addition, similar problems may arise in some systems which use certain dates in 1999 to represent something other than a date. The effects of the Year 2000 Issue may be experienced before, on, or after January 1, 2000, and, if not addressed, the impact on operations and financial reporting may range from minor errors to significant systems failure which could affect an entity's ability to conduct normal business operations. It is not possible to be certain that all aspects of the Year 2000 Issue affecting the company, including those related to the efforts of customers, suppliers, or other third parties, will be fully resolved.

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