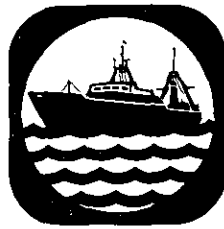


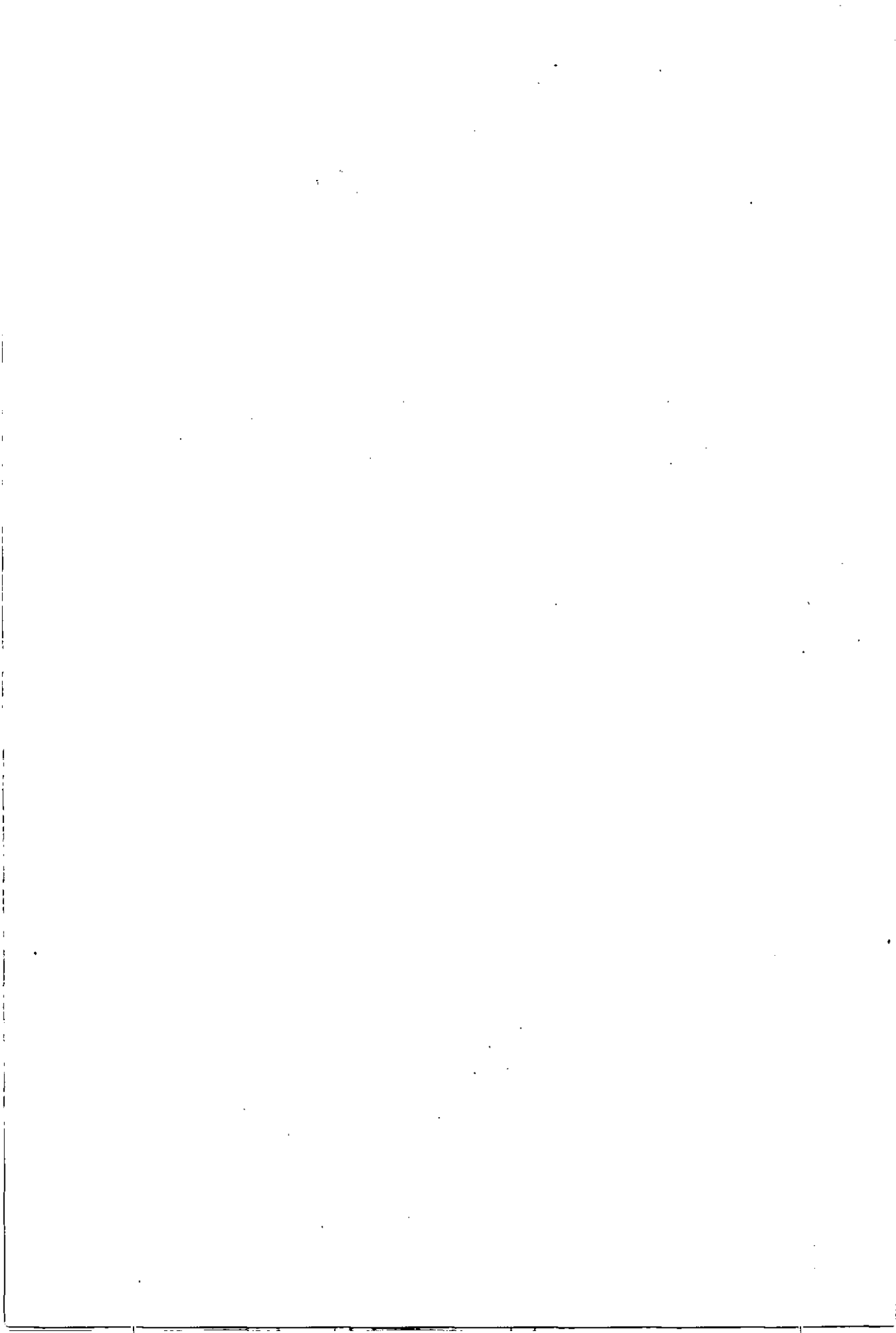
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Northwest Atlantic  
Fisheries Organization  
(NAFO)



Annual Report  
1999

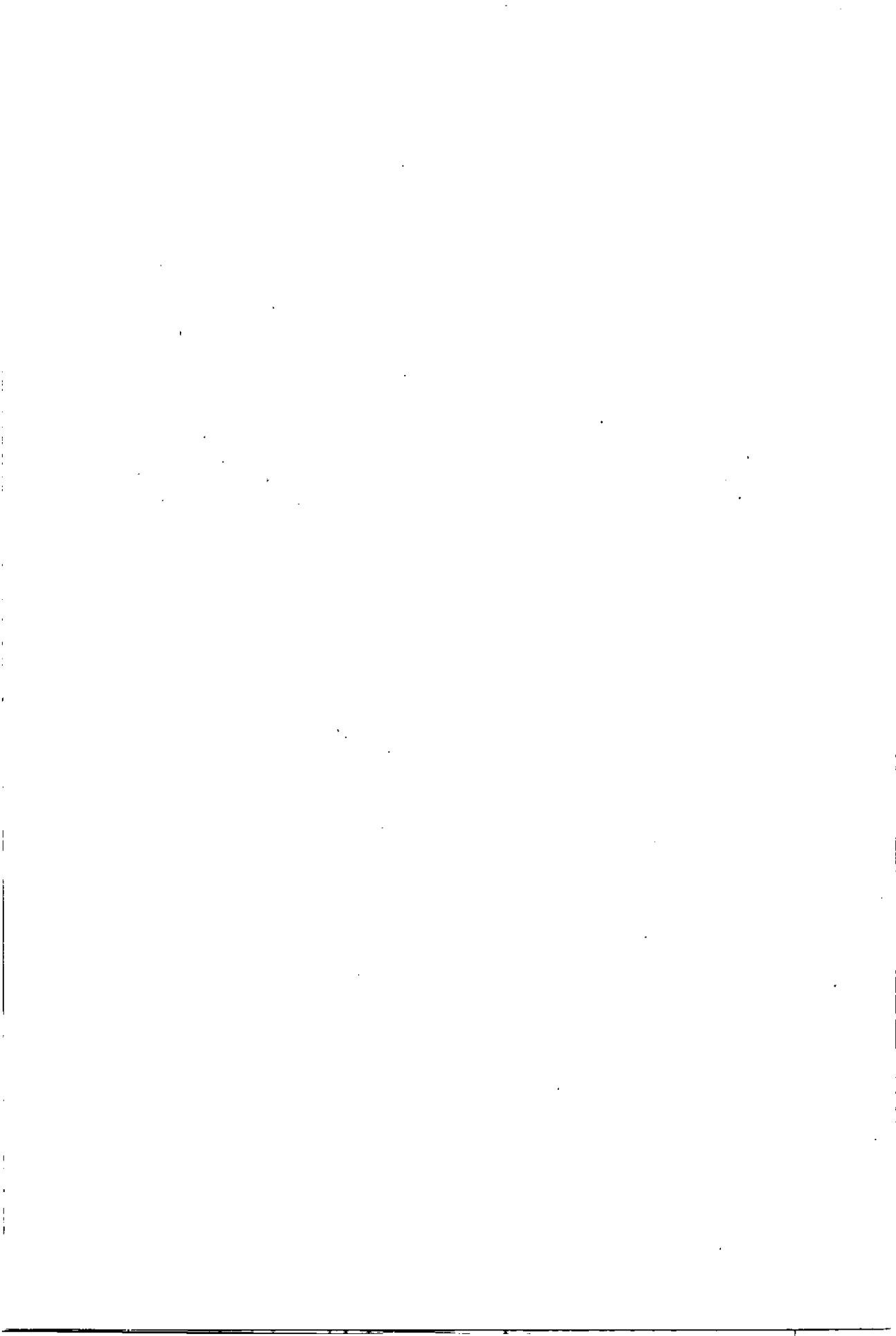
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## **Preface**

This Annual Report for the year 1999 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 1999. 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 1999", and the proceedings of the Scientific Council are published in the "Scientific Council Reports, 1999". 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

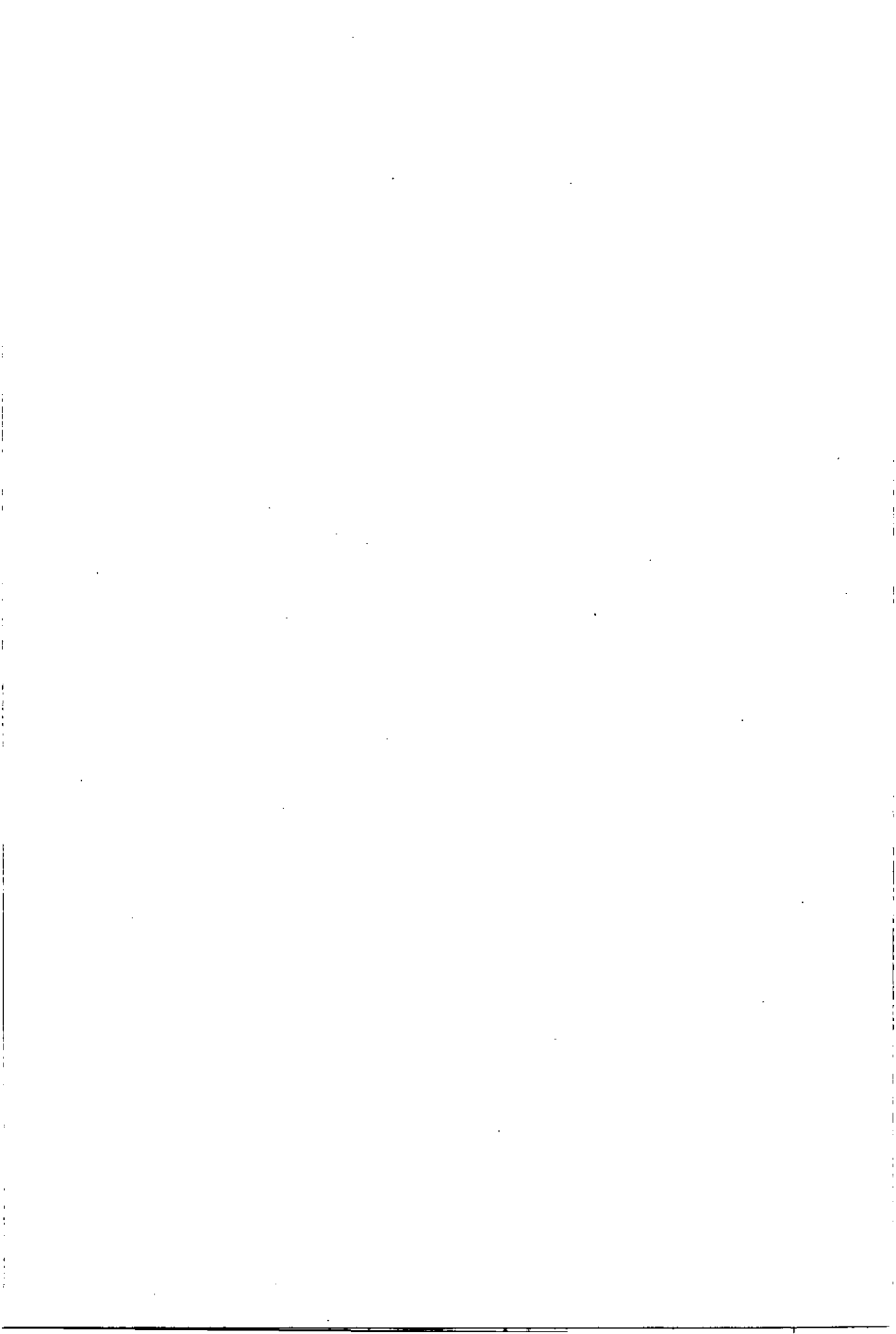


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## Introduction

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 1999: (1) Working Group on Dispute Settlement Procedures (DSP) (Bergen, Norway, February); (2) Working Group on Transparency of NAFO Proceedings (Dartmouth, Canada, March); (3) Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties (Halifax, Canada, April); (4) Scientific Council Meeting (San Sebastian, Spain, Apr-May) (5) Joint Fisheries Commission/Scientific Council Working Group on Precautionary Approach (San Sebastian, Spain, May); (6) Regular Scientific Council Meeting (Dartmouth, Canada, June); (7) Scientific Council Symposium on "Pandalid Shrimp Fisheries - Science and Management at the Millennium" (Dartmouth, Canada, September); (8) 21st Annual Meeting of the Organization including meetings of all constituent bodies in September, Holiday Inn, Dartmouth, Canada; (9) Scientific Council Meeting (Reykjavik, Iceland, 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 2000. 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 the Scientific Council recommended a higher utilization level and increased TACs.

The Scientific Council continued its progress in developing a precautionary approach (PA) to the management of NAFO stocks and recommended PA to several model stocks - Cod in Div. 3NO; Yellowtail flounder in Div. 3LNO and Shrimp in Div. 3M.

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 agreed for moratoria in 2000: 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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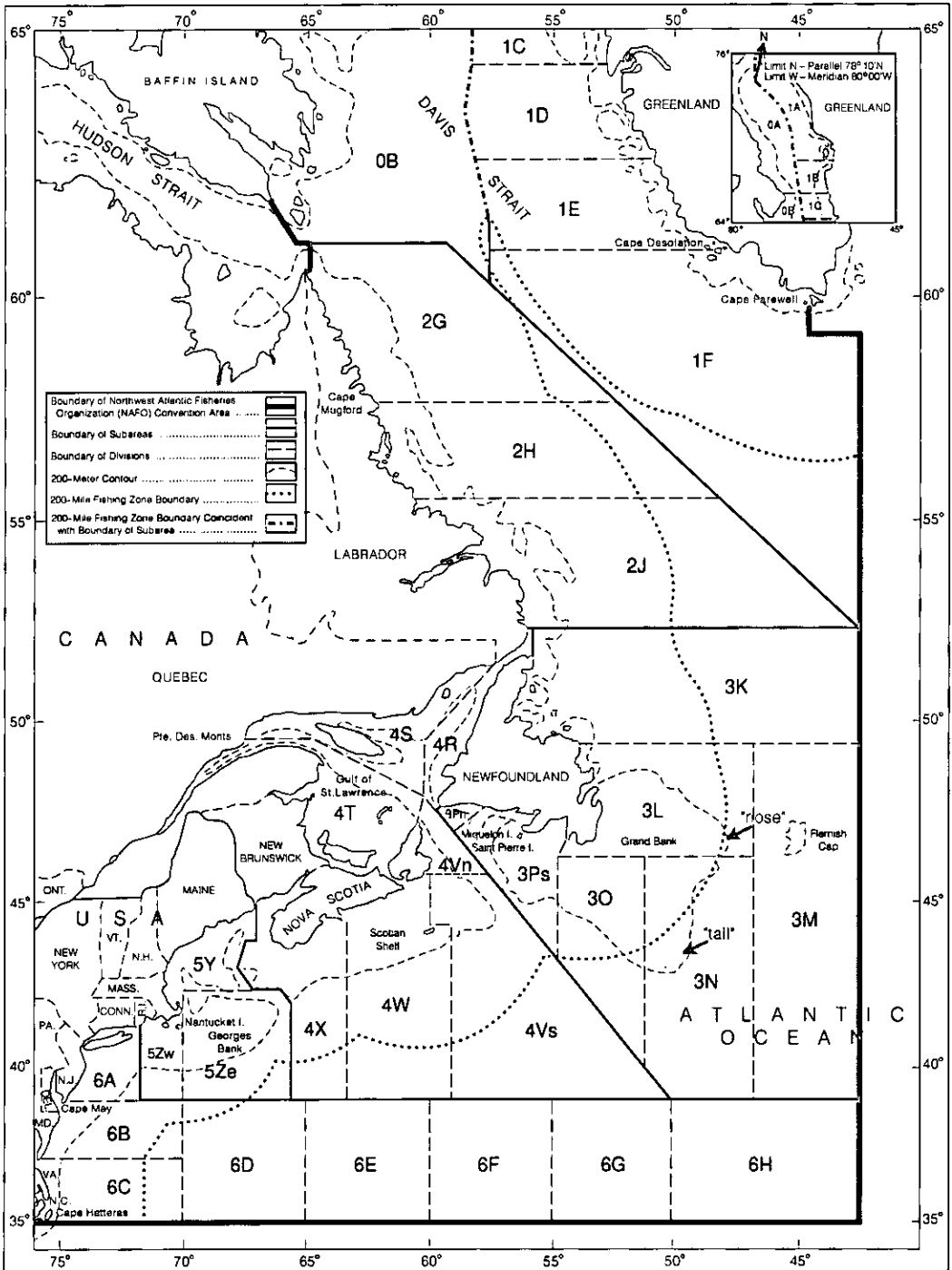
\*Note: The predecessor of NAFO was ICNAF through the years 1950-1978 based on the International Convention for the Northwest Atlantic Fisheries.

New conservation and enforcement measures were agreed: incidental catch limits include basic requirements that vessels shall not conduct direct fisheries for species for which incidental catch limits apply; effort allocation scheme in the shrimp fishery with the fishing days at 90% of maximum number of those observed by Contracting Parties for their vessels in one of the years during 1993-1995; a new shrimp fishery in Division 3L (with a TAC of 6,000 mt for 2000 and 2001); regulatory measures for chartering vessels between Contracting Parties (one vessel per year to any Contracting Party interested).

On the subject of the precautionary approach, the Fisheries Commission adopted a Resolution to Guide Implementation of the Precautionary Approach within NAFO. It was decided to continue the discussions for implementing a precautionary approach and for this purpose to convene a joint meeting of Fisheries Commission and Scientific Council in 2000.

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 1999, namely Belize, Honduras, São Tomé e Príncipe 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 1999 (as at 21st Annual Meeting, September 1999)

### 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, Ukraine 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, Ukraine and USA.	<i>Chairman</i> – A. Rodin (Russia) <i>Vice-Chairman</i> – R. Dominguez (Cuba) (Sept 1997-08 June 99, vacant 08 Jun-13 Sept)
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, Ukraine 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, Russia, Ukraine 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> – D. Silvestre (France in respect of St. Pierre et Miquelon)
Scientific Council	Standing Committee on Fishery Science (STACFIS) Standing Committee on Research and Coordination (STACREC) Standing Committee on Publications (STACPUB) 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
Accounting Officer	S. M. Goodick
Desktop Publishing/Documents Clerk	F. E. Perry
Statistical Officer/Conservation Measures Officer	G. M. Moulton
Graphic Arts/Printing Technician	R. A. Myers
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Word Processing Secretary	D.C.A. Auby
Statistical Clerk	B. L. Marshall
Statistical Clerk	C. L. Kerr

#### Headquarters Location

2 Morris Drive, Dartmouth, Nova Scotia, Canada

**PART I**  
(pages 15 to 66)

**Activities of the General Council in 1999**

**List of Meetings**

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

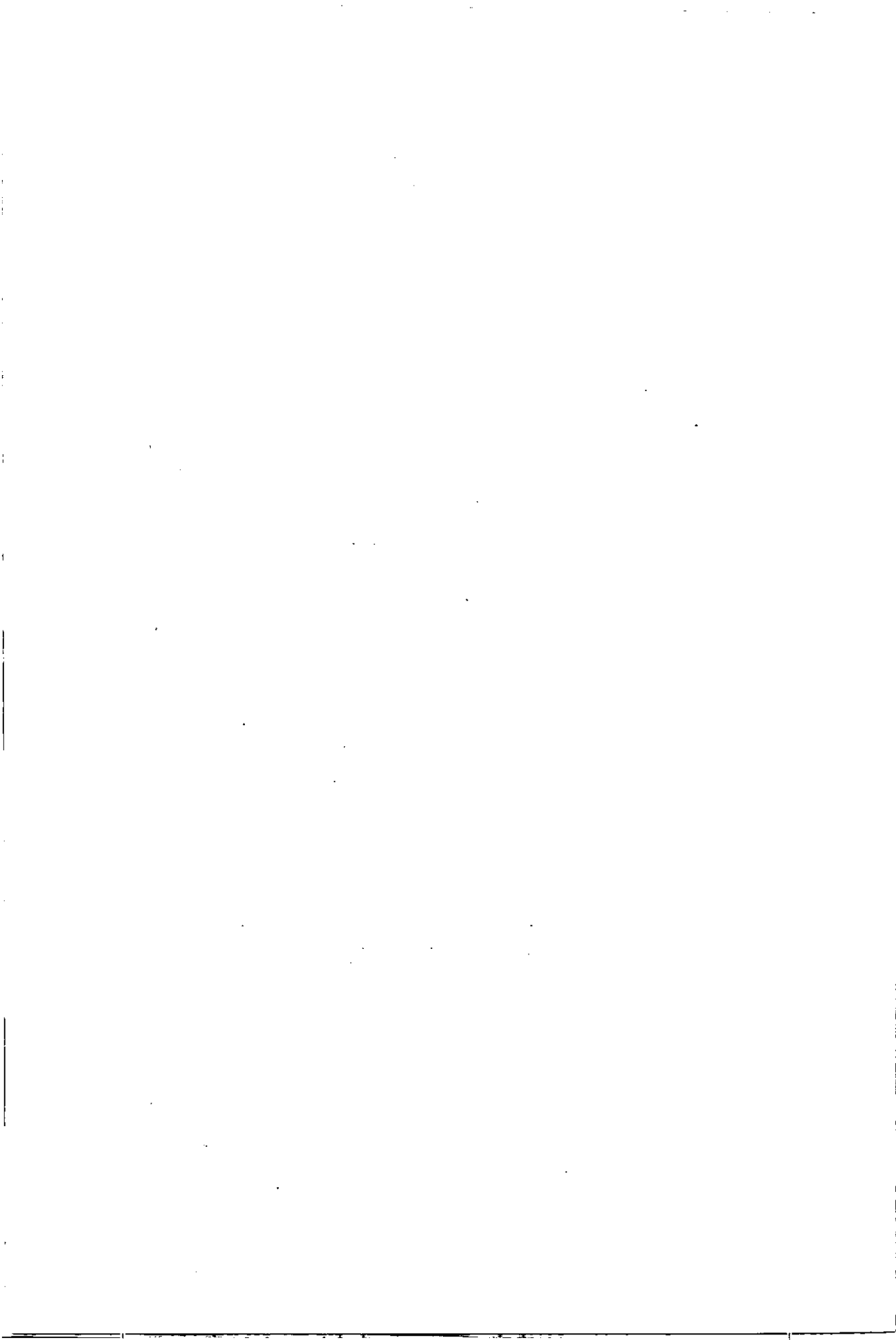
- Working Group on Dispute Settlement Procedures (DSP); Norwegian Directorate of Fisheries, Bergen, Norway, 3-5 February.
- Working Group on Transparency of NAFO Proceedings; NAFO Headquarters, Dartmouth, N.S., Canada, 2-4 March.
- Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties; Hotel Halifax, Halifax, N.S., Canada, 13-15 April.
- The General Council and its subsidiary bodies (STACFAD and STACFAC); 21st Annual Meeting, Holiday Inn, Dartmouth, N. S., Canada, 13-17 September.





### Major Documents of the General Council in 1999

<u>Serial No.</u>	<u>GC Doc. No.</u>	<u>Title</u>
N4041	99/1	Report - 1998 – On the Scheme to Promote Compliance by Non-Contracting Party Vessels with the Conservation and Enforcement Measures
N4135	99/2	Report of the Working Group on Dispute Settlement Procedures (DSP), 3-5 February 1999, Bergen, Norway
N4136	99/3	Report of the Working Group on Transparency, 2-4 March 1999, NAFO Headquarters, Dartmouth, N.S., Canada
N4137	99/4	Report of the Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties, 13-15 April 1999, Halifax, N.S., Canada
N4138	99/5	Administrative Report and Financial Statements for the fiscal year ending 31 December 1999 (as of 31 July 1999)
N4185	99/6	The FAO International Plans of Action on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries and NAFO
N4199	99/7	Compilation of information/papers from Contracting Parties on Non-Contracting Party activities, communications, etc. during 1998-1999
N4200	99/8	Resolution to Guide the Expectations of Future New Members with Regard to Fishing Opportunities in the NAFO Regulatory Area
N4201	99/9 (+Corr)	Report of the General Council, 21st Annual Meeting, 13-17 September 1999, Dartmouth, N.S., Canada
N4206	99/10	Rules for Granting Observer Status at NAFO Meetings (adopted at the 21st Annual Meeting, September 1999)



## **Working Group on Dispute Settlement Procedures (DSP)**

### **3-5 February 1999, Bergen, Norway**

The Working Group was organized in accordance with the joint decision by the General Council and Fisheries Commission at the 20<sup>th</sup> Annual Meeting, 14-18 September 1998 (item 4.5 of the General Council Report, GC Doc. 98/7). Complete proceedings of the meeting are presented in GC Doc. 99/2 and in the NAFO Meeting Proceedings (General Council and Fisheries Commission), 1999.

#### **Opening Procedures**

The Chairman of the Meeting was Mr. Stein Owe (Norway). The following Contracting Parties were present: Canada, Denmark (in respect of the Faroe Islands and Greenland), Estonia, European Union, Iceland, Japan, Latvia, Lithuania, Norway, and the United States of America (Annex 1).

Mr. A. Thomson (EU) was appointed Rapporteur.

The agenda was adopted as attached (Annex 2).

#### **Review of the Chairman's revised paper on a NAFO dispute settlement mechanism and examination of any other possible elements in a NAFO dispute settlement mechanism**

The Chairman referred to the changes made to his original paper and reminded delegates of the background to this exercise in establishing a specific NAFO dispute settlement procedure. Just to follow the procedures set out in the UN Convention on the Law of the Sea (UNCLOS) and the 1995 UN Agreement would potentially involve a much slower resolution of disputes between NAFO Parties. This could give rise to damage to NAFO stocks. Furthermore, the provisions set out in the 1995 UN Agreement would not apply to discrete stocks.

As far as the format of a Dispute Settlement Procedure is concerned, the Chairman stressed that it was too early at this stage to know whether a separate protocol or an amendment to the NAFO Convention would be more appropriate. It was even suggested by one Party that a General Council resolution would be the most effective means of introducing DSP and allow for a rapid entry into force of such a scheme.

There were other working papers presented by delegations of Canada, Denmark, EU and Latvia.

The delegates discussed a broad range of issues and a wide variety of views were expressed. Many delegations felt that it was important that the Party making an objection be required to explain the reasoning behind that objection. Having such information would be useful in allowing the Parties to better assess a particular situation and might even prevent dispute in the first place. One delegation questioned whether post-objection behavior should form part of the substance of the DSP as this would risk moving the focus away from the substantive to the formal.

Some delegates took the view that the UN Agreement already provided for a broad dispute settlement mechanism and no further mechanism was needed, and some Parties, however, felt that it was necessary to have specific NAFO procedures because not all Contracting Parties have ratified UNCLOS or the UN Agreement. One delegation addressed the fundamental issue of the need for speedy reaction in the case of dispute and allowed to draw upon NAFO expertise. The ad hoc panel would be obliged to report and if possible, to make recommendations. Any dispute not resolved by the ad hoc panel would pass to the general procedures.

Discussion focused on the number of panelists in an ad hoc panel and touched upon who should be allowed to be present during the proceedings. Views were expressed that the different interests represented in a dispute should be reflected and that it was essential for transparency that other NAFO Contracting Parties should have the opportunity to be present. It was also stated that the panel itself should retain a degree of independence from the Parties to the dispute and that the options open to it should not be limited in any way. Delegates also had a brief discussion on the rules to be established by the General Council in respect of fees and expenses.

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

Following the extensive discussion which took place at this meeting, the Working Group agreed that it would be necessary to digest the information, which had been produced, so that further guidance can be given to the Chairman. No further paper will be produced by the Chairman at this stage. This report of the Working Group, which reflects the current state of the discussions, will be forwarded to the General Council. It was pointed out that the General Council should consider the questions at issue and give guidance to the Working Group.

It was recommended that the Working Group should be authorized to continue its work. The Working Group considered that it might be appropriate to meet again inter-sessionally during the spring of 2000, and possibly also in conjunction with the Annual Meeting in September 1999.

## Annex 1. List of Participants

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**NAFO SECRETARIAT**

B. J. 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 the Chairman's revised paper on a NAFO dispute settlement mechanism and examination of any other possible elements in a NAFO dispute settlement procedure
5. Report to the General Council
6. Other matters
7. Adjournment



**Working Group on Transparency**  
**2-4 March 1999, Dartmouth, N.S., Canada**

The Working Group on Transparency was convened in accordance with the decision taken by the General Council at the 20th Annual Meeting, September 1998 (GC Doc. 98/7, Part I, item 2.2). The complete proceedings of the meeting are presented in GC Doc. 99/3 and in the NAFO Meeting Proceedings (General Council and Fisheries Commission), 1999.

**Opening Procedures**

The Chairman of the Meeting was D. Swanson (USA). Representatives from the following Contracting Parties were present: Canada, Denmark (in respect of the Faroe Islands and Greenland), Estonia, European Union, Iceland, Norway, Russia and the United States (Annex 1).

Mr. Andrew Thomson (EU) was appointed Rapporteur.

The agenda was adopted as attached (Annex 2).

**Review by the Chairman of work in NAFO on the subject of  
Observers and the Terms of Reference**

The Chairman summarized the history of the issue of transparency within the NAFO, and noted the recent progress made in the context of other regional fisheries organizations on the issue of transparency, in particular in ICCAT, NEAFC, the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Central and Western Pacific and the South East Atlantic Fisheries Organization (SEAFO).

**Papers by Delegates for Discussion and  
Consideration of Requirements and Rules for Participation  
of Observers at NAFO Meetings**

The Chairman drew attention to the Guidelines and Criteria adopted by ICCAT at its Annual Meeting in November 1998. This paper represented the work of ICCAT carried out over a number of years. No other new papers had been circulated in advance of this Meeting. However, delegates agreed that the initial basis of the discussion at this session of the Working Group should be the Chairman's draft, which came out of the 1998 session. It was agreed to examine the points set out in this paper with a view to reaching further agreement. In so doing, it was possible to establish where any remaining difficulties lay between the Parties. This draft highlighted a number of areas where it would be necessary to establish criteria for NGO observer consideration. In particular, it examined the eligibility of an organization, the details required in its application, the selection procedure, the participation of the NGO and how the costs should be borne by the NGO.

The Delegations of Denmark, EU and USA drew the attention of participants to their working papers on this issue.

During the whole discussions, the main difficulties outstanding were possible NGO participation in NAFO subsidiary bodies and Working Groups, and the question of decision making. There was a divergence of opinion on whether NGOs should have access at least during the trial period to bodies other than the constituent bodies, which are the General Council, the Fisheries Commission and the Scientific Council. Opinions also varied as to whether existing NAFO rules on majority voting should apply when deciding to admit an NGO as an observer, or whether some kind of qualified voting system or consensus should be more appropriate.

Finally, draft Rules of Procedure were worked out and annexed to the Report of the Working Group.

#### **Report and Recommendations to the General Council**

The Working Group recommended that both the General Council and the Fisheries Commission adopt new rules for granting observer status to NGOs at NAFO meetings as set out in the annex to the Report. This would entail amendments to the existing Rules of Procedure. The Group recognized that there were several issues which it was unable to resolve and that consideration of these by the General Council and the Fisheries Commission, possibly involving this Working Group at the Annual Meeting, might be useful and should be decided by the General Council intersessionally. The Working Group further recommended that the Scientific Council be called upon to review its Rules of Procedure and adopt, as appropriate, rules in line with the noted annex to the report.

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**Adviser**

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**Adviser**

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B. Cruikshank, Senior Secretary

**Annex 2. Agenda**

1. Opening by Chairman, D. Swanson (USA)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Review by the Chairman of work in NAFO on the subject of observers and the terms of reference
5. Presentation of any papers by Delegates for discussion
6. Continuation of consideration of requirements and rules for participation of observers at NAFO meetings
7. Report and recommendations to the General Council
8. Other matters
9. Adjournment



**Working Group on Allocation of Fishing Rights to Contracting Parties  
of NAFO and Chartering of Vessels Between Contracting Parties  
13-15 April 1999, Halifax, N.S., Canada**

The Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties was convened in accordance with the decision taken by the General Council at the 20th Annual Meeting, September 1998 (GC Doc. 98/7, Part I, item 4.6). Complete proceedings of the meeting are presented in GC Doc. 99/4 and in the NAFO Meeting Proceedings (General Council and Fisheries Commission), 1999.

**Opening Procedures**

The Chairman of the Meeting was Mr. H. Koster (EU). Representatives from the following Contracting Parties were present: Canada, Cuba, Denmark (in respect of the Faroe Islands and Greenland), Estonia, EU, France (in respect of St. Pierre et Miquelon), Iceland, Japan, Latvia, Lithuania, Norway, Poland, Russia, and USA (Annex 1).

Mr. R. Steinbock (Canada) was elected Rapporteur.

The agenda was adopted as attached (Annex 2).

**Exploration of the meaning of the term "real interest"  
in relation to future new members**

The Chairman noted that the term "real interest" in relation to new members was discussed in broad terms at the March 1998 Working Group meeting. While the term appears in 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 (UNFA), the term has not been defined in any international instrument.

There were considerations that the meaning of "real interest" was a state's truthful intention to fish and the capacity to actually fish, and with the clear and appropriate record of fishing in the NAFO Regulatory Area, and that the term of "real interest" in UNFA was related solely to the right of states to become members of regional fisheries organizations (RFMSs) but not in the context of allocation of fishing rights. After extensive discussions on this issue, the meeting agreed that a common understanding could not be found but that this was not necessary to consider a strategy to guide the expectations of future new members.

**Consideration of a broad strategy to guide expectations of future new  
members with regard to fishing opportunities in the NAFO Regulatory Area**

The Chairman noted that the NAFO Convention is open for accession by any state wishing to become a member (Article XXII.4).

After extensive discussions and at the request of the Chair, the Representative of the USA submitted a Working Paper entitled "Draft General Council Resolution to Guide the Expectations of Future New Members with Regard to Fishing Opportunities in the NAFO Regulatory Area". This resolution was aimed at providing an objective statement of facts - that NAFO is an open organization under the NAFO Convention Article XXII.4, that all Contracting Parties are members of the General Council, and that should new NAFO members obtain membership in the Fisheries Commission, they should be aware that presently, and for the foreseeable future, fishing

opportunities are likely to be limited to new fisheries and the "Others" category of the NAFO quota allocation table. All Contracting Parties agreed in principle with the proposed draft however the Representative of the EU withheld its support and requested the opportunity to consult further internally on some technical issues. The Chair proposed that the proposed resolution would be presented to the General Council in September 1999.

**Development of a broad strategy of allocating future fishing opportunities for stocks not currently allocated; and  
Exploration of possible margins to accommodate requests for fishing opportunities in connection with the stocks under TACs**

The meeting considered possible criteria for allocating future fishing opportunities of stocks not currently allocated by NAFO as well as possible margins for allocation in regard to stocks currently under TAC/effort limits. Contracting Parties advanced proposals for initial eligibility to fishing rights and then various criteria that should be considered in the allocation of future fishing opportunities of stocks not currently allocated. After extensive discussions, the Chairman submitted a Working Paper entitled "Interpretative notes by the Chair attempting to clarify discussions on Agenda points 6 and 7" - which aimed to provide an inclusive "shopping list" of criteria for Contracting Parties to qualify for fishing rights and secondly considerations for the allocation of fishing rights, as well as an agreed list of the NAFO-managed stocks indicating, respectively, whether they have been allocated and whether they are currently subject to a moratorium. The Chairman emphasized that the criteria presented were without any evaluation - they carried no qualification as to weighting or importance. A number of ideas were also advanced for possible further consideration with respect to possible margins for allocation in regard to stocks currently under TAC. These included reallocation of unused and underutilized quotas, reallocation of quotas when the abundance of stocks exceeds a reference level to be identified, the possibility for wider sharing among Contracting Parties, allocation of the "Others" quota and the allocation of the Block quotas.

**Consideration of the chartering of fishing vessels which are flying the flag of the chartering Contracting Party during the charter period; and,  
Development of rules for chartering of fishing vessels flying the flag of a Contracting Party, which are duly authorized to exploit fishing rights of the chartering NAFO Contracting Party, in the following terms:**

- notification and approval procedures
- criteria
- recording and reporting rules
- effective control

The meeting agreed that flag-state or "bare-boat" charters were not of concern and could continue to take place by Contracting Parties. The meeting agreed that Contracting Parties should report such charters to NAFO for purposes of transparency.

The Delegates discussed basic principles of the future chartering policy e.g. - chartering operation subject to an agreement between interested parties; limit of vessels; approval of the charters by mail; accountability and control of vessels and reporting requirements.

Contracting Parties expressed reservations to the idea of what would be recurring charter operation year to year. Most Contracting Parties concurred that if charters were permitted, they should be under very limited conditions with a stipulation for a bilateral agreement between the Contracting Parties involved to address the enforcement and reporting responsibilities and other conditions.



The Chairman summarized the discussions that the meeting did not oppose a pragmatic solution in principle if it were based on the premise that charters would be limited to extraordinary circumstances and in time to no more than two and possibly three years and that a bilateral agreement between the Contracting Parties would address the enforcement responsibilities between the parties involved. The Working Group recommended that its working paper recommendations be referred to STACTIC to review the enforcement and reporting responsibilities that need to be reflected in such a bilateral agreement.

The Working Group drafted a General Council Resolution to Guide the Expectations of Future New Members with Regard to Fishing Opportunities in the Regulatory Area and Resolution concerning the chartering of vessels between NAFO Contracting Parties. These papers were referred to the 21st Annual Meeting, September 1999.

## Annex 1. List of Participants

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## Annex 2. Agenda

1. Opening by the Chairman, H. Koster (EU)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Exploration of the meaning of the term "real interests" in relation to future new members
5. Consideration of a broad strategy to guide expectations of future new members with regard to fishing opportunities in the NAFO Regulatory Area
6. Development of a broad strategy of allocation future fishing opportunities for stocks not currently allocated
7. Exploration of possible margins to accommodate requests for fishing opportunities in connection with the stocks under TACs
8. Consideration of the chartering of fishing vessels which are flying the flag of the chartering Contracting Party during the charter period
9. Consideration and development of rules for chartering of fishing vessels flying the flag of a Contracting Party, which are duly authorized to exploit fishing rights of the chartering NAFO Contracting Party, in the following terms:
  - notification and approval procedures
  - criteria
  - recording and reporting rules
  - effective control
10. Other Business
11. Adjournment

**General Council Annual Meeting**  
**13-17 September 1999, Dartmouth, N.S., Canada**

The 21st Annual Meeting of the General Council was convened at the Holiday Inn, Dartmouth. Complete proceedings of this Meeting are presented in GC Doc. 99/9 and in NAFO Meeting Proceedings (General Council and Fisheries Commission), 1999.

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

The meeting was opened by the Chairman of the General Council, A. V. Rodin (Russia) at 1500 on 13 September 1999.

Representatives from the following sixteen (16) 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, Ukraine and the United States of America (USA) (Annex 1).

Observers were admitted from ICES, Dr. H.-P. Cornus (EU-Germany) and from NAMMCO, Mr. K. Arnason (Iceland).

The Executive Secretary was appointed Rapporteur.

The Agenda was adopted without changes (Annex 2).

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

There were 18 NAFO members including a new member, Ukraine. Ukraine had acceded to the NAFO Convention on 30 August 1999. The Fisheries Commission membership was fifteen members excluding Bulgaria, Romania and Ukraine.

The Representative of Ukraine presented its statement that Ukraine had traditionally exploited the fishery resources of the Northwest Atlantic in the past and has a real interest to participate in this area. He requested the General Council to admit Ukraine to the Fisheries Commission membership.

Regarding the membership by Bulgaria and Romania, the situation had not changed, and these Parties have not been in contact with NAFO for many years.

Under item 7, "Transparency", the Chairman of the Working Group on Transparency, Dr. D. Swanson (USA), presented the Working Group report to the General Council. The Representative of Canada introduced its proposal with a view to bridging the differences between Contracting Parties.

At the plenary session, the Chairman introduced a proposal based on the previous Canadian working paper as modified by Denmark and the Chairman.

The proposal "Recommendation for Rules for Granting Observer Status at NAFO Meetings" was unanimously adopted by the General Council (Annex 3).

Under the item "Election of the Chairman and Vice-Chairman of the General Council", Mr. Enrique Oltuski of Cuba, nominated by Canada, was elected the Chairman of the General Council,

and Mr. P. Chamut of Canada, nominated by Denmark, was elected Vice-Chairman of the General Council.

### Coordination of External Relations (items 10 to 11)

Under item 10, "Communication with the United Nations", the Chairman informed that the Executive Secretary communicated all required information to the United Nations Headquarters and FAO according to the instructions from the General Council (NAFO GF/99-188 of 05 March 1999, GF/99-389 of 15 June 1999, GF/99-316 of 06 May 1999). There were no comments from the Meeting to these documents.

Under item 11 of the Agenda, "NAFO participation at other international organizations", the Chairman noted that the General Council delegated Dr. D. Swanson (USA) to take part in the FAO Consultation on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries, Rome, Italy, 26-30 October 1998. The NAFO observer presented his report to the General Council.

The NAFO observers, P. Gullestad (Norway), Chairman of the Fisheries Commission, and H.-P. Cornus (EU-Germany), Chairman of the Scientific Council, attended the Meeting of FAO and Regional Fishery Bodies held in Rome during 11-12 February 1999. The FAO Report was issued in May 1999 (FAO Fisheries Report No. 597, FIPL/R597), and a summary was presented to the Meeting.

H. P. Cornus, the Scientific Council Chairman, took part in the ICES Dialogue meeting on the Relationship between Scientific Advice and Fishery Managers, 26-27 January 1999 in Nantes, France. (GF/99-195, 10 March 1999).

The Assistant Executive Secretary, T. Amaratunga, took part in the Coordinating Working Party on Fishery Statistics (CWP) meeting and presented its report to the Scientific Council.

The Representative of USA introduced the issue of the Management of Fishing Capacity and Shark Fisheries, according to the FAO work. His idea was that Contracting Parties stimulate their discussions regarding a Regional Action Plan(s) on the management of fishing capacity. The Chairman supported this idea and asked the meeting and USA delegate to provide a concrete proposal/paper to develop more concrete discussions.

The Chairman summarized the discussions that all Contracting Parties should participate in preparing their action plans and other relevant submissions. He asked the USA Representative to table a working document for future discussion.

The Representative of the United States introduced its Working Paper, "The FAO International Plans of Action on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries and NAFO". He explained that the intent of this paper was to keep NAFO informed and cooperative on FAO International Plans of Action on the management of fishing capacity, which should include both the national and regional plans.

The Chairman ruled that this working paper would be considered by all Contracting Parties during the coming year and then reviewed during 22nd Annual Meeting in Boston in the year 2000.



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

The Chairman of STACFAC, Dr. J.-P. Plé (USA) reported that the Committee agenda would be routinely considered during this Annual Meeting. However, STACFAC was concerned with a new situation developing recently regarding "stateless" vessels, which would require new approach and discussion on this matter.

He further noted the following findings and recommendations:

- There were sightings of only two (2) vessels, the "Austral" and "High Sierra" in the NAFO Regulatory Area in 1999 (four vessels were sighted in 1998).
- A new development was noted regarding relocation of the NCP vessels from the NAFO Regulatory Area to the NEAFC Regulatory Area and these vessels often re-register between such countries as Belize, Honduras and Sao Tomé e Príncipe.
- During 1998-1999, NAFO diplomatic demarches were delivered to Honduras and Panama (by Canada), to Belize (by USA) and to Sierra Leone (jointly by Canada and USA). In addition, Canada reported the delivery of a Canadian demarche to Sao Tomé e Príncipe. The results of these actions and communication with NCP authorities are presented in STACFAC Report.

The General Council adopted the following measures and actions:

- The NAFO Secretariat should exchange all NCP related information with the Secretariats of ICCAT, NASCO, NEAFC, IBSFC and CCAMLR.
- The Contracting Parties submit a report at the next Annual Meeting on what legal, administrative and practical action they have taken to implement the Scheme (to promote compliance with NAFO measures...);
- the Contracting Parties submit annual reports under the Scheme, including negative reports if appropriate;
- New diplomatic demarches to Belize, Honduras, Sao Tomé e Príncipe and Sierra Leone.
- where there are reasonable grounds for suspecting that a vessel which has been sighted engaging in fishing activities in the NAFO Regulatory Area is without nationality, a NAFO Contracting Party may board and inspect the vessel. Where evidence so warrants, the NAFO Contracting Party may take such action as may be appropriate in accordance with international law. Contracting Parties are encouraged to examine the appropriateness of domestic measures to exercise jurisdiction over such vessels; and

Some representatives especially pointed out their support of FAO progress on "Illegal, Unreported, Unregulated Fishing (IUU)" in light of activities of fishing vessels of non-Contracting Parties. The Representative of Norway called to extend the STACFAC mandate and activity to tackle the IUU problems in the NAFO Regulatory Area.

Item "Report of the Working Group on Dispute Settlement Procedures" was presented to the Meeting by the Chair of Working Group, Stein Owe (Norway).

As the result of ensuing discussions, the Meeting asked the Chairman of the Working Group on DSP, Stein Owe, to present his draft of new Terms of Reference to the Working Group, which should meet sometime in 2000. The Terms of Reference were presented to the Meeting and adopted by the General Council. It was further decided that the Working Group should meet in Copenhagen, Denmark, during 29-31 May 2000.

Item "Report of the Working Group on Allocation of Fishing Rights and Chartering of Vessels" was presented by the Chairman of the Working Group, H. Koster (EU).

The Chairman of the General Council summarized all discussions and proposed to continue deliberations in the framework of the Working Group supplemented by the Heads of Delegations consultations. He ruled that the Working Paper on the chartering of vessels should be referred to the Fisheries Commission and then to STACTIC.

The "Draft Resolution to Guide the Expectations of Future New Members with Regard to Fishing Opportunities in the NAFO Regulatory Area" was adopted by consensus.

At the closing session on 17 September 1999, the Meeting agreed to call a meeting of the Working Group on Allocation of Fishing Rights in Washington, D.C., 27-30 March 2000.

#### Finance (items 16-17)

The Chairman of STACFAD, F. Kingston (EU), delivered its report to the General Council and recommended the following:

- The Auditor's Report 1998 was circulated to Heads of Delegations on 25 March 1999, and STACFAD recommended the Report for adoption;
- The NAFO Secretariat was represented at the Pension Society Meeting (the International Fisheries Commissions Pension Society, IFCPS, of North America) by two staff members and its report was considered by STACFAD. A new contract with Eckler Partners Ltd. for actuarial and administrative services has substantially diminished NAFO's payment from \$6,800 Cdn to approximately \$1,700 Cdn annually.
- The basic budgetary items of the NAFO Secretariat were agreed as follows:
  - the budget for 2000 to be adopted in the amount of \$1,157,000 Cdn;
  - the Accumulated Surplus Account be maintained at a level not less than \$75,000 Cdn in order to fulfill NAFO's financial obligations in early 2000 until contributions are received;
  - the outstanding contributions from Bulgaria and Romania deemed uncollectible be applied against the Accumulated Surplus Account and written-off;
  - \$35,000 Cdn be allocated as a contingency to cover possible recommendations of the Fisheries Commission on an automated hail/satellite tracking report system at the NAFO Secretariat.
- The Committee recommended that Contracting Parties continue attempts to contact Bulgaria and Romania in order to ascertain whether they intend to participate in NAFO and to inform them of their outstanding contributions. The Committee further recommended that Contracting Parties exchange information about such contacts through the NAFO Secretariat. The Chairman of STACFAD pointed out that the Committee discussed briefly international practice regarding "expulsion" rules and concluded that the current NAFO provisions are consistent with the international practice and expulsion rules would not be in line with the

current international practice, and, therefore, would not be applicable to Bulgaria and Romania.

- The Committee noted that fishery statistics (STATLANT 21A and 21B) were outstanding from a number of Contracting Parties and recommended that General Council urge Contracting Parties to submit their reports to the NAFO Secretariat on time to ensure the ongoing integrity of the NAFO statistical database and provide valuable information to the NAFO Scientific Council.
- The dates of next Annual Meetings were recommended as follows:
 

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
2002	-	Scientific Council	-	11-20 September
	-	General Council	-	16-20 September
	-	Fisheries Commission	-	16-20 September

The site of the Annual Meeting 2000 will be in Boston, Massachusetts, USA.

The site of the Annual Meeting 2001 will be in Havana, Cuba.

The General Council reviewed the STACFAD Report item by item and adopted all recommendations.

#### **Closing Procedures (items 18-21).**

Item 18 "Time and Place of the Next Annual Meeting" was reported by STACFAD (above) and agreed by the General Council to convene the 22nd Annual Meeting of NAFO in Boston, Massachusetts, USA.

The draft Press Release (Annex 4) was prepared by the Executive Secretary and circulated to Heads of Delegations for their final review and comments.

The list of actions and decisions by the General Council at the 21st Annual Meeting is attached in Annex 5.

## Annex 1. List of Participants

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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. Transparency in the NAFO decision-making process (participation of inter-governmental and non-governmental organizations)
8. Administrative Report
9. Election of Chairman and Vice-Chairman

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

10. Communication with the United Nations (Resolutions 52/28 - 26 Nov 97)
11. NAFO Participation at other International Organizations
  - a) FAO Consultation on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries, 1999
  - b) Meeting FAO and Regional Fisheries Bodies, 1999
  - c) ICES Dialogue Meeting, 1999
  - d) NAMMCO Annual Meeting, 1999
  - e) CWP-FAO Meeting, 1999

### **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 2000

**VI. Closing Procedure**

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

### Annex 3. Recommendation for Rules for Granting Observer Status at NAFO Meetings

Delete Rule 1.2 of the Rules of Procedure for both the General Council and the Fisheries Commission. Add Rule 9 and 10 respectively as follows:

#### Observers

(General Council)

#### Rule 9

- 9.1 The Executive Secretary shall invite:
- Intergovernmental organizations that have regular contacts with NAFO as regards fisheries matters or whose work is of interest to NAFO or vice-versa.
  - Non-Contracting Parties identified as harvesting fishery resources in the Regulatory Area.
- 9.2 All non-governmental organizations (NGOs) that support the general objectives of NAFO and with a demonstrated interest in the species under the purview of NAFO should be eligible to participate as an observer in all plenary meetings of the General Council, except meetings held in executive session or meetings of Heads of Delegations.
- 9.3 Any NGO desiring to participate as an observer in a meeting of the General Council shall notify the Secretariat of its desire to participate at least 100 days in advance of the meeting. This application must include:
- Name, address, telephone, fax number of the organization and the person(s) proposed to represent the organization;
  - Address of all its national/regional offices;
  - Aims and purposes of the organization and a statement that the NGO generally supports the objectives of NAFO, i.e., optimum utilization, rational management and conservation of the fishery resources of the NAFO Convention Area;
  - Information on the organization's total number of members, its decision-making process and its funding;
  - A brief history of the organization and a description of its activities;
  - Representative papers or other similar resources produced by or for the organization on the conservation, management, or science of fishery resources to which the Convention applies;
  - A history of NAFO observer status granted/revoked;
  - Information or input that the organization plans to present at the meeting in question and that it would wish to be circulated by the Secretariat for review by Contracting Parties prior to the meeting, supplied in sufficient quantity for such distribution.
- 9.4 The Executive Secretary shall review applications received within the prescribed time, and, at least 90 days before the meeting for which the application was received, shall notify the Contracting Parties of the names and qualifications of NGOs having fulfilled the requirements stipulated in Rule 9.3. With respect to the plenary meetings of the General Council, if one or more of the Contracting Parties object giving in writing its reasons within 30 days, the matter will be put to a vote by written procedure. Applications will then be considered as accepted in accordance with the procedures laid

down in Article V para 2 of the Convention at least 30 days prior to the meeting. The Executive Secretary shall also circulate any reasons given in a preliminary objection as well as any comments that Contracting Parties may include with their vote on this matter.

9.5 Any NGO admitted to a meeting of the General Council may:

- Attend meetings, as set forth above, but may not vote;
- Make oral statements during the meeting upon the invitation of the chairman;
- Distribute documents at meetings through the Secretariat;
- Engage in other activities as appropriate and as approved by the chairman.

Any NGO admitted to a meeting of the General Council may not use films, videos, tape-recording devices etc. to record meeting proceedings.

9.6 Observers will be required to pay a fee, which will cover the additional expenses generated by their participation, as determined annually by the Executive Secretary.

9.7 The Executive Secretary will determine whether, due to conference room capacity, seating limitations require that a limited number of observers per NGO may be present at any meetings. The Executive Secretary will transmit any such determination in the conditions of participation.

9.8 All observers admitted to a meeting shall be sent or otherwise receive the same documentation generally available to Contracting Parties and their delegations, except those documents deemed confidential by a Contracting Party or the Executive Secretary.

9.9 All observers admitted to a meeting shall comply with all rules and procedures applicable to other participants in the meeting. Failure to conform to these rules or any other rules that NAFO may adopt for the conduct of observers may result in removal from the meeting by the presiding officer and revocation of observer status.

9.10 These rules shall be subject to review and revision, as appropriate, at or after the 23rd Annual Meeting (2001), where the Secretariat will prepare a report on the Observers' participation. If any Contracting Party so requests, the adequacy of these rules shall be reviewed and assessed and, if necessary amendments shall be adopted in the light of the need of NAFO to function effectively when conducting its business.

#### **Observers**

(Fisheries Commission)

#### **Rule 10**

Basic text as above.



#### Annex 4. Press Release

1. The 21st Annual Meeting of the Northwest Atlantic Fisheries Organization (NAFO) was held in Dartmouth, Nova Scotia, Canada, during 07-17 September 1999, 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 Holiday Inn, Dartmouth.
2. The meeting was attended by 200 participants from sixteen 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, Ukraine and United States of America.
3. Prior to the 21st Annual Meeting, the following NAFO meetings were held during 1999: (1) Working Group on Dispute Settlement Procedures (DSP) (Bergen, Norway, February 1999); (2) Working Group on Transparency and participation of observers (Dartmouth, Canada, March 1999); (3) Working Group on Allocation of Fishing Rights and Chartering of Vessels (Halifax, April 1999); (4) Scientific Council Meeting on Precautionary Approach (San Sebastian, Spain, April 1999); (5) Joint Scientific Council/Fisheries Commission Working Group on Precautionary Approach (San Sebastian, Spain, May 1999); (6) Scientific Council Meeting (Dartmouth, Canada, June 1999); (7) Symposium on Pandalid Shrimp (Dartmouth, Canada, September 1999).
4. The Scientific Council, under the chairmanship of H.-P. Cornus (EU-Germany), reviewed and assessed the status of 25 fish stocks in the NAFO Regulatory and Convention Areas. The scientific advice and recommendations from the Scientific Council were presented to the Fisheries Commission with a special emphasis that major groundfish stocks are at low abundance and should be placed under moratoria in 2000. The Scientific Council noted a steady increase of biomass of Greenland halibut in Divisions 2J+3KL and Yellowtail flounder in Div. 3LNO. The Scientific Council studied a precautionary approach (PA) to NAFO-managed stocks and recommended PA to several model stocks - Cod in Div. 3NO; Yellowtail flounder in Div. 3LNO; Shrimp in Div. 3M.

A joint Scientific Council and Fisheries Commission Working Group on Precautionary Approach will meet in 2000 to elaborate concepts, management plans and implementation of PA to other NAFO stocks.

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 impose moratoria in 2000 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 Quota Table for 2000 was adopted (Attachment 1).

With regard to management measures for Cod in 2J3KL, Contracting Parties other than Canada expressed their serious concern that management measures for the stock may not be consistent throughout its range in the Convention Area in the year 2000.

New conservation and enforcement measures were agreed as follows:

- Regulation of incidental catch limits including basic requirements that vessels shall not conduct direct fisheries for species for which incidental catch limits apply;
- Concerning the shrimp fishery on the Flemish Cap in Division 3M, it was decided 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.
- A new shrimp fishery was established in Division 3L with a TAC of 6,000 mt for 2000 and 2001. The fishery will be undertaken with strict management measures: fishing area restrictions, gear restrictions, by-catch rules and 100% observer coverage.
- Regulatory measures for chartering vessels between Contracting Parties. The chartering of vessels will be restricted to one vessel per year to any Contracting Party interested.

On the subject of the precautionary approach, the Fisheries Commission adopted a Resolution to Guide Implementation of the Precautionary Approach within NAFO (Attachment 2). However, the process for implementing a precautionary approach to fisheries will continue, and it has been agreed to hold a joint meeting between Fisheries Commission and Scientific Council in 2000.

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 reached to adopt provisional Rules of Procedure for admitting observers of NGOs to General Council and Fisheries Commission meetings.
  - The Working Group on Dispute Settlement Procedures will continue its work under new terms of reference during 2000.
  - The Working Group on Allocation of Fishing Rights will be convened in USA in 2000.
  - The President of NAFO signed diplomatic démarches to the Non-Contracting Party flag-States whose vessels fished in the NAFO Regulatory Area in 1998/1999, namely Belize, Honduras, Sao Tome & Principe and Sierra Leone.
  - The General Council adopted a Resolution to guide expectations of any new Contracting Party with regards to Quota Allocations (Attachment 3).
7. The following elections of NAFO officers took place:
 

Chairman of the General Council	-	E. Oltuski (Cuba)
Vice-Chairman of the General Council	-	P: Chamut (Canada)
Chairman of the Fisheries Commission	-	P. Gullestad (Norway)
Vice-Chairman of the Fisheries Commission	-	D. Swanson (USA)
Chairman of Standing Committee on International Control (STACTIC)	-	D. Bevan (Canada)

Chairman of Standing Committee on Finance and Administration (STACFAD)	-	G. F. Kingston (EU)
Vice-Chairman of Standing Committee on Finance and Administration (STACFAD)	-	J.-P. Plé (USA)
Chairman of the Scientific Council	-	W. Brodie (Canada)
Vice-Chairman of the Scientific Council	-	R. Mayo (USA)
Chairman of the Standing Committee on Publications (STACPUB)	-	O. A. Jørgensen (Denmark/Greenland)
Chairman of the Standing Committee on Fishery Science (STACFIS)	-	H.-J. Rätz (EU-Germany)
Chairman of the Standing Committee on Research Coordination (STACREC)	-	R. Mayo (USA)

NAFO General Council  
17 September 1999

NAFO Secretariat  
Dartmouth, N.S., Canada

Attachment 1  
(Press Release)

QUOTA TABLE. Total allowable catches (TACs) and quotas (metric tons) for 2000 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 (Illex) <sup>2,3</sup>	Shrimp
	Div. 3M	Div. 3NO*	Div. 3M	Div. 3LN*	Div. 3M*	Div. 3LNO*						
1. Canada	0	0	500	0	0	0	9750 <sup>7</sup>	0	0	3 890	N.S. <sup>4</sup>	5 000
2. Cuba	0	-	1750	0	-	-	-	-	0	-	510	67
3. Denmark (Faroe Islands and Greenland)	0	-	69	-	-	-	-	-	-	-	-	67
4. European Union	0	0	3100	0	0	0	200 <sup>7</sup>	-	0	14 355	N.S. <sup>4</sup>	67
5. France (St. Pierre et Miquelon)	-	-	69	-	-	-	-	-	-	-	453	67
6. Iceland	-	-	400	-	-	-	-	-	0	2 658	510	67
7. Japan	-	-	69	-	-	-	-	-	0	-	453	67
8. Korea	0	-	-	-	-	-	-	-	0	-	-	67
9. Norway	0	-	-	-	-	-	-	-	0	-	227	67
10. Poland	0	-	-	-	-	-	-	-	0	-	-	67
11. Estonia	0	0	13 850 <sup>1</sup>	0	0	0	-	0	0	-	1 133 <sup>1</sup>	67
12. Latvia	-	-	-	-	-	-	-	-	-	-	-	67
13. Lithuania	-	-	-	-	-	-	-	-	-	-	-	67
14. Russia	-	-	-	-	-	-	-	-	-	3 307	-	67
15. Ukraine	-	-	-	-	-	-	-	-	-	-	-	67
16. United States of America	0	0	69	0	0	0	50 <sup>7</sup>	0	-	1 725 <sup>5</sup>	453	67
17. Others	0	0	124	0	0	0	-	0	-	-	794	0
Total Allowable Catch	•	•	5 000 <sup>6</sup>	•	•	•	10 000 <sup>8</sup>	•	•	25 935	34 000	6 000

<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% (690 t) may be fished before 1 May 2000 and no more than 80% (1380 t) may be fished before 1 October 2000.

<sup>6</sup> Each Contracting Party shall notify the Executive Secretary bi-weekly of catches taken by its vessels from this stock. Not more than 2500 tons may be fished before July 1, 2000. 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 50 and then 100 percent of the TAC for that stock.

<sup>7</sup> Contracting Parties shall inform the NAFO Executive Secretary before 1 December 1999 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.5c of NAFO Conservation and Enforcement Measures shall apply.

\*No directed fishing - The provisions of Part I, Section A.5a and c of NAFO Conservation and Enforcement Measures shall apply.

Attachment 2  
(Press Release)

**RESOLUTION**  
**to Guide Implementation**  
**of the Precautionary Approach within NAFO**

The Fisheries Commission,

NOTING that considerable work and progress have occurred toward implementation of the precautionary approach within the NAFO context;

NOTING 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 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks;

NOTING the provisions of Article 7.5 of the FAO Code of Conduct for Responsible Fisheries;

NOTING the Roles and Responsibilities of Scientists and Managers outlined in Annex 3 to the Report of the Working Group on Precautionary Approach (NAFO/FC Doc. 98/2);

DESIRING to further harmonize terminology and application of the precautionary approach within relevant fisheries organizations;

FURTHER DESIRING to be precautionary in its management of stocks within the NAFO Regulatory Area;

RESOLVES to apply a precautionary approach widely for stocks under NAFO purview and to achieve this goal agree:

1. To determine precautionary reference points for stocks where sufficient information exists.
2. For all other stocks, to determine provisional precautionary reference point, whenever possible, and a precautionary approach otherwise.
3. To provide mechanisms to fill in data gaps.
4. To implement precautionary management strategies (harvest control rules), consistent with 1. and 2. above.
5. To consider additional supportive management measures to complement the application of the precautionary approach.
6. To define and adopt precautionary strategies for the re-opening of fisheries and for new and developing fisheries.
7. To harmonize terminology and concepts for the application of the precautionary approach within relevant fisheries organizations.

## RESOLUTION

### **to Guide the Expectations of Future New Members with Regard to Fishing Opportunities in the NAFO Regulatory Area**

The Contracting Parties,

NOTING that in accordance with relevant principles of international law, the Northwest Atlantic Fisheries Organization (NAFO) is the competent regional fishery management organization, and in accordance with the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries (hereafter, the "Convention"), it has implemented conservation and management measures for particular stocks in the Convention Area;

NOTING Article XI(4) of the Convention;

NOTING Article 11 of the UN Agreement for the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks; and

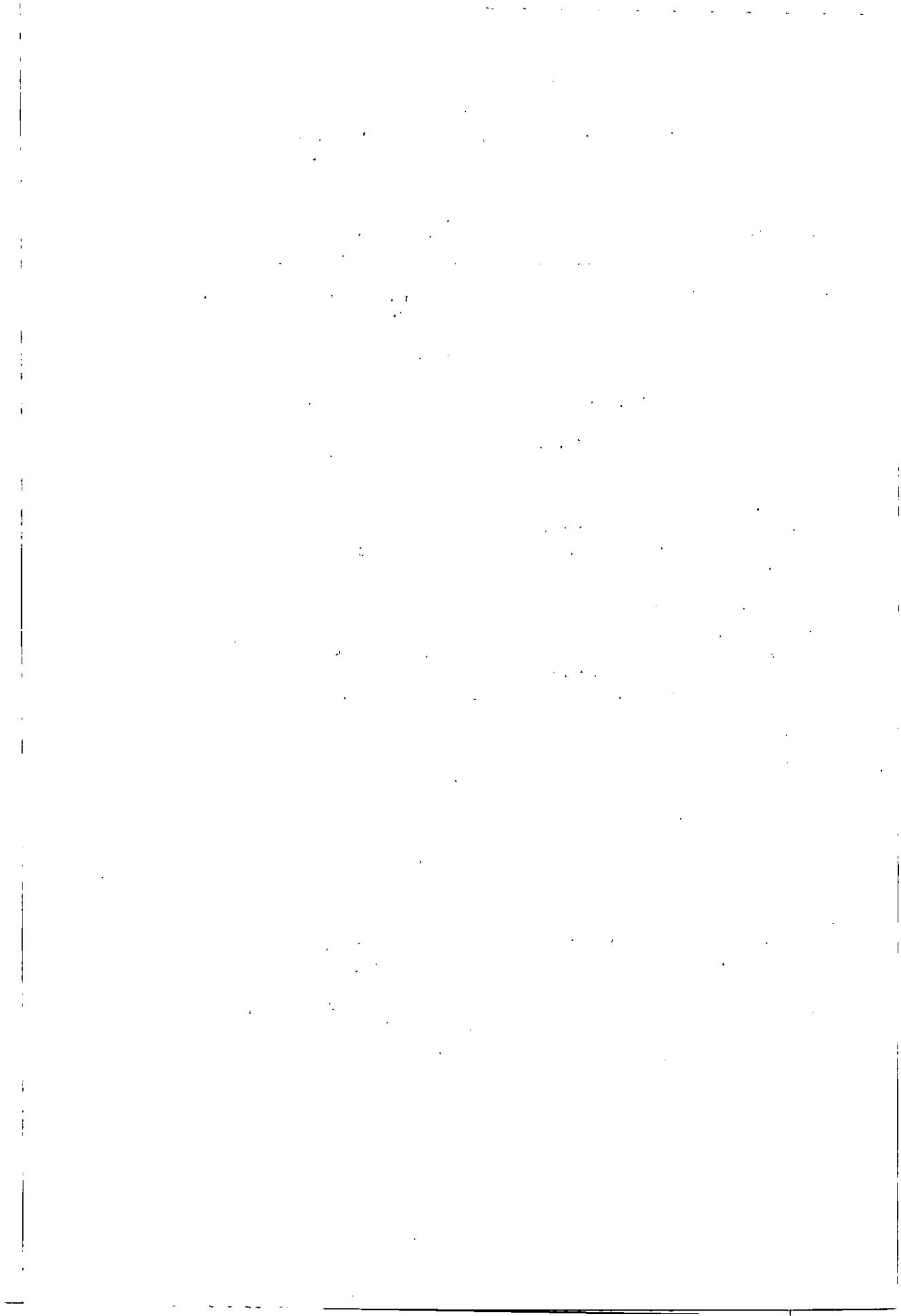
DESIRING to guide the expectations of future new members with regard to fishing opportunities in the  
NAFO Regulatory Area;

HAVE AGREED to the following guidance:

1. NAFO is an open organization. Non-members may join the Organization by depositing an instrument of accession in accordance with Article XXII of the Convention. In accordance with Article IV of the Convention, all Contracting Parties are members of the General Council.
2. Should any new member of NAFO obtain membership in the Fisheries Commission, in accordance with Article XIII (1) of the Convention, such new members should be aware that presently and for the foreseeable future, stocks managed by NAFO are fully allocated, and fishing opportunities for new members are likely to be limited, for instance, to new fisheries (stocks not currently allocated by TAC/quota or effort control), and the "Others" category under the NAFO Quota Allocation Table.

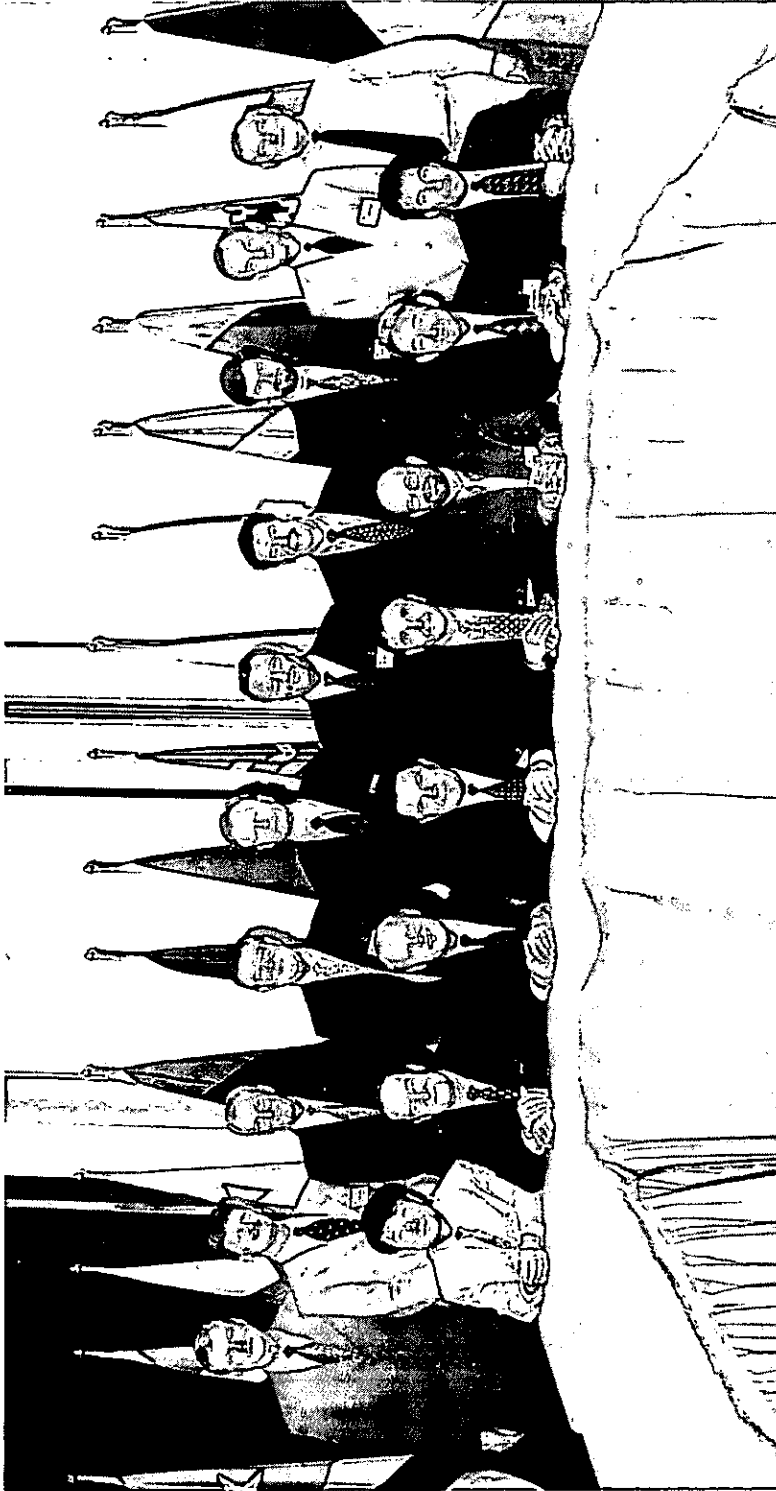
**Annex 5. List of Decisions and Actions by the General Council  
(21<sup>st</sup> Annual Meeting, 13-17 September 1999)**

Substantive issue	Decision/Action (GC Doc. 99/9, Part I: item)
1. Membership of Ukraine	Acceded to the NAFO Convention on 30 August 1999 Admitted to the Fisheries Commission on 13 September 1999
2. Transparency of NAFO Activities and Decisions: - Rules for Granting Observer Status at NAFO Meetings	Discussed: items 2.4-2.5 Adopted: item 2.5
3. Report of STACFAC - New Diplomatic Demarches to Belize, Honduras, São Tomé e Príncipe, Sierra Leone	Discussed: items 4.1-4.6 Agreed/signed: item 4.6
4. Working Group on Dispute Settlement Procedures (DSP) - New Terms of Reference - Working Group Meeting, Copenhagen, Denmark, 29-31 May 2000	Discussed: items 4.7-4.8 Adopted: item 4.8 Agreed: item 4.8
5. Working Group on Allocation of Fishing Rights - Resolution to Guide the Expectations of Future New Members with Regard to Fishing Opportunities in the NAFO Regulatory Area - Working Group Meeting, Washington, D.C., USA, 27-30 March 2000	Discussed: items 4.9-4.12 Adopted: item 4.11 Agreed: item 4.12
6. Election of Officers: - Chairman of the General Council - Vice-Chairman of the General Council	Enrique Oltuski (Cuba) Patrick Chamut (Canada)
7. Budget for 2000 - hail report computer system	Adopted: \$1,157,000 Cdn, item 5.2 - \$35,000 Cdn



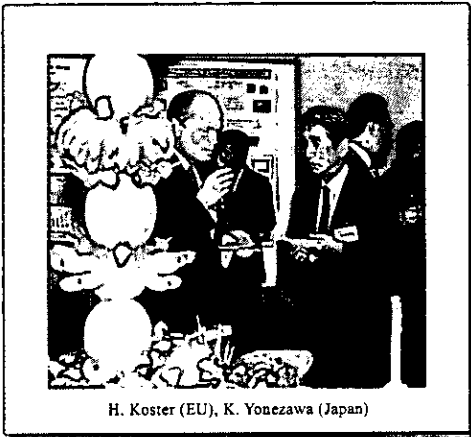


21st Annual Meeting, September 1999  
Dartmouth, N. S., Canada



Heads of Delegation – Back row (left to right): T. Asgiersson, A. Kristiansen, J. Baisre, P. Chamut, L. Dybiec, E. Mastracchio, G. Grignon, N. Riekstins, V. Vaitiekunas, E. Lemche  
Seated (left to right): G. Lee, V. Izmailov, R. Aps, V. Chernik, L. Chepel (Executive Secretary), P. Gullestad, K. Yonezawa, A. Rosenberg

**NAFO Delegates at the Reception hosted by the Canadian Delegation  
(at the Holiday Inn, Dartmouth, N. S., Canada) – 14 September 1999**



H. Koster (EU), K. Yonezawa (Japan)



P. Moran, J.P. Plé, J. Pike, A. Rosenberg – USA



Y. Kashio (Japan), P. McGuinness (Canada)



J. Chanut (Canada)



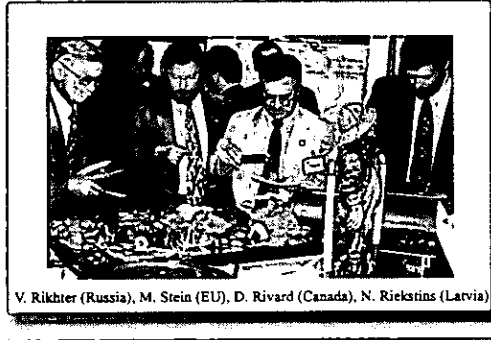
J. Angel, N. Bellefontaine, B. Chapman – Canada



A. Thomson, D. Smadja, G. Kingston – EU



G. Grignon, F. Beaudroit, D. Silvestre, M. Tremblay – France



V. Rikhter (Russia), M. Stein (EU), D. Rivard (Canada), N. Riekstins (Latvia)



V. M. Mishkin, V. Izmailov, V. Kolesnikov – Russia

**PART II**  
(pages 67 to 105)

**Activities of the Fisheries Commission in 1999**

**List of Meetings**

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

- Joint Fisheries Commission and Scientific Council Working Group on Precautionary Approach; Miramon, Parque Tecnológico de San Sebastian, San Sebastian, Spain, 3-5 May.
- The Fisheries Commission and its subsidiary body (STACTIC); 21st Annual Meeting, Holiday Inn, Dartmouth, N.S., Canada, 13-17 September.



### Major Documents of the Fisheries Commission in 1999

<u>Serial No.</u>	<u>FC Doc. No.</u>	<u>Title</u>
N4040	99/1	Conservation and Enforcement Measures (Supplement of FC Doc. 98/1)
N4051	99/2	Report of the Joint Scientific Council and Fisheries Commission Working Group on Precautionary Approach, 3-5 May 1999, San Sebastian, Spain
N4134	99/3	Status of Proposals and Resolutions of NAFO (as of July 1999)
N4140	99/4	Summary of Inspection Information for 1998
N4141	99/5	Canadian Conservation Measures on 3LNO Yellowtail Flounder as an Application of the Precautionary Approach
N4146	99/6	2J3KL Cod - Canadian Management Measures for 1999
N4171	99/7	Shrimp 3M Management
N4172	99/8	Management Measures for Cod in Div. 2J3KL for 2000
N4173	99/9	Shrimp Fishery in Division 3L
N4174	99/10	Paper on Chartering
N4175	99/11	Notification of vessels temporarily flying the flag of a Contracting Party (bare-boat charters)
N4176	99/12	Incidental Catch Limits
N4198	99/13	Resolution to Guide Implementation of the Precautionary Approach within NAFO
N4202	99/14	Fisheries Commission's Request for Scientific Advice on Management in 2001 of Certain Stocks in Sub-areas 3 and 4, including supplementary questions on Division 3M shrimp for 2000
N4203	99/15	Report of the Fisheries Commission, 21st Annual Meeting, 13-17 September 1999, Dartmouth, N.S., Canada

70

N4205

99/16

3M Shrimp - Amendment to Part I.F.4e -  
NAFO Conservation and Enforcement  
Measures

**Fisheries Commission/Scientific Council Working Group  
on Precautionary Approach (PA)  
3-5 May 1999, San Sebastian Spain**

The Joint Fisheries Commission/Scientific Council Working Group on Precautionary Approach met in accordance with the decision taken by the Fisheries Commission at the 20th Annual Meeting, September 1998 (FC Doc. 98/13, Part I, item 3.13). Complete proceedings of this Meeting are presented in FC Doc. 99/2 and in the Meeting Proceedings (General Council and Fisheries Commission), 1999.

**Opening Procedures**

The Chairman was H. P. Cornus (EU-Germany). Representatives from Canada, Denmark (in respect of the Faroe Islands and Greenland), Estonia, European Union, Iceland, Japan, Norway, Poland and the United States of America were present (Annex 1).

T. Amaratunga, Assistant Executive Secretary, was appointed Rapporteur.

The Chairman first outlined the history of the development of the Precautionary Approach (PA) at NAFO. In particular, the Scientific Council began discussions on the PA during its June 1997 Meeting. The Scientific Council Workshop in March 1998 followed by the Joint Fisheries Commission and Scientific Council Working Group Meeting in May 1998 resulted in recommendations at the Annual Meeting in 1998 to develop the Terms of Reference for this meeting. It was noted that some of the recommendations from that Meeting had been addressed at earlier Scientific Council meetings, and outstanding items as given in the Report of the 27 April-1 May 1999 Meeting were addressed.

The agenda was adopted as attached (Annex 2).

**Identification of Management Measures as Part of a Comprehensive  
Application of the Precautionary Approach (PA)**

The provisional framework for the application of the precautionary approach to fisheries management in the NAFO Regulatory Area recognizes the need to have limits not only on fishing mortality but also on biomass levels. This is consistent with the terms of the PA as reflected in the 1995 UN Agreement.

The Working Group recognized that further work has to be carried out to improve the management tools that could accompany the implementation of a precautionary approach in the NAFO context but it is unclear which mechanism should be called upon to address these important questions. Appropriate management measures were listed and referred to a discussion at Annual Meeting in September.

**Precautionary Reference Points for PA**

It was pointed out that the terminology employed in scientific presentations related to the precautionary approach was rather difficult for the managers and clients. In addition, it was noted that the differences in the terminology employed in ICES and NAFO create some difficulty for the managers who have to work in more than one fisheries organization. The Chairman of the Scientific Council indicated that the NAFO PA Framework has been developed to address the peculiarities of the stock dynamics of fish stocks of the Northwest Atlantic. There were three pilot stock identified for distinct management/science parameters.

### **Cod Stock in Divisions 3NO (stock with closed fishery)**

The Scientific Council recommended to set the  $B_{lim}$  at 60 000 tons as the current best estimate for this case study. Scientific Council presented results of simulations on the development of the cod stock in Div. 3NO. All simulations assumed constant by-catch mortality, which was considered the most realistic situation. The development of the stock was simulated, and the probability of a year when SSB reaches  $B_{lim}$  and two buffers (16% probability to be below  $B_{lim}$  and 5% probability  $B_{lim}$  to be below  $B_{lim}$ ) were presented based on the assumption of a normal recruitment regime. An additional simulation was presented based on the assumption that the stock is in a low recruitment regime.

### **Yellowtail Flounder Stock in Divisions 3LNO (stock with open fishery)**

The Scientific Council recommended to set  $F_{lim}$  at  $F_{MSY}$  as the current best estimate available for this case study. The Council noted that stock recruitment data for this stock were not considered reliable at this time and further investigations are needed and have to be reviewed at the Scientific Council June 1999 Meeting. Therefore, simulations like in the case of Div. 3NO cod could not be conducted. However, results of a production model were presented. These displayed the development of the yellowtail flounder stock in Div. 3LNO based on catches of 6 000 tons (equal to the 1999 TAC), 8 000 tons and 10 000 tons in the year 2000.

### **Shrimp Stock in Division 3M (stock for which only limited data are available)**

The "Traffic Light" framework and an illustrative application to shrimp in Div. 3M were presented to Working Group by Scientific Council. The framework was viewed, as an acceptable approach in relation to its potential for providing an understandable format for discussion and consensus building between scientists, managers and fishermen on resource status. It was concluded that, at this stage of development, the method can provide only short-term views of stock conditions rather than be used to evaluate future management options. Further investigations to improve the meaning of the "yellow" light are requested. It was noted that this method should be used only in addition to the traditional advice given by Scientific Council and not be considered as a replacement to it.

### **Identification of Options for Decision-rules (management strategies for the Three Stocks; and, Evaluation of Appropriate Management Strategies for the Three Stocks**

The initial discussion on these issues focused on the approach that the working group should take on this particular aspect of the agenda. There were two specific suggestions for proceeding:

1. Identification of management objectives with associated management strategies.
2. Determination of options for consideration by the Fisheries Commission.

As the result of analysis, lists of elements and managerial options were drawn for the above-noted three major pilot stocks.

In conclusion, the working group recommended that both the Scientific Council and the Fisheries Commission consider the above in designing and formulating further action in respect to implementation of the PA for the above three stocks for the year 2000 and beyond.

In addition, as the implementation of the precautionary approach progresses, it is recommended that similar actions be taken for other stocks with related characteristics which are under the NAFO purview.



## Annex 1. List of Participants

### CANADA

#### Representative

Robichaud, J. Dir. Gen., Resource Management, Fisheries Mgmt, DFO, 200 Kent St., Ottawa K1A 0E6

#### Advisers

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### DENMARK (in respect of Faroe Islands and Greenland)

#### Representatives

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Åkesson, R. Ministry of Agriculture, 10333 Stockholm, Sweden  
 Cumberlidge, N. Ministry of Agric., Fish. & Food, Nobel House, 17 Smith Square, London, England SW1P 3HX

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### JAPAN

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#### Adviser

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### NORWAY

#### Representative

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#### Advisers

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### POLAND

#### Representative

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### UNITED STATES OF AMERICA (USA)

#### Representative

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#### Adviser

Rodrigues, K. National Marine Fisheries, 1 Blackburn Drive, Gloucester, MA 01930

**SCIENTIFIC COUNCIL REPRESENTATIVES**

H. P. Cornus, Chairman Scientific Council  
W. B. Brodie, Vice-Chairman Scientific Council (Designated Expert for Div. 3LNO yellowtail flounder)  
R. Mayo (Chairman STACFIS)  
D. E. Stansbury (Designated Expert for Div. 3NO cod)  
U. Skúladóttir (Designated Expert for Div. 3M shrimp)  
D. B. Atkinson  
D. Rivard  
D. G. Parsons  
H. Siegstad  
E. de Cardenas  
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**Annex 2. Agenda**

1. Opening by the Chairman
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Review of the recommendations of the Scientific Council Meeting (27 April-01 May 1999)
5. Identification of management measures as part of a comprehensive application of the precautionary approach.
6. Discussion of a precautionary approach, including precautionary reference points, for three (3) model stocks:
  - a) Cod stock in Divisions 3NO (stock with closed fishery)
  - b) Yellowtail flounder stock in Divisions 3LNO (stock with open fishery)
  - c) Shrimp stock in Division 3M (stock for which only limited data are available)
7. Identification of options for decision-rules (management strategies) for the three stocks
8. Evaluation of appropriate management strategies for the three stocks
9. Other matters
10. Adoption of Report
11. Adjournment

**Fisheries Commission Annual Meeting**  
**13-17 September 1999, Dartmouth, N.S., Canada**

The 21st Annual Meeting of the Fisheries Commission was held in Dartmouth, N.S., Canada, 13-17 September 1999. Complete proceedings of this Meeting are presented in FC Doc. 99/15 and in Meeting Proceedings, 1999.

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

The meeting was called to order by the Chairman, Mr. P. Gullestad (Norway) at 0915 hrs on 14 September 1999. 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, Ukraine and the United States of America (Annex 1).

ICES and NAMMCO were recognized as observers at the Fisheries Commission.

Mr. Jeremy Conway (Canada) was appointed Rapporteur.

The agenda was adopted as attached (Annex 2).

**Administrative (items 6-8)**

The Chairman welcomed Ukraine to the Fisheries Commission as the 16th member of the Fisheries Commission. In response to questions, the Representative of Ukraine stated that Ukraine intended to commence fishing for shrimp in Division 3M during the latter part of 1999 and in 2000. He stated that Ukraine did not intend to prejudice the fishing interests of other Contracting Parties and did not have any other fishing plans for the Regulatory Area. He also indicated that Ukraine will likely make a statement on this issue in the future and requested that the Commission take into account Ukraine's position.

With respect to Agenda item 7, Transparency of NAFO decision-making process (participation of inter-governmental and non-governmental organizations), it was agreed that the Fisheries Commission will adopt rules of procedure consistent with the set of rules which are currently being elaborated by the General Council and that the corresponding rules are deemed to be adopted in the event that the General Council should so decide at this year's session."

With respect to Agenda item 8, Election of Chairman and Vice-Chairman, the present Chairman, P. Gullestad (Norway) and Vice-Chairman, D.E. Swanson (United States) were re-elected for two-year terms commencing at the conclusion of this annual meeting.

**Conservation and Enforcement Measures (items 9-13)**

With respect to Agenda item 9, Report of STACTIC at the Annual Meeting, the Chairman of STACTIC, Mr D. Bevan (Canada) reported the results of the meeting.

STACTIC drew attention to the current inconsistency in the application of the requirement for 100% observer coverage as some Contracting Parties allow fishing activities to take place for short periods of time without an observer which is inconsistent with the NAFO Conservation and Enforcement Measures. In addition STACTIC also flagged the issue of poorly maintained boarding ladders, which was a safety concern for NAFO inspectors. STACTIC recommended

that Contracting Parties be reminded to inspect their fishing vessels to ensure that boarding ladders are in good condition.

With respect to operation of the Hail system, STACTIC recommended that a STACTIC working group of technical experts meet intersessionally to consider a more effective hail system.

STACTIC considered the compatibility and applicability of discard retention rules for the conservation and utilization of fisheries resources and agreed to further examine possible improvements in the procedures for gathering discards information.

STACTIC recommended several amendments to the Conservation and Enforcement Measures regarding: incidental catch limits; chartering of vessels; observer program. These amendments were adopted by the Fisheries Commission.

Mr. D. Bevan was re-elected for an additional two-year term as Chairman of STACTIC.

With respect to Agenda item 10, Report of the San-Sebastian Working Group on the Precautionary Approach, the Chairman summarized the discussions - that there was a support for continuing the Working Group; Canada would draft an agenda for the next meeting, the EU would present a working paper at the next meeting on harmonization of concepts and terminology on the PA, and the USA would prepare the text of a resolution on the implementation in NAFO of precautionary measures. He envisaged three issues: 1) application of the PA in the narrow sense, which has to do with biological reference and limit points concerned with the exploitation rate; 2) the wider application of the PA which includes other management measures; and 3) both the exploitation rate and management measures as well as the monitoring, control and surveillance regime to ensure compliance with the management measures. The Fisheries Commission adopted the agenda of the Working Group and the Resolution to Guide the Implementation of the Precautionary Approach within NAFO.

With respect to Agenda item 11, Increase of inspection presence in the NAFO Regulatory Area, Representatives of the EU and Canada stated that enforcement costs need to be shared by all Parties that benefit from the resources in the NAFO Regulatory Area and that it was not equitable that only two Parties provide enforcement for the entire Organization. There was no concrete resolution on this matter and the Chairman concluded that this item would be included on next year's agenda.

With respect to Agenda item 12, Allocation of Fishing Rights and Chartering of Vessels, the Commission noted that while this was normally a General Council issue, papers dealing with chartering and bare boat charters were referred to the Fisheries Commission to consider amendments to the Conservation and Enforcement Measures. The amendments were adopted regarding "bare-boat" charters and temporary charters (Annexes 3,4).

With respect to Agenda item 13, Canadian Management Measures for 2J3KL cod in 1999, a paper submitted by Canada entitled "2J3KL Cod - Canadian Management Measures for 1999" was brought to the attention of delegates.

The Representative of the EU reviewed the history of the management of the cod in Divisions 2J3KL noting that this fishery was a backbone of the economy in the NAFO Convention Area for many years. Much conflict emerged over the stock between various Contracting Parties. There was a Canada-EU bilateral agreement in 1992 which, in September 1996, resulted in the establishment of specific NAFO measures governing the setting of the TAC in the event that a decision allowing the resumption of fishing for 2J3KL cod in the NAFO Regulatory Area should

be taken (see Part I.A.4 of the NAFO Conservation and Enforcement Measures). He noted that the EU could not agree with the conclusions in the paper submitted by Canada (FC WP 99/6). He noted that the 2J3KL cod stock is only one cod stock and is very depleted with weak year classes since the beginning of the 90's. He stated that there was no supporting data to the contrary. He noted that inshore cod comprises primarily juveniles and that any fishing on one portion of the stock could seriously impact on the recovery of the entire stock. There is also an increased effort on the shrimp fishery in Division 3L which could have a negative impact on the rebuilding of cod. He stated that there was no scientific basis for Canada to open this fishery.

The Representative of Canada confirmed that Canada had set a 9,000t TAC for the inshore cod fishery in 3KL and that this was transmitted to Contracting Parties by the Executive Secretary on July 16 with a supplementary letter sent on September 2 which explained the rationale for the fishery. Canada has maintained the moratorium for offshore cod. He stated that this was a limited fishery for a part of Canada's inshore fleet restricted to vessels mostly less than 35 feet (10m) and the fishery is restricted to within 12 miles from land. Canada has put in place strict management measures and controls on the fishery which include two seasons (July and mid-September to mid-October), limits have been put in place on the amount of gear permitted by each fisherman (6 gillnets of 50 fathoms or 2,000 hooks), there is no trawling, fishermen fish individual quotas with 100% dockside monitoring of all catches and a portion of the vessels are covered by observers. He stated that there has been a moratorium on northern cod in the NAFO Regulatory Area for a number of years now and each year the Canadian domestic assessment process as well as the NAFO Scientific Council have come to the same conclusions - the offshore components of this stock are at all time lows and there are no signs of recovery in the offshore.

The Representative of Canada emphasized that the decision for this limited fishery was not made lightly and only took place after extensive scientific review. The role of the Fisheries Resource Conservation Council (FRCC) in providing advice to the Minister of Fisheries and Oceans was explained in the context of the opening of the fishery. The FRCC had expressed concern with the lack of data on the resource in inshore areas while at the same time acknowledging that there is evidence of a large abundance of cod in some of the inshore areas and bays. The FRCC recommended a limited inshore fishery in order to gather scientific information. The Representative of Canada stated that this limited cod fishery is being conducted in this context in order to improve confidence in management and rebuilding of the stock. Canada believes that this approach is consistent with the conservative management of this resource.

On presentation by EU delegate, the Fisheries Commission referred the following two (2) questions to the Scientific Council: a) to evaluate the impact of catch in the range of 5 000 - 10 000 mt yearly on the recovery of cod in 2J3KL, and b) to evaluate the impact of by-catches of cod in other fisheries inside the 200-mile Canadian Zone and Regulatory Area.

#### Conservation of Fish Stocks in the Regulatory Area (items 14-18)

The Scientific Council advice is summarized in tables below:

(2000)

Redfish 3M	3,000-5,000t
Cod 3M	No directed fishery, lowest possible by-catch
American plaice 3M	No directed fishery, lowest possible by-catch
Yellowtail flounder 3LNO	10,000t
Witch flounder	No directed fishery, lowest possible by-catch
Greenland halibut 2+3KLMNO	Catch of about 30,000t should allow stock to increase
Squid ( <i>Illex</i> ) 3+4	19,000-34,000t

(2001)

American plaice 3LNO	No directed fishery, lowest possible by-catch
Cod 3NO	No directed fishery, lowest possible by-catch
Redfish 3LN	No directed fishery, lowest possible by-catch

The Commission reviewed in detail scientific recommendations on stock by stock basis. Several outstanding issues regarding best management application and utilization of shrimp fishery, redfish fishery and the cod 2J3KL were discussed very extensively in plenary sessions and at Heads of Delegations meetings. The final agreements were reached as reflected in the Quota Table for 2000.

Regarding the shrimp fishery, there was agreement to continue 3M shrimp fishery regulation as in previous years (effort limitation, 40 mm mesh size, 22 mm sorting grates, 100% observer coverage). In addition, a special area in the central part of Flemish Cap bank was established for seasonal (June-September) closure of fishery to protect small shrimp.

New shrimp quota was established in Div. 3L (6 000 mt).

The Commission further agreed to call a meeting in 2000 to evaluate the current management system for 3M shrimp and consider possible TAC-based options (W.G. in Washington, D.C., March 2000).

With respect to Cod in Div. 2J3KL, the Scientific Council's response was as follows:

As indicated in the June 1999 report of the Scientific Council an analytical assessment of Div. 2J and 3K cod stock was not attempted. The inability to reconcile reported catches and the research vessel index in the late 80's and early 90's has not been resolved. Perhaps more importantly the surveys do not cover the shallow coastal waters where good catch rates have been experienced in both the sentinel surveys and 1998 index fishery. The sizes and ages of cod taken in the offshore surveys do not represent the larger and older cod caught in the inshore. Because of this the Scientific Council is not in a position to provide risks associated with fishing at different levels comparable to those made available for cod in Div. 3NO. However it is clear the size of the stock as a whole remains at a very low level it is also clear that any removals including directed catch and bycatch in other fisheries will hamper recovery of the resource although the extent of this delay cannot be determined with available data.

The Representative of Canada acknowledged that there was a gap and a lack of good scientific data for the areas of shallow coastal waters where good catch rates have been experienced and have indicated that there is a need for better scientific data. He noted that the data being collected from the 1999 fishery will help in filling that gap and will help to give a better understanding and confidence that will allow for more reasoned and scientifically based decisions. The Scientific Council's response does reinforce the need for additional scientific information in this area. Canada agreed that the moratorium should be maintained in the Regulatory Area. With respect to the issue of shared stock, he suggested that the preponderance of interest resides with the coastal State noting that the allocation for cod in 2J3KL is 95% for Canada and 5% for other Contracting Parties.

The Representative of the EU stated that 2J3KL cod has been and continues to be one of the key fish stocks in the Northwest Atlantic. The stock has been close to collapse and has consequently been kept under moratorium for many years to protect the stock in its entirety. The EU therefore is extremely concerned that, due to Canada's recent decision, the stock has become the subject to



conflicting conservation and management measures. There is neither scientific justification for the decision in question nor are there any indications of different stock components for the inshore and offshore. This situation is, therefore, contrary to both the consistency requirements laid down in Article XI (3) of the NAFO Convention and the Precautionary Approach. It also falls short of the conservation and compatibility standards reflected in the 1995 U.N. Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks. Due to the biological unity of the stock, there is a danger that efforts aimed at ensuring the long term sustainability of the stock are being undermined and that the recovery of the stock itself is in jeopardy. Canada is therefore strongly urged to adopt consistent conservation and management measures for the year 2000. He noted that this was a unilateral statement on behalf of the European Community.

The Representative of Canada stated that Canada has operated in a manner which is consistent with its rights and obligations. Canada has the right to set a TAC for 2J3KL cod in Canadian waters and an obligation to inform NAFO of its decision which has been done. It is not NAFO's decision to approve or reject Canada's decision but rather to decide whether they choose to set a TAC for this stock for the NAFO Regulatory Area. In reaching its decision, Canada followed the domestic process on these matters, advice was considered from the Scientific Council as well as the domestic scientific advice, in addition to consulting with stakeholders and individuals who have information about this particular stock. Canada's process involves the Fisheries Resource Conservation Council, an independent group which provides advice to the Minister of Fisheries and Oceans. This Council recommended a fishery from between 6,000 to 9,000t based on the above considerations. Canada decided to conduct an extremely limited inshore fishery with a TAC of 9,000t and was designed to provide information to ensure confidence with respect to the management of the stock. Canada recognizes the interests of other Parties, however, it was emphasized that this stock is allocated 95% to Canada with the balance to other Parties. He indicated that Canada has managed the stock within its rights and has not put the sustainability of the stock at risk.

The Representative of the EU said that he had nothing against Canadian scientists making stock assessments but that he had misgivings about assessments being made after the adoption of management measures. He added that Canada in its capacity as a coastal State remained in principle free to request in its own right the Scientific Council to provide it with scientific advice. He asked, however, clarifications on how Canada intended to proceed in the event that it should not submit to the Scientific Council a request for advice on a stock which occurred both within waters under Canadian fisheries jurisdiction and in the Regulatory Area. This would allow for a more transparent situation and, as appropriate, bring about good scientific advice, on the basis of which both the Fisheries Commission and Canada could operate.

The normal process was followed to submit a request to the Scientific Council asking that the Council review the status of Cod in 2J3KL and provide estimates of the current size of the total and spawning stock biomass with a description of recent trends.

For the Redfish stock in 3M, TAC was decreased to allow for stock recovery.

Greenland halibut (2J3KLMNO) stock was showing good signs of improvement and its TAC was slightly increased.

At the conclusion of discussions on TAC and allocations, two Contracting Parties (Korea and France) noted that there are countries that receive quotas that are small and not commercially viable. They suggested that where quotas are not being caught, they should be transferred to those countries that are in desperate need for such quotas. There was no discussion or any decision on this matter.

The Fisheries Commission adopted the Quota Table, 2000 (Annex 5).

Request to the Scientific Council for scientific advice on management of fish stocks in 2001 was adopted (Annex 6).

**Closing Procedures (items 19-21)**

The Fisheries Commission's 22nd Annual Meeting in the year 2000 would be held in Boston, Massachusetts, United States of America from 18-22 September, and the 23rd Annual Meeting will be convened in Havana, Cuba.

There was no other business under the Fisheries Commission agenda.

The 21st Annual Meeting of the Fisheries Commission was adjourned at 1220 hours on Friday, 17 September 1999.

List of Decisions and Actions by the Fisheries Commission is attached in Annex 7.

Summary of provisional information on fishing activities and utilization of fish resources in the NAFO Regulatory Area in 1999 is attached in Annex 8.

## Annex 1. List of Participants

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## **Annex 2. Agenda**

### **I. Opening Procedures**

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. Transparency of NAFO decision-making process (participation of inter-governmental and non-governmental organizations)
8. Election of Chairman and Vice-Chairman

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

9. Report of STACTIC at the Annual Meeting
10. Report of the San-Sebastian Working Group on Precautionary Approach (PA)
11. Increase of inspection presence in the NAFO Regulatory Area
12. Allocation of Fishing Rights and Chartering of Vessels
13. Canadian Management Measures for 2J3KL Cod in 1999

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

14. Summary of Scientific Advice by the Scientific Council
15. Management and Technical Measures for Fish Stocks in the Regulatory Area, 2000
  - 15.1 Cod in Div. 3M
  - 15.2 Redfish in Div. 3M
  - 15.3 American plaice in Div. 3M
  - 15.4 Shrimp in Div. 3M
16. Management and Technical Measures for Fish Stocks Straddling National Fishing Limits, 2000
  - 16.1 Cod in Div. 3NO
  - 16.2 Redfish in Div. 3LN
  - 16.3 American plaice in Div. 3LNO
  - 16.4 Yellowtail flounder in Div. 3LNO
  - 16.5 Witch flounder in Div. 3NO

- 16.6 Capelin in Div. 3NO
  - 16.7 Squid (*Illex*) in Subareas 3 and 4
  - 16.8 Shrimp in Div. 3LNO
  - 16.9 Greenland halibut in Div. 3LMNO
  - 16.10 If available in the Regulatory Area:
    - i) Cod in Div. 2J3KL
    - ii) Witch flounder in Div. 2J3KL
17. Formulation of Request to the Scientific Council for:
- a) Scientific advice on the management of fish stocks in 2001
18. Transfer of Quotas Between Contracting Parties

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

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

### Annex 3. Paper on Chartering

To be inserted in the NAFO Conservation and Enforcement Measures after Part I.A.

(new I.B)

#### Chartering operations

1. Each Contracting Party may grant, partly or wholly, quotas and shrimp fishing days allocated to that Party under Schedule I and Part I.F to fishing vessels flying the flag of another Contracting Party, notified in accordance with Part III.D, subject to:
  - the consent of the flag Contracting Party;
  - a favourable proposal adopted through a mail vote in accordance with Article XI(2) of the Convention
2. Contracting Parties shall limit such transfers to one fishing vessel per year and for a limited duration not exceeding 6 months.
3. Contracting Parties intending to have recourse to charter transfers shall notify the following information to the NAFO Executive Secretary:
  - the name and registration of the vessel and flag Contracting Party
  - a copy of the charter
  - the fishing possibilities granted
  - the date as from which the vessel is authorized to commence fishing on these fishing possibilities
  - the duration of the charter
4. The flag Contracting Party shall notify in writing its consent to the NAFO Executive Secretary.
5. The NAFO Executive Secretary shall circulate the above information and the consent of the flag Contracting Party without delay to Contracting Parties.
6. The Contracting Party of the vessel accepting a charter is responsible for ensuring that the vessel complies with the requirements of the NAFO Conservation and Enforcement Measures. This does not nullify the obligations of the Contracting Party to which the quota and shrimp fishing days have been allocated under Part I of the Conservation and Enforcement Measures, as appropriate.
7. As a pilot project, these provisions shall apply only to the year 2000.

**Annex 4. Paper on the Notification of Vessels Temporarily Flying  
the Flag of a Contracting Party (bare-boat charters)**

Amend Part III.D of the NAFO Conservation and Enforcement Measures to read:

**III.D. Notification of Fishing and Processing Vessels**

1. Each Flag Contracting Party shall notify the Executive Secretary of all vessels of more than 50 gross tons engaged in fishing or in processing fish in the Regulatory Area:
  - (a) prior to 1 January of each year, if possible; or
  - (b) in a timely manner following departure of the vessel from its home port; or in the case of bare boat charters, one month prior to the departure of the vessel from its home port.
  - (c) by message within 30 days of any changes in the terms of notification.

2. Vessels registered in a Contracting Party:

Such notification shall include for each vessel:

- (a) name of vessel in both native and Latin alphabet;
- (b) official numbers;
- (c) home port and nationality;
- (d) owner and charterer, if any;
- (e) certification that its master has been provided with the extant Commission's measures;
- (f) principle target species while engaged in fishing in the Regulatory Area.

3. Vessels temporarily flying the flag of a Contracting Party (bare boat charter)

Such notification shall include for each vessel:

- (a) date as from which the vessel has been authorized to fly its flag
- (b) date as from which the vessel has been authorized by the Contracting Party to engage fishing in the NAFO Regulatory Area
- (c) the name of the State where the vessel is registered or was previously registered and the date as from which it ceased flying the flag of that State
- (d) name of vessel in both native and Latin alphabet;
- (e) official numbers;
- (f) home port and nationality after the transfer;
- (g) owner and charterer, if any;
- (h) certification that its master has been provided with the extant Commission's measures;
- (i) principle target species while engaged in fishing in the Regulatory Area.

4. The Executive Secretary shall provide all Contracting Parties with a listing of all vessels which he has been notified for fishing in the Regulatory Area.

## Annex 5. Quota Table for 2000

QUOTA TABLE. Total allowable catches (TACs) and quotas (metric tons) for 2000 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>2,3</sup>		Shrimp
	Div. 3M	Div. 3NO*	Div. 3M	Div. 3LN*	Div. 3M*	Div. 3LNO*	Div. 3LNO	Div. 3NO*	Div. 3NO*	Div. 3LMNO	Subareas 3+4	Div. 3M	Div. 3NO*	Div. 3M	Div. 3NO*		
1. Canada	0	0	500	0	0	0	9750 <sup>7</sup>	0	0	0	3 890	N.S. <sup>4</sup>	0	0	5 000		
2. Cuba	0	-	1750	0	-	-	-	-	-	-	-	510	0	0	67		
3. Denmark (Faroe Islands and Greenland)	0	-	69	-	-	-	200 <sup>7</sup>	-	-	-	-	N.S. <sup>4</sup>	0	0	67		
4. European Union	0	0	3100	0	0	0	-	-	-	14 355	-	N.S. <sup>4</sup>	0	0	67		
5. France (St. Pierre et Miquelon)	-	-	69	-	-	-	-	-	-	-	-	453	0	0	67		
6. Iceland	-	-	400	-	-	-	-	-	-	-	2 658	510	0	0	67		
7. Japan	-	-	69	-	-	-	-	-	-	-	-	453	0	0	67		
8. Korea	0	-	-	-	-	-	-	-	-	-	-	-	0	0	67		
9. Norway	0	-	-	-	-	-	-	-	-	-	-	227	0	0	67		
10. Poland	0	-	-	-	-	-	-	-	-	-	-	-	0	0	67		
11. Estonia	-	-	-	-	-	-	-	-	-	-	-	-	0	0	67		
12. Latvia	0	0	13 850 <sup>1</sup>	0	0	0	-	0	0	0	-	1 133 <sup>1</sup>	0	0	67		
13. Lithuania	-	-	-	-	-	-	-	-	-	-	3 307	-	-	-	67		
14. Russia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67		
15. Ukraine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67		
16. United States of America	0	0	69	-	-	0	50 <sup>7</sup>	0	0	0	1 725 <sup>5</sup>	453	0	0	67		
17. Others	0	0	124	0	0	0	-	-	-	-	-	794	0	0	0		
Total Allowable Catch	-	-	5 000 <sup>6</sup>	-	-	-	10 000 <sup>6</sup>	-	-	-	25 935	34 000	-	-	6 000		

<sup>1</sup> Quotas to be fished by vessels from Estonia, Latvia, Lithuania and the Russian Federation. The provisions of Part 1, 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% (690 t) may be fished before 1 May 2000 and no more than 80% (1 380 t) may be fished before 1 October 2000.

<sup>6</sup> Each Contracting Party shall notify the Executive Secretary bi-weekly of catches taken by its vessels from this stock. Not more than 2500 tons may be fished before July 1, 2000. 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 50 and then 100 percent of the TAC for that stock.

<sup>7</sup> Contracting Parties shall inform the NAFO Executive Secretary before 1 December 1999 of the measures to be taken to meet the advice of the NAFO Scientific Council.

<sup>8</sup> The provisions of Part 1, Section A.5c of NAFO Conservation and Enforcement Measures shall apply.

<sup>9</sup> No directed fishing - The provisions of Part 1, Section A.3a and c of NAFO Conservation and Enforcement Measures shall apply.



**Annex 6. Fisheries Commission's Request for Scientific Advice on  
Management in 2001 of Certain Stocks in Subareas 3 and 4,  
including supplementary questions on Division 3M shrimp for 2000**

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

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

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

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

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

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

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

3. The Commission and the Coastal State request the Scientific Council to consider the following options in assessing and projecting future stock levels for those stocks listed above:
- a) For those stocks subject to analytical-type assessments, the status of the stocks should be reviewed and management options evaluated in terms of their implications for fishable stock size in both the short and long term. As general reference points, the implications of fishing at  $F_{0.1}$ ,  $F_{1999}$  and  $F_{max}$  in 2001 and subsequent years should be evaluated. The present stock size and spawning stock size should be described in relation to those observed historically and those expected in the longer term under this range of options.

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

- b) For those stocks subject to general production-type assessments, the time series of data should be updated, the status of the stock should be reviewed and management options evaluated in the way described above to the extent possible. In this case, the general reference points should be the level of fishing effort or fishing mortality ( $F$ ) which is calculated to be required to take the MSY catch in the long term and two-thirds of that effort level.
- c) For those resources for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management requirements for long-term sustainability and the advice provided should be consistent with the precautionary approach.
- d) Spawning stock biomass levels that might be considered necessary for maintenance of sustained recruitment should be recommended for each stock. In those cases where present spawning stock size is a matter of scientific concern in relation to the continuing reproductive potential of the stock, management options should be offered that specifically respond to such concerns.
- e) Presentation of the results should include the following:
  - I. For stocks for which analytical-type assessments are possible:
    - a graph of historical yield and fishing mortality for the longest time period possible;
    - a graph of spawning stock biomass and recruitment levels for the longest time period possible;
    - a graph of catch options for the year 2001 and subsequent years over a range of fishing mortality rates ( $F$ ) at least from  $F_{0.1}$  to  $F_{max}$ ;
    - a graph showing spawning stock biomass corresponding to each catch option;
    - graphs showing the yield-per-recruit and spawning stock per recruit values for a range of fishing mortalities.
  - II. For stocks for which advice is based on general production models, the relevant graph of production on fishing mortality rate or fishing effort.

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

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

4. Noting the progress made by the Scientific Council on the development of a framework for implementation of the Precautionary Approach, the Fisheries Commission requests that the Scientific Council provide, in their June 2000 report, the following information for the 2000 Annual Meeting of the Fisheries Commission for stocks under its responsibility requiring advice for 2001, or 2001 and 2002, as per Section 2 (i.e. cod in 3M, American plaice in 3M, yellowtail flounder in 3LNO, witch flounder in 3NO, redfish in 3M, Greenland halibut in SA 2+3KLMNO, capelin in 3NO, shrimp in 3M and squid in SA 3+4):
  - a) the limit and target precautionary reference points described in Annex II indicating areas of uncertainty (when precautionary reference points cannot be determined directly, proxies should be provided);
  - b) information including medium term consideration and associated risk or probabilities which will assist the Commission to develop the management strategies described in paragraphs 4 and 5 of Annex II in the Agreement;
  - c) information on the research and monitoring required to evaluate and refine the reference points described in paragraphs 1 and 3 of Annex II of the Agreement; these research requirements should be set out in order of priority considered appropriate by the Scientific Council;
  - d) any other aspect of Article 6 and Annex II of the Agreement which the Scientific Council considers useful for implementation of the Agreement's provisions regarding the precautionary approach to capture fisheries;
  - e) propose criteria and harvest strategies for re-opening of fisheries and for new and developing fisheries; and
  - f) to work toward the harmonization of the terminology and application of the precautionary approach within relevant advisory bodies.
5. With regard to shrimp in Divisions 3LNO, the Fisheries Commission, with the concurrence of the Coastal State, requests that the Scientific Council:
  - a) provide information on the fishing mortality on shrimp in Divisions 3LNO in recent years, as well as information on by-catches of groundfish in 3LNO shrimp fisheries;
  - b) provide information on abundance indices and the distribution of the stock in relation to groundfish resources, particularly for the stocks which are under moratorium;
  - c) provide information on the distribution of shrimp in Divisions 3L, 3N and 3O, as well as describe the relative and seasonal distribution inside and outside the NAFO Regulatory Area; and
  - d) provide information on annual yield potential for this stock.
6. The Scientific Council is requested to summarize all available information from the Convention Area on catches of elasmobranchs, by species and by the smallest geographical scale possible. The Scientific Council is requested to review available information from research vessel surveys on the relative biomass and geographic distribution of elasmobranchs by species, and to quantify the extent of exploitation on these resources. Further, the Scientific Council is requested to initiate work leading to the development of precautionary reference points.
7. The Scientific Council is requested at its November 11-17, 1999 meeting to evaluate, on the basis of the best data available, whether the provision for a Div. 3M shrimp closure in FC Working Paper 99/16 would be a precautionary approach-based measure and if so, whether proposed area and timing of the closure are appropriate.

8. The Scientific Council is requested to compile and review all information on catches and/or discards of juvenile fish in the various NAFO fisheries. The Scientific Council is requested to describe and evaluate the effectiveness of additional technical management measures aiming at reducing catches of juvenile fish and male shrimp in the various NAFO fisheries.

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

**Annex 7. List of Decisions and Actions by the Fisheries Commission  
(21<sup>st</sup> Annual Meeting, 13-17 September 1999)**

Substantive Issue	Decision/Action (FC Doc. 99/15, Part I: item)
1. Transparency of FC decision-making procedures - Rules for Granting Observer Status at NAFO Meetings	Adopted: item 2.3
2. Conservation and Enforcement Measures: - STACTIC Report - Annual infringements  - Boarding Ladders  - Incidental catch limits, Part I.A.5	Discussed: item 3 Adopted: item 3.13 Recommended: Contracting Parties should include more specifics about fines in their future reports: item 3.2 Recommended: Contracting Parties should inspect their fishing vessels to ensure that boarding ladders are in good condition; item 3.3 Adopted: amendment to the Conservation and Enforcement Measures; item 3.8
3. Implementation of Precautionary Approach (PA) to NAFO managed stocks - Resolution to Guide Implementation of PA within NAFO - Working Group Meeting, Brussels, Belgium, 29 February-2 March 2000	Discussed: items 3.14-3.21  Adopted: item 3.21  Agreed: item 3.21
4. Chartering of Vessels - chartering operations, Part I.B	Discussed: items 3.28-3.29 Adopted: amendment to the Conservation and Enforcement Measures; item 3.29
5. Quota Allocation Systems: - Allocation/management 3L shrimp - Working Group, Washington, D.C., USA 27-30 March 2000	Discussed: item 4.58 Adopted: item 4.58 Agreed: item 4.58
6. TAC's and Regulatory Measures for major stocks in the Regulatory Area: - Cod 2J3KL in the Regulatory Area - Cod 3M - Redfish 3M - American plaice 3M - Shrimp 3M, Part I.F.4, Conservation Measures  - Shrimp 3L, Part I.J., Conservation Measures - Cod 3NO	Discussed/Adopted: items 4.1-4.75  no directed fishery no directed fishery 5,000 mt no directed fishery Amendment: Management Measures for Shrimp in Div. 3M for 2000 and consideration by the Scientific Council and Fisheries Commission; item 4.27 Quota 6,000 mt; Management Measures for Shrimp in Div. 3L no directed fishery

Substantive Issue	Decision/Action (FC Doc. 99/15, Part I: item)
<ul style="list-style-type: none"> <li>- Redfish 3LN</li> <li>- American plaice 3LNO</li> <li>- Yellowtail flounder 3LNO</li> <li>- Witch flounder 3NO</li> <li>- Capelin 3NO</li> <li>- Squid (<i>Illex</i>)</li> <li>- Shrimp 3LNO</li> <li>- Greenland halibut 3LMNO</li> <li>- Witch 2J3KL in the Regulatory Area</li> </ul>	<ul style="list-style-type: none"> <li>no directed fishery</li> <li>no directed fishery</li> <li>10,000 mt</li> <li>no directed fishery</li> <li>no directed fishery</li> <li>34,000 mt</li> <li>no directed fishery</li> <li>25,935</li> <li>no directed fishery</li> </ul>
7. Schedule I -- Quota Table 2000	Adopted: item 4.75
8. Request to the Scientific Council for Scientific Advice on Management of Fish stocks in 2001, FC Doc. 99/14	Adopted: item 4.85
9. Transfer of Quotas between Contracting Parties	Referred to future FC meetings, item 4.97
10. Election of Officers <ul style="list-style-type: none"> <li>- Chairman of the Fisheries Commission re-elected for the term of 1999-2001</li> <li>- Vice-Chairman of the Fisheries Commission for 1999-2001, re-elected</li> </ul>	Peter Gullestad (Norway)  Dean Swanson (USA)

### Annex 8. Fishing Activity and Utilization of Fish Resources in the NAFO Regulatory Area

(provisional catch data from NAFO hail reports)

Contracting Party	No. of Vessels (see App.I)	Catches MT: Quota / Catch / %						
		Redfish 3M			Gr. halibut 3LMNO			Shrimp 3M
		Quota	Catch	%	Quota	Catch	%	Vessels / Catch
Canada	6	500	-	-	3667	850 <sup>b</sup>	23	3 385
Cuba	1	1750	-	-	-	-	-	1 119
Denmark		69						
Faroes	7					538 <sup>d</sup>	33	6 9199
Greenland	1							1 576
Estonia	9	(13850) <sup>a</sup>						9 10846
European Union	50	3100	350	11	13530	12651	94	6 1265
France (SPM)	1	69				809 <sup>d</sup>	50	- -
Iceland	11							11 7643
Japan	2	400	320	80	2506	2415	96	- -
		(2150) <sup>c</sup>						
Korea	-	69						- -
Latvia	3	(13850) <sup>a</sup>						3 2765
Lithuania	5	(13850) <sup>a</sup>						5 3370
Norway	2							2 2976
Poland	1							1 707
Russia	9	(13850) <sup>a</sup>			3117	3118	100	5 1126
United States	-	69						- -
Others		124			1624	1347	83	- -
<b>TOTAL</b>	<b>108</b>	<b>13000</b>	<b>670</b>	<b>5%</b>	<b>24444</b>	<b>20381</b>	<b>83%</b>	<b>53 40977</b>

<sup>a</sup> Block quota. (Estonia, Latvia, Lithuania, Russia)

<sup>b</sup> Does not include catches in Canadian zone.

<sup>c</sup> Quota transfer. (see remarks below)

<sup>d</sup> Others Quota.

#### General Remarks on Fishery and Enforcement Measures:

There were quota transfers of 3M Redfish in 1999 to Japan from:

Cuba, 1750 mt (GF/99-385 of 14 June 99)

Canada, 400 mt (GF/99-459 of 06 Aug 99)

NAFO hail report system was a main tool for the Secretariat to supervise the shrimp fishery effort and to monitor the general disposition of fishing vessels in the Regulatory Area. This system worked reasonably well except some cases of mis/under/reporting of "Exit-Entry(s)", which would be very important in the case of shrimp fishing effort estimates. In such cases, the NAFO Secretariat would work with the Contracting Party involved to verify hail reports.

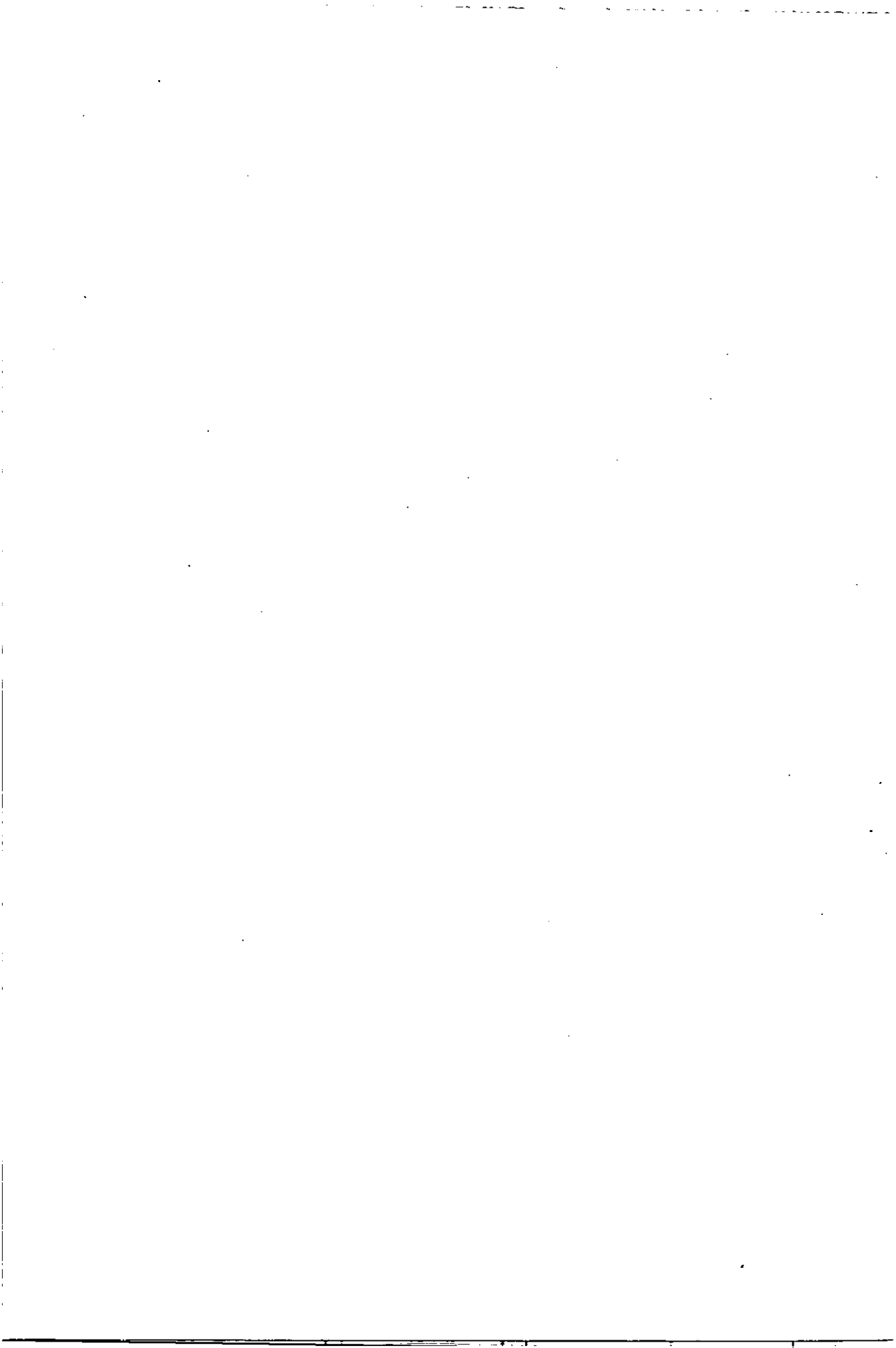
According to the provisions Part I.F.4(g) of the Conservation and Enforcement Measures, "...The number of fishing days should be counted from the hail reports of vessels fishing for shrimp and shall include the days of entry or moves into Div. 3M and the area defined in footnote 1 and the days of moves or exit from Div. 3M and the area defined in footnote 1". With regards to the term of "fishing days", a question was asked by some Contracting Parties to clarify this term considering such probable scenarios on the fishing ground like a broken engine, technical and crew accidents, heavy weather, etc., which could prevent fishery.

## Appendix I

Contracting Party	Name of Vessel
Canada	Eastern Princess II Fame Genny and Doug Melody Chimes Newfoundland Otter Northern Eagle
Cuba	Rio Cuyaguaje
Denmark (Faroes)	Arctic Viking Borgin Hogifossur Hviltenni Ljosafelli Ocean Castle Solborg
Denmark (Greenland)	Polar Amaroq
Estonia	Andvari Heltermaa Kopu Lomur Merike Orvar Sonar Tahkuna Taurus
European Union	Adelia Maria Ana Maria Gandon Ancoura D'Ouro Arcay Area Cova Bieramar Tres Brites Calvao Cidade de Amarante Codeside Coimbra Dorneda Esperanza Menduina Feixe Freiremar Uno Garoya II Hermanos Gandon Cuatro Jose Antonio Nores Leon Marco Leon Marco V Lutador Maria Eugenia G Moradina Nuevo Virgen de la Barca Nuevo Virgen de Lodairo Ocean Tiger Pascoal Atlantico Patricia Nores Patricia Sotelo Pedra Rubia Pesca Vaquiro Pescaberbes Dos



Contracting Party	Name of Vessel
EU (cont'd)	Playa de Cativa Playa de Menduina Playa de Rodas Playa de Sartaxens Playa de Tambo Praia de Santa Cruz Principe Do Vouga Puente Perciras Cuatro Punta Robaleira Puente Sabaris Ria de Pontevedra Rio Orxas Santa Cristina Santa Isabel Santa Mafalda Santa Marina Solsticio Xinzo
France (SP)	Saint Pierre
Iceland	Askur Bliki Eyborg Helga Holmdrangur Nokkvi Orri Petur Jonsson Skuttull Sunna Svalbardi
Japan	Anyo Maru No. 7 Shinkai Maru
Latvia	Amarborg Erla Freyr
Lithuania	Cape Circle Cape Ice Cape Zenith Sheduva Trecimani
Norway	Ingar Iversen Volstad Viking
Poland	Esther
Russia	Chavanga Gornostaevka Luda Maroanjoca Matrioska Merak Olchan Ostankino Ostroye



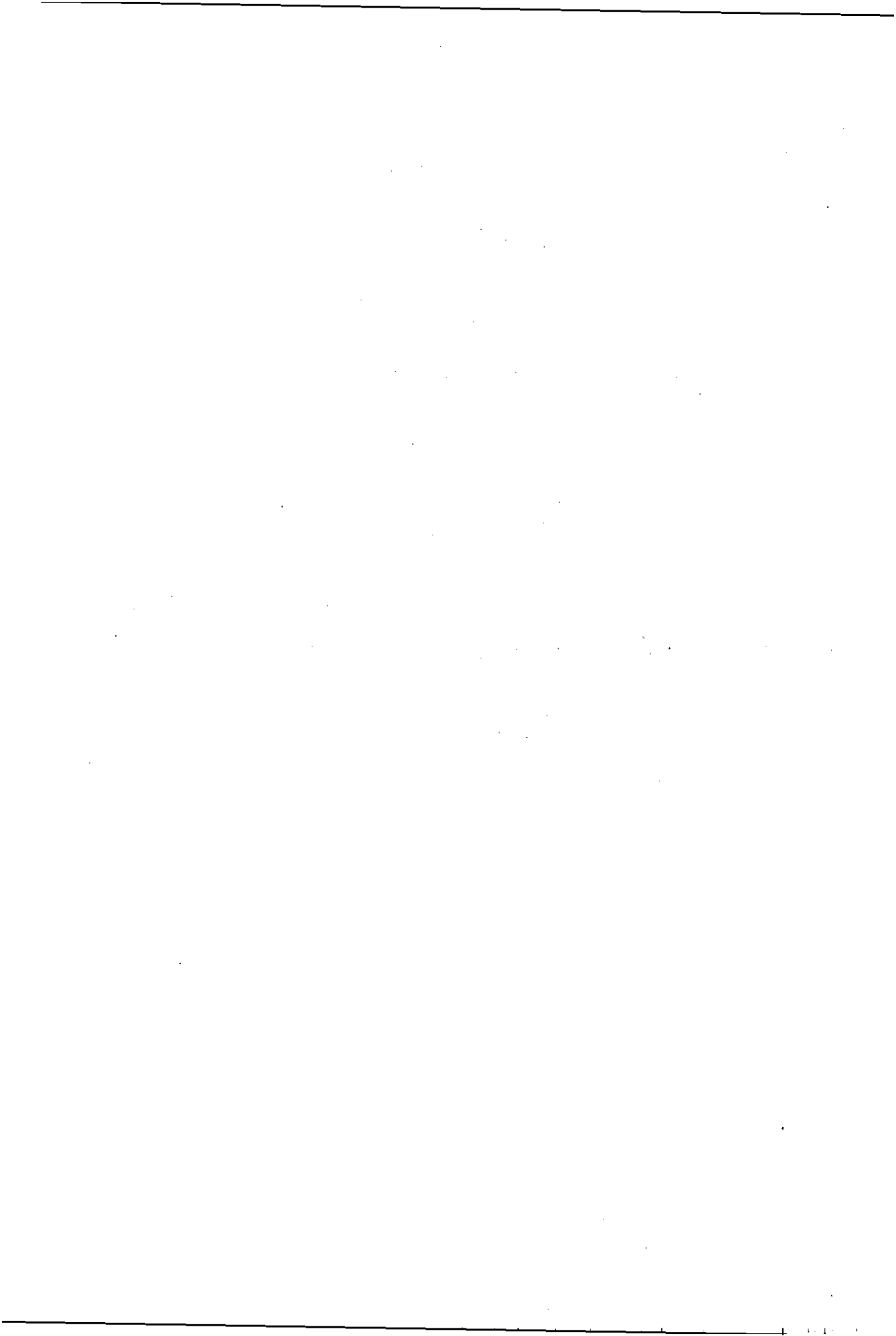
**PART III**  
(pages 107 to 173)

**Activities of the Scientific Council in 1999**

**List of Meetings**

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

- Scientific Council Meeting on Precautionary Approach; Parque Tecnologico de San Sebastian, San Sebastian, Spain, 27 April - 1 May.
- Scientific Council Regular Meeting; Ramada Hotel, Dartmouth, N.S., Canada, 3-16 June.
- Scientific Council Annual Meeting; Holiday Inn, Dartmouth, N.S., Canada, 7, 13-17 September.
- Symposium "Pandalid Shrimp Fisheries - Science and Management at Millennium"; Holiday Inn, Dartmouth, N.S., Canada, 8-10 September.
- Scientific Council Meeting (shrimp); Marine Research Institute, Reykjavik, Iceland, 11-17 November.



**Scientific Council Meeting on Precautionary Approach (PA)  
27 April - 01 May 1999, San Sebastian, Spain**

Chairman: H.-P. Cornus (EU-Germany)

Rapporteur: Assistant Executive Secretary, T. Amaratunga

The Scientific Council met at Miramon, Parque Tecnológico de San Sebastian, San Sebastian, Spain. The report of the PA Meeting was published in Scientific Council Reports, 1999.

Representatives attended from Canada, Denmark (in respect of Faroe Islands and Greenland), European Union, Iceland, Japan, Norway and USA (Annex 1).

Results of various analyses including reference points as available for case studies for cod in Div. 3NO, yellowtail flounder in Div. 3LNO and shrimp in Div. 3M, and other NAFO stocks are given below.

#### **Spreadsheet to Evaluate Harvest Control Rules**

A spreadsheet was developed to provide some flexibility in simulating harvest control rules (HCR) or decision rules under PA-frameworks based on biomass targets and limits, as well as F targets and limits. In particular, the spreadsheet can be used to mimic HCRs under the ICES and NAFO PA frameworks, or simply to evaluate constant F-scenarios. It also permits accounting for fishing mortality resulting from by-catch in periods of moratorium and allows options for specifying the HCRs, as well as options for simulating the spawner-recruit process. Risk analyses are performed using an Add-in to Excel called @Risk.

#### **PASOFT Software**

A presentation on the PASOFT software was introduced to the Scientific Council. The package is intended to provide advice on the status of stocks and to suggest levels of fishing mortality and SSB for use under PA guidelines, without the use of parametric stock recruitment relationships. It includes an Excel add-in and two libraries of functions, subsets of the FishLab software developed at CEFAS, Lowestoft, UK, (MRAG, 1997).

Biological Reference Points (BRPs) are estimated based on equilibrium assumptions and using steady state vectors for selection, natural mortality, growth and maturity. Reference points correspond to properties of yield-per-recruit or spawner-per-recruit curves, stock recruit series, and both parametric and non-parametric stock recruitment relationships.

#### **Reference Points Derived by C/B Ratio**

A simple method to project catches and to define biological reference points for stocks where information is restricted to total catch in weight, mean weight-at-age, and at least one abundance index by age was presented. This method permits the estimate of reference points defined by the levels of effort maximizing yield-per-recruit function as well as the  $F_{0.1}$  level, for this function. The whole family of Biological Reference Points would be defined, if: a) the abundance index were representative of the spawning biomass level and b) a reliable stock recruitment relationship could be defined.

## ASPIC Model

**ASPIC**, A non-equilibrium Surplus Production model Incorporating Covariates fits a time series of stock biomass estimates to catch and biomass index data by assuming logistic population growth and minimizing observation errors. Model results can be arranged in the context of the PA framework. Estimates of logistic growth parameters ( $r$  and  $K$ ) can be used to determine MSY reference points ( $B_{msy} = K/2$ ,  $F_{msy} = r/2$ ). Probability distributions of reference points, biomass estimates and  $F$  estimates can be evaluated by bootstrap results. Estimates of precautionary targets,  $F_{buf}$  and  $B_{buf}$  can be derived from a chosen percentile of the  $F_{msy}$  and  $B_{loss}$  (lowest observed biomass) estimates, respectively. Performance of the precautionary framework and other control rules can be assessed through stochastic projection.

The Council agreed that ASPIC can be a valuable tool for determining stock status, reference points, and performance of alternative harvest strategies. However, the model requires an informative time series of data with a wide range of catch and biomass indices to provide reliable estimates. Simulation exercises showed that ratios to MSY reference points ( $B_t/B_{msy}$  and  $F_t/F_{msy}$ ) were generally more reliable than absolute estimates of biomass or  $F$ .

**Determination of  $B_{msy}$  and  $F_{msy}$ .** A non-equilibrium surplus production model (ASPIC) was applied to catch and VPA estimates of Div. 3NO cod. Biomass estimates from the earliest years in the series (1959-66) did not fit the model, but provisional results with the entire time series were  $MSY = 75\ 000$  tons,  $B_{msy} = 450\ 000$  tons,  $F_{msy} = 0.16$ , 1998 biomass = 4% of  $B_{msy}$ . Truncating the analysis to 1967-97 improved model fit ( $R^2 = 0.73$ ; relative interquartile ranges <10%), but results were similar;  $MSY = 70\ 000$  tons,  $B_{msy} = 430\ 000$  tons,  $F_{msy} = 0.16$ , 1998 biomass = 4% of  $B_{msy}$ . It appears that productivity during the early-1960s is incongruent with more recent productivity.

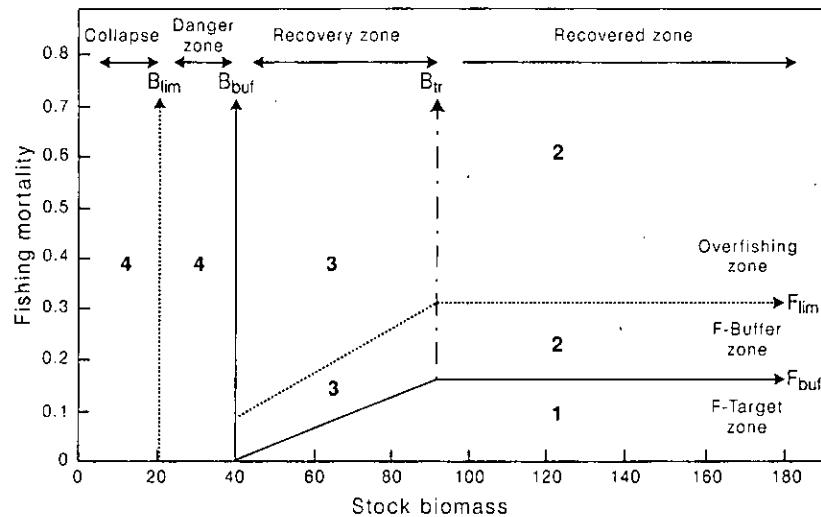
The two specific items that were outstanding were addressed as follows:

### Standardization of Concepts/Nomenclature/Abbreviations/Definitions Between ICES, NAFO and FAO

It was proposed to discuss in a joint meeting of North Atlantic regional fisheries bodies, including NAFO, during 1999.

### Review of the Harvest Control Rule Concept

The NAFO PA Framework defines limit, buffer and target reference points for fishing mortality and biomass. The fishing mortality limit reference point ( $F_{lim}$ ) is defined as a fishing mortality rate that should not be exceeded. In accordance with Annex II of the UN Agreement of the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,  $F_{lim}$  is equivalent to  $F_{msy}$ .



The framework defines  $B_{lim}$  as a level of spawning stock biomass below which the stock should not be allowed to fall. This may be calculated from a stock-recruitment plot in cases where there is an indication of a high probability of reduced recruitment at low stock sizes. In the Northwest Atlantic, many stocks exhibit this characteristic, indicating a need for a risk-averse management strategy. When this pattern is less evident, or where stock-recruitment data are lacking, other indicators of low stock biomass, such as  $B_{loss}$ , may be used for  $B_{lim}$ .

### Recommendations to Managers (Fisheries Commission)

#### Cod in Divisions 3NO

With respect to cod in Div. 3NO, the Scientific Council recommended that the best current estimate of  $B_{lim}$  is a spawning stock biomass of 60 000 tons estimated by applying annual maturity ogives to the population as determined by Virtual Population Analysis (VPA). The Scientific Council also made calculations on the probability levels corresponding to various risks of SSB being below  $B_{lim}$  for consideration by managers as possible  $B_{buf}$  reference points.

#### Yellowtail Flounder in Divisions 3LNO

With respect to yellowtail flounder in NAFO Div. 3LNO, the Scientific Council recommended that the results of the ASPIC model be used as the basis for setting some reference points in the PA framework at this time. The results of the model are also useful in evaluating current stock size in relation to these reference points. However, the Scientific Council concluded that the model could not be used directly to derive values for  $B_{lim}$  and  $B_{buf}$  at this time, due mainly to its inability to account for stock-recruitment relationships. From the ASPIC results,  $B_{msy}$  was estimated at 91 000 tons,  $F_{lim}$  (defined as  $F_{msy}$ ) was 0.18, and  $F_{buf}$  (defined as the tenth percentile of the  $F_{msy}$  estimate), was 0.13. Investigations on the stock recruit relationship, and on age-structured models, are continuing for this stock.

#### Shrimp in Division 3M

The Scientific Council recommended that the use of the traffic light approach be considered by managers as an interim means to evaluate Div. 3M shrimp and other data poor stocks.

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**Scientific Council Meeting**  
**3-16 June 1999, Dartmouth, N.S., Canada**

Chairman: H.-P. Cornus (EU-Germany)

Rapporteur: Assistant Executive Secretary, T. Amaratunga

The Scientific Council met at the Park Place Ramada Plaza Hotel, 240 Brownlow Ave., Dartmouth, Nova Scotia, Canada, during 3-16 June 1999. Finalized report was published in Scientific Council Reports, 1999.

Representatives attended from Canada, Denmark (in respect of Faroe Islands and Greenland), Estonia, European Union (France, Germany, Portugal, Spain and United Kingdom), Japan, Russian Federation and United States of America (Annex 1).

The agenda was adopted (Annex 2).

The Chairman informed the Council that once again a local area network (LAN) would be used, and it will be similar to the LAN used during the 27 April to 1 May 1999 Scientific Council Meeting on the Precautionary Approach (PA) in San Sebastian. The Council agreed that for this meeting the LAN will contain three directories: one for individual computer ports, one for general use and one for read-only purposes.

#### FISHERIES ENVIRONMENT

Annual air temperatures throughout the Northwest Atlantic were above normal in 1998 with the largest amplitudes in the Gulf of St. Lawrence.

The atmospheric circulation pattern in 1998 was similar to 1997 with the anomaly of the North Atlantic Oscillation (NAO) index being slightly positive and near to, but above, the value for 1997. This is well above the very low value of 1996 but below that recorded in the early-1990s.

Due to warmer than normal air temperatures and weaker winds, ice formed late, left early and was of shorter duration in 1998 than normal off southern Labrador, Newfoundland and in the Gulf of St. Lawrence. Little to no ice reached the Scotian Shelf. In spite of this reduction in total amount of ice, the maximum areal extent on the Newfoundland Shelf was near normal.

During 1998, the number of icebergs to reach south of 48°N increased relative to 1997 and was an above average iceberg year. This was surprising given the higher air temperatures and reduction in sea ice duration.

Temperatures in 1998 throughout most of the water column off Newfoundland changed from above to below normal in April, except near bottom where they were slightly above normal throughout the year.

Deep-water temperatures on the Scotian Shelf (Emerald Basin) decreased by upwards of 3°C in early 1998 and remained low during the rest of year. Low temperatures were also recorded in Georges Basin in the Gulf of Maine. The low temperatures in the deep basins on the Scotian Shelf and in the Gulf of Maine are due to the on-shelf penetration of cold Labrador Slope water from the shelf break region.

The cold Labrador Slope water observed in 1997 along the shelf edge off the Scotian Shelf remained and during 1998 moved further southward along the slope to the Middle Atlantic Bight region.

Cold waters were observed near-bottom and at intermediate waters over the northeastern Scotian Shelf and off southwestern Nova Scotia, continuing a trend that began in the mid- to late-1980s. They continue to warm slowly, however, and are almost at their long-term mean value.

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

#### **Environmental Indices – Implementation in the Assessment Process (SCR Doc. 99/6, 7)**

A review was given of recently published material on the relationship between fish productivity and environmental variables as well as between climate changes and the response of marine ecosystems. Strong evidence was provided for an environmental influence on distribution, recruitment and growth of a number of different stocks from a variety of geographical locations. The conclusion was drawn that despite the chaotic nature of the climate system, efforts should be made to incorporate environment into the stock assessment process, especially since we may be able to predict the environment on at least decadal scales.

Univariate seasonal Autoregressive-Integrated-Moving-Average (ARIMA) and intervention models were used to forecast monthly mean air and bottom water temperatures from 3 sites in the Northwest Atlantic, up to one year in advance (SCR Doc. 99/7). These models explained a reasonable amount of the total variability, with results showing a good agreement between the forecasts and observations. The structure of the random processes that generated the temperature time series was specified for most cases as ARIMA models with moving average terms.

These papers generated much discussion. More work on the predictions was required, especially using longer time series. One of the problems in fisheries is to determine what temperature fish actually experience. In the past, temperatures were usually taken from a fixed site, whereas we know that fish move and may traverse water masses of different temperatures. Temperature indices that take this movement into account are required. Finally, environmental information should be considered as part of the precautionary approach. For example, biological reference points may differ during different periods because of different environmental conditions. Thus reference points may need to be adjusted depending upon environmental conditions.

## **FISHERY SCIENCE**

### **Structure of the STACFIS Report**

The Standing Committee on Fisheries Science (STACFIS) presented a proposed revision to the structure of the STAFIS report. The proposal was to report stock assessments by geographic regions, which groups species by each of 4 general regions: Greenland and Davis Strait; Flemish Cap; The Grand Bank and Subareas 2 and 3; 3 and 4 for widely distributed stocks (Roundnose and Roughhead grenadiers, Greenland halibut, Squid and Cod in 2J3KL).

Complete description of environmental fishery and biological features of those regions presented in the Scientific Council Report, 1999 (and SCS Doc. 99/21).

A summary of general fishery trend NAFO Regulatory Area in 1999 is demonstrated in the table below:

(from NAFO monthly reports)  
1999

Contracting Party	Cod 3M		Redfish 3M		Yellowtail 3LNO		G. halibut 3LMNO	
	Quota	Catch	Quota	Catch	Quota	Catch	Quota	Catch
1. Bulgaria	-	-	-	-	-	-	-	-
2. Canada	0	0	500	0	5850	5540	3 667	850
3. Cuba	0		1750		-		-	
4. Denmark (Faroe Islands and Greenland)	0	0	69	0	-	0	-	538
5. European Union	0	3	3100	350	120	1126	13 530	12 651
6. France (St. Pierre et Miquelon)	-		69		-		-	876
7. Iceland	-	0	-	0	-	0	-	0
8. Japan	-	0	400	320	-	0	2 506	2 415
9. Korea	-		69		-		-	
10. Norway	0	0	-	0	-	0	-	0
11. Poland	0	0	-	0	-	0	-	0
12. Estonia		0		0		0	-	0
13. Latvia	0 <sup>1</sup>	0	13850 <sup>1</sup>	0	-	0	-	0
14. Lithuania		0		0		0	-	0
15. Russia		0		0		0	3 117	3 188
16. United States of America	-		69		-		-	
17. Others	0		124		30		1 624	
TAC and Catch	0	3	13000	670	6000	6666	24 444	20 448
% of utilization of TAC	-		5		111		84	

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

The provisional data from the above table indicate that major allocated stocks were under-exploited. This trend has been indicative for all previous period (during 90s).

### Assessment of Finfish Stocks and Squid

This year, the assessments and their report were shaped in a different format of two (2) layers: Advice of some selected stocks for 2000 and advice for 2000-2001. Accordingly those advices are presented below:

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

There are 3 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 present assessment evaluates the status of the Div. 3M beaked redfish stock, regarded as a management unit composed of two populations from two very similar species (*Sebastes mentella* and *Sebastes fasciatus*). The reason for this approach is that evidence indicates this is by far the dominant redfish group on Flemish Cap.

Scientific Council concluded that while the decline in stock biomass appears to have halted, it is still unclear as to whether there has been any actual increase. The total stock and spawning stock are currently at a low level compared to the earlier period in the time series. At the current relatively low fishing mortality, and with growth of the relatively strong 1990-91 year-classes, stock and spawning biomass should gradually increase.

The Council was unable to advise on a specific TAC for year 2000, however, in order to maintain relatively low fishing mortalities so as to promote stock recovery, Scientific Council recommends that catch for Div. 3M redfish in year 2000 be in the range of 3 000-5 000 tons.

***Yellowtail Flounder (*Pleuronectes ferruginea*) 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.

Based on 8 additional surveys since the 1998 assessment, the current view is that the stock size has increased over the past year. The stock biomass is perceived to be at a level close to that of the mid-1980s.

$F_{buf}$  was determined to be 0.13 corresponding to an exploitation rate of about 11%. Applying this to the average estimate of fully recruited age 7+ biomass index from the Canadian spring and autumn surveys of 1998 (98 000 tons) results in a catch of about 10 000 tons. Scientific Council recommended TAC be set at 10 000 tons for the year 2000.

***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.

Based on the survey data, the short-finned squid resource in Subareas 3+4 has remained at a low level.

The Scientific Council was unable to advise on a specific level of catch for year 2000. 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 year 2000 for short-finned squid in Subareas 3+4 be set between 19 000 tons and 34 000 tons.

***Greenland Halibut (*Reinhardtius hippo-glossoides*) 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.

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 1998 as a result of lower TACs under management measures introduced by the Fisheries Commission. Catches have been well below TACs during 1995-98.

Most survey indices of biomass increased from 1996 to 1998, and CPUE increased in 1997 and 1998 due mainly to recruitment of the 1990-92 year-classes. Above average recruitment is also indicated for all year-classes from 1993 to 1995. Indices of fishable biomass (greater than 35 cm) were below average in 1998, but should continue their recent gradual increase in 1999-2000 as these year-classes continue to recruit to the fishable stock.

The Council was unable to advise on a specific TAC for year 2000 and recommended that a catch in year 2000 of about 30 000 tons is likely to allow the stock to continue to increase.

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

The cod stock on Flemish Cap is considered to be a discrete population.

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. The fisheries since 1996 were very small compared with previous years. Most of the fleets traditionally directing for Div. 3M cod did not participate. One-third of the 1998 catch was taken by vessels from non-Contracting Parties.

The stock has collapsed. The total stock biomass in 1996, 1997 and 1998 are the lowest on record. Recruitment at age 3 is expected to be poor in 1999 and 2000. The decrease in the age-at-maturity of the stock, interpreted as a reaction of the population to the decline of the stock, did not result in more abundant recruitments.

It was recommended no directed fishery for cod in Div. 3M in year 2000. Also, by-catch of cod in fisheries directed to other species on Flemish Cap should be kept at the lowest possible level.

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

The stock occurs mainly at depths shallower than 400 m on Flemish Cap.

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

It was recommended that there should be no directed fishery on American plaice in Div. 3M in year 2000. 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 springtime on spawning concentrations.

Stock remains 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.

It was recommended no directed fishing on witch flounder in the year 2000 in Div. 3N and 3O to allow for stock rebuilding. By-catches in fisheries targeting other species should be kept at the lowest possible level.

**Advice on TACs for 2000 and 2001**

***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.

VPA and Canadian spring and autumn surveys showed a large decline in biomass since the mid-1980s. Recruitment has been low since the mid-1980s. Total mortality remains high on young fish but has declined on older (5+) ages. The stock remains low compared to historic levels.

Recommendation was no directed fishing on American plaice in Div. 3LNO in years 2000 and 2001. By-catches should be kept at the lowest possible level.

### ***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.

The stock remains close to its historical low with weak representation from all year-classes.

Recommendation was there should be no directed fishing for cod in Div. 3N and 3O in years 2000 and 2001. By-catches of cod in fisheries targeting other species should be kept at the lowest possible level.

### ***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.

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 was no directed fishing for redfish in Div. 3LN in years 2000 and 2001, and by-catches of redfish in fisheries targeting other species should be kept at the lowest possible level.

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

#### ***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.

The age composition in the catches in Subareas 0 + 1 has been stable in recent years. Although the survey series from Subarea 1 in 1987-95 is not directly comparable with the series from 1997-98, the decline in the stock observed in Subarea 1 until 1994 has stopped and the stock seems to be back at the level in the late-1980s and early-1990s.

The TAC for year 2000 should not exceed the current level of 11 000 tons for Greenland halibut in Subarea 0 + Div. 1A (offshore) and 1BCDEF, based on the relative stability of the stock.

#### ***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.

The stock of roundnose grenadier is still at a very low level observed since 1993.

There should be no directed fishing for roundnose grenadier in Subareas 0+1 in years 2000-2002. Catches should be restricted to by-catches in fisheries targeting other species.

### ***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.

**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.

Based on the available data there appears to be a very high probability of decreased recruitment below SSB levels of 5 000 tons.

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 the short term.

Scientific Council is not in a position to propose reference points at this time.

**Recommendation for Golden and Deep-sea Redfish Stocks:** No directed fishery should occur on redfish in Subarea 1 in years 2000 and 2001. By-catches of redfish in the shrimp fishery should be at the lowest possible level.

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

The inshore stock is dependent for recruitment on immigration from the offshore nursery grounds in Div. 1A and 1B and the spawning stock in Davis Strait. Only sporadic spawning seems to occur in the fjords, hence the stock is not considered self-sustainable. The fish remain in the fjords, and do not appear to contribute back to the offshore spawning stock. This connection between the offshore and inshore stocks implies that reproductive failure in the offshore spawning stock for any reason will have severe implications for the recruitment to the inshore stocks.

The stock components in all three areas consist of a large number of age groups. However, age compositions of the catches appear to have been shifting towards younger age groups.

In order to prevent escalating effort, it was recommended that the TACs are kept at a stable level. The TAC for year 2000 for each of the inshore areas were therefore recommended to be: Disko Bay 7 900 tons, Uummannaq 6 000 tons and Upernavik 4 300 tons, same as advised for 1999.

### ***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*), thorny skate (*Raja radiata*), lumpsucker (*Cyclopterus lumpus*), Atlantic halibut (*Hippoglossus hippoglossus*) and sharks. No recommendations can be made for Greenland cod, lumpsucker, Atlantic halibut and sharks.

**State of the Atlantic wolffish stock:** The stock remains severely depleted despite a steady increase in recruitment since the early-1980s.

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

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

**Recommendation for the stocks of American plaice, Atlantic wolffish, spotted wolffish and thorny skate:** No directed fishery in Subarea 1 for American plaice, Atlantic wolffish, spotted wolffish and thorny skate should occur in years 2000 and 2001. By-catches of these species in the shrimp fisheries should be at the lowest possible level.

#### **Special Requests for Advice by Denmark (Greenland)**

The Council was 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*
- c) *comment on advantages and disadvantages of a multiyear management advice for roundnose grenadier in Subarea 0+1*

Concerning a): no new data were available since Div. 0B has not been surveyed in recent years (see STACFIS report on Greenland halibut in Subarea 0 and Div. 1B-1F and NAFO Sci. Coun. Rep., 1994, p. 110). There are, however, planned surveys that will cover Div. 0A in 1999 and 0B in 2000. 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 Greenland halibut in Div. 1A in each inshore area for year 2000 should not exceed the average of the catches for 1995-97; Disko Bay - 7 900 tons, Ummannaq - 6 000 tons and Upernavik - 4 300 tons.

Concerning c): there has been no directed fishery for roundnose grenadier in Subareas 0+1 since 1978. The survey biomass in Subarea 1, where most of the biomass has been found, declined gradually from about 100 000 tons in 1986 to 8 000 tons in 1993 and has been below that level since then. Since 1987 the length distribution in the surveys, has been dominated by small individuals and in recent years composed almost exclusively of small individuals <12 cm (pre-anal fin length, measured from the snout to the basis of the first anal fin ray). Roundnose grenadier is a slow growing species and Scientific Council does not expect any major change in the status of the stock in the near future.

#### **Request by Canada for Advice on TACs and Other Management Measures for Year 2000**

The Scientific Council was requested by the Coastal States to provide advice on single year and multiyear considerations for certain stocks. This section presents stocks for which the Scientific Council provided advice for the year 2000, as requested by Canada.

##### ***Roundnose Grenadier (Coryphaenoides rupestris) in Subareas 2 and 3***

**Background:** 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.

**Assessment:** Because of limited time series, limited coverage and various vessels/gears conducting these surveys, the information is of limited value in determining resource status. It is not possible to provide an estimate of the absolute size of the stock.

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

### **Overall assessment for Greenland halibut throughout Subareas 0 to 3**

Canada, subject to concurrence of Denmark (Greenland) requested the Scientific Council to *provide an overall assessment of status and trends in total Greenland halibut stock throughout its range* (see Redbook 1999, Part E, Agenda II, Annex 2, Item 1 for complete request):

Scientific Council provided advice for Greenland halibut as follows: Subareas 0+1 offshore, Div. 1A inshore, and Subareas 2 + Div. 3KLMNO. Surveys have been conducted in most of these areas, with the exception of Subarea 0. Thus it is not possible at present to give an overview of the complete stock.

No data are available to assess harvest patterns in terms of yield-per-recruit, although recent otter trawl fisheries continue to have a similar catch at age (mostly immature fish, predominant ages are 6-8) relative to previous years. There has been little distributional variation in the stock in recent years, with most of the young fish being found in channels between fishing banks in Div. 2J and 3K. Older fish tend to be found mainly along the deep slope areas, with highest abundance consistently found in Div. 3K and northern Div. 3L.

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

**Background:** Cod in these Divisions are considered a single stock complex. However, there is considerable evidence of sub-stock structure. Historically, many of the cod migrated between the offshore and the inshore. There are at present very few cod in the offshore compared to any time prior to 1993. There is evidence of denser aggregations in the inshore. Several lines of evidence, including results from genetic and tagging studies, indicate that the cod currently inshore may remain there throughout the year. However genetic studies were inconclusive and did not support the hypothesis of separate inshore and offshore stocks.

**State of the Stock:** The stock as a whole remains at a very low level.

In the offshore there are no signs of recovery. The biomass is very small with few mature fish. Year-classes recruiting in the 1990s have been extremely weak.

The status in the inshore remains uncertain. Catch rates in sentinel surveys and a test fishery (1998 only) were good to excellent in the southern half of the stock range. Dense aggregations have been observed in one small area. A mark-recapture study indicates about 52 000 tons in Div. 3K and northern Div. 3L in autumn 1998, with an upper 95% confidence limit of 150 000 tons for the whole of Div. 3KL. Some of the fish in southern Div. 3L in spring-autumn came from pre-spawning and spawning concentrations in Subdiv. 3Ps.

### **Stock structure of Greenland halibut in Subareas 0 and 1**

Tagging studies have been on-going since the provision of advice in 1994. A total of 7 244 fish have been tagged with reliable information obtained from 499 returns. None of the fish were recaptured

outside the inshore areas comprised of Disko Bay, Uummannaq and Upernavik areas and 90% of the fish were recaptured in the fjord where they were tagged indicating that these fish remain resident. Some limited migration between some of the inshore areas especially in inshore Disko Bay area was observed with fish moving between the Torsukattaq and Ilulisat fjord. There is still very little fishery offshore in Div. 1A and therefore tagging returns can not conclusively test a possible link with Greenland halibut occurring offshore and inshore in Div. 1A. There is hence no new information that indicates that the Greenland halibut inshore in Div. 1A contribute to the spawning stock in the Davis Strait (SA 0 and 1). Further, there is no biological information that indicates that the current management units for Greenland halibut in NAFO Subareas 0 and 1 (SA 0 and 1 offshore, Div. 1A) advised by STACFIS in 1994 should be changed.

#### **Effects of spatial distribution of recent annual catches on yield and SSB of Greenland halibut in SA 2 + Div. 3K and Divisions 3LMNO**

The Council responded as follows: There are no indices of spawning stock biomass available for this stock at present. Thus, Scientific Council cannot comment on the effects on SSB of the spatial distribution of catches relative to the spatial distribution of SSB. Complete data on migration and spawning are also lacking, so it is not known how a concentration of catch in Div. 3LMN in recent years will impact on future yield or distribution of the resource. Most otter trawl fisheries on this stock operate at depths greater than 800 m, and often as deep as 1 400 m. Canadian gillnet fisheries, operating mainly in Div. 2J and 3K, use larger mesh (>190 mm) in depths beyond 732 m, and smaller mesh (>140 mm) in shallower depths.

#### **Impact of by-catches in the NAFO Regulatory Area on the recovery of stocks currently under moratorium**

Simulations were used to evaluate recovery time for cod on the southern Grand Banks (Div. 3NO) and for American plaice on the Grand Banks (Div. 3LNO) under various by-catch levels. These simulations take into account the precision of the stock size estimates currently available, as well as the observed variability in the stock-recruitment process. The Scientific Council also explored two interpretations of the stock-recruitment data: the first assumes that recruitment prospects are poor due to the persistence of a low productivity regime since the early-to mid-1980s, while the second assumes that future recruitment will return to historical levels as the spawning stock increases. The results of the simulations provide insight on the time it will take for these stocks to reach  $B_{lim}$  or any given milestone under various by-catch scenarios. The simulations also served to provide insight on the expected yield and biomass levels, on the long term, under various recruitment regimes.

The Scientific Council concludes that changes in productivity could have a major impact on the dynamics of the stock in future years and that recovery time will depend upon which recruitment process prevails in the future. Fishing mortalities in excess of the by-catch levels observed in recent years could increase considerably the recovery time in a low recruitment regime, particularly for cod in Div. 3NO for which the drop in productivity is more pronounced than for American plaice under such a regime. It is not yet possible to predict when the recruitment regime will change.

#### **Scientific Advice from Scientific Council on its Own Accord**

The Scientific Council on its own accord considered Roughhead grenadier in Subareas 2 and 3, and the following Summary Sheet was prepared:

***Roughhead Grenadier (Macrourus berglax) in Subareas 2 and 3***

Roughhead grenadier are distributed throughout Subareas 2 and 3 in depths between 300-2000 m. The available time series of catches at age is too short to allow the analyses of trends in the SSB. It should be noted that immature fish constitute 80% of the catch in 1997 and 90% in 1998. The state of the stock is not known.

**RESEARCH ACTIVITIES AND COORDINATION****Joint ICES/NAFO Working Group on Harp and Hooded Seals**

The Scientific Council reviewed the 29 September-2 October 1998 meeting report of the Joint ICES/NAFO Working Group on Harp and Hooded seals in the Northeast and Northwest Atlantic. Of this report only the development of stocks in the Northwest Atlantic are presented in the following.

Canadian catches of the Northwest Atlantic harp seals in 1998 amounted to 283 000 animals, and these were believed to be primarily pups. Preliminary estimates of the Greenland catch was about 75 000 animals in 1996. Total removals in 1996 approximated 317 000 harp seals, which was greater than the replacement yields estimated by the Working Group in 1995 (275 000-285 000). Increases in Canadian catches since 1996 suggest that total removals may have continued to exceed replacement yields.

**Consideration on internet site for statistical data**

It was recommended that the NAFO Website should be the principal vehicle by which NAFO provides access to and distributes information on the activities, accomplishments, decisions, documents, and reports of the General Council, Scientific Council, Fisheries Commission to other fisheries and scientific organizations in the world, and to the general public. It is therefore essential that close collaboration occur between constituent bodies of NAFO (and the NAFO Secretariat) in enhancing and further developing the NAFO Website so that its full potential can be realized.

**Interagency data harmonization (NAFO/FAO)**

The NAFO Secretariat reported that the national authorities of the countries, for which major discrepancies between the catch data held by NAFO and FAO had been detected during the June 1998 exercise, had received individual listings of the discrepancies with a request that they attempt to eliminate them. So far only very limited responses have been received.

The Scientific Council recommended that the detection exercise should be repeated at short intervals at the discretion of the NAFO and FAO Secretariats.

**Biological Surveys and Sampling**

As in all previous years (in 90's), most surveys were conducted by Coastal States - Canada, USA and Denmark (in respect of Greenland) in their 200-mile zones of the NAFO Convention Area. Some limited biological sampling were obtained by EU (Portugal, Spain) and Russia from their catches in the NAFO Regulatory Area. All type of surveys were summarized by STACREC in a special table (Scientific Council Reports, 1999, page 185).

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

The species composition, distribution and abundance of sharks in both the Spanish commercial catches (1991-98) and research surveys (1988-98) in Div. 3LMNO were reviewed. The proportion of shark species in the total catch is small and the main retained species is the black dogfish whereas the main discard is the boreal shark. Since 1996 the retained proportion of black dogfish has increased noticeably, as well as the proportion of total sharks. In the surveys this shark is the species with the highest biomass index. Black dogfish is found in the deepest waters. The length range of black dogfish was mainly between 50 and 80 cm, with a mode around 62-63 cm. No evident geographic pattern in the length distribution was observed during the studied period.

The Meeting noted information on abundance indices of thorny skate (*Raja radiata*) off West and East Greenland was considered by STACFIS under its agenda.

**Collection of Scientific Data and Catch Statistics on Elasmobranchs and Other Non-traditional Species** was emphasized as very important tool for future assessments.

STACREC reviewed and based on their occurrence in Subareas 3 and 4 approved a list of elasmobranch species for which catch statistics should be requested on the STATLANT 21A and 21B questionnaires. However, STACREC requested representatives to review this list and forward any modification to the Secretariat in advance of the September 1999 Annual Meeting.

CODE	SHORT NAME	COMMON NAME	LATIN NAME	ABBRE.	CATEGORY
462	PORBEAGLE	PORBEAGLE	<i>LAMNA NASUS</i>	POR	3
464	SHORTFIN MAKO	SHORTFIN MAKO SHARK	<i>ISURUS OXYRINCHUS</i>	SMA	3
470	SHARPNOSE SHARK	ATLANTIC SHARPNOSE SHARK	<i>RHIZOPRIONODON TERRAENOVAE</i>	RHT	3
472	BLACK DOGFISH	BLACK DOGFISH	<i>CENTROSCYLLIUM FABRICII</i>	CFB	3
473	BOREAL SHARK	BOREAL (GREENLAND) SHARK	<i>SOMNIOUSUS MICROCEPHALUS</i>	GSK	3
474	BASKING SHARK	BASKING SHARK	<i>CETORHINUS MAXIMUS</i>	BSK	3
452	SPINY DOGFISH	SPINY (PICKED) DOGFISH	<i>SQUALUS ACANTHIAS</i>	DGS	3
480	LITTLE SKATE	LITTLE SKATE	<i>RAJA ERINACEA</i>	RJD	3
484	BARNDOR SKATE	BARNDOR SKATE	<i>RAJA LAEVIS</i>	RJL	3
487	WINTER SKATE	WINTER SKATE	<i>RAJA OCELLATA</i>	RJT	3
488	THORNY SKATE	THORNY SKATE (STARRY RAY)	<i>RAJA RADIATA</i>	RJR	3
489	SMOOTH SKATE	SMOOTH SKATE	<i>RAJA SENTA</i>	RJS	3
490	SPINYTAIL SKATE	SPINYTAIL (SPINETAIL RAY)	<i>RAJA (BATHYRAJA) SPINICAUDA</i>	RJQ	3

### Protocol for Scientific Data on Pilot Observer Program

STACREC was informed that a draft of the NAFO Observer Manual had been circulated to Heads of Delegations by the Executive Secretary and will be discussed by the Fisheries Commission at the 1999 Annual Meeting. Section III (Protocol for Scientific Data Collection) of the Manual was circulated to STACREC.

STACREC stressed the importance of harmonized data transmissions by the Contracting Parties and proposed that, in preparation for the discussions with the Fisheries Commission and STACTIC an *ad hoc* Working Group (Chairman: M. Showell (Canada)) be established to review the contents of Section III to the proposed NAFO Observer Manual.

The Working Group considered several matters related to length frequency sampling protocols and data forms required to record this information. However, it was recognized the time available during this June 1999 meeting was not sufficient to permit the development of a finished, quality product. STACREC recommended that the *ad hoc* Working Group on Protocol for Scientific Data

Collection should work inter-sessionally to define the type of data from the Observer Program needed for Scientific Council assessment work as requested by STACTIC during the Joint STACTIC/Scientific Council Meeting at the Annual Meeting 1998, and develop a complete package of observer collection protocols, data forms, instructions and codes, for presentation to Scientific Council at the September 1999 Meeting.

### **Working Group on Reproductive Potential**

In accordance with the recommendation of the Scientific Council Symposium on "Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish" held in Lisbon September 1998, Scientific Council established a Working Group on Reproductive Potential. The Council proposed the Chair of the Working Group should be Dr. E. A. Trippel (Canada). The terms of reference for the working group are:

- Explore and review availability of information and existing data on reproductive 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 HIS)
- Review possibilities to develop methods and applications to estimate stock's reproductive potential for assessment and management.

### **Rules of Procedure**

The Council endorsed the STACPUB recommendations pertaining to modifications of Rule 3 and Rule 5 in the Rules of Procedure of the Scientific Council. The new adopted text of the Rules of Procedure are as follows:

#### **"Rule 3**

3.3 b. to act as Chairman of the Standing Committee on Research Coordination (STACREC)."

#### **"Rule 5**

5.1 c. ii) consist of five other members appointed by the Scientific Council."

**Regarding Rule 5 modifications:** to Rule 5.1, c.ii, the Council discussed membership of STACPUB. Contrasting views were that a) STACPUB membership should remain in the present structure, noting that this body needs to conduct its business as referred to it by the Council; at a small group level, without impinging on the Scientific Council plenary work time, and b) it is not appropriate to limit STACPUB work to a few members and participation in STACPUB should be as in other Standing Committees (STACFIS, STACFEN and STACREC) – open to Scientific Council members at large, although certain types of STACPUB work should be done by a smaller group.

Scientific Council deferred a decision on this matter to the September 1999 Meeting.

**Regarding Scientific Council participation in other NAFO Constituent Bodies:** the Council noted many discussions at General Council and Fisheries Commission, and their subsidiary bodies are relevant to Scientific Council, and as such Scientific Council representation is needed, e.g. Scientific Council/STACTIC Meeting of September 1998. The Council agreed that representatives

should be nominated in advance of those meetings, and every effort should be made to maintain continuity. It was suggested for example that STACREC Chairmen should attend STACTIC meetings as needed.

#### NOMINATION AND ELECTION OF OFFICERS (1999-2001)

Chairman of Scientific Council	W. B. Brodie (Canada)
Vice-Chairman	R. K. Mayo (USA)
Chairman of STACPUB	O. A. Jørgensen (Denmark-Greenland)
Chairman of STACFIS	H.-J. Rätz (EU-Germany)
Chairman of STACREC	R. K. Mayo (USA)



**Participants of Scientific Council Meeting, 3-16 June 1999**

*Back L to R:*

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C. L. Kerr, Statistical/Reception Clerk

## 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. Review of LAN use at meetings
  6. Report of proxy votes (by Executive Secretary)
- II. Chairman's Report on Intersessional Activities
  1. Report on Eleventh ICES Dialogue Meeting
  2. Report on meeting of FAO and Non-FAO Regional Fishery Bodies
  3. ICES ACFM meeting May 1999
- III. Review of Scientific Council Recommendations in 1998
- IV. Implementation of Precautionary Approach (PA)
  1. Review of results of San Sebastian 27 April-5 May 1999 Meetings
  2. Future development
- V. Fisheries and Environment (STACFEN Chairman: M. Stein)
  1. Opening
  2. Chairman's introduction; report on intersessional activities
  3. Review of recommendations in 1998
  4. Invited lecture (R. R. Dickson, CEFAS, UK: "Aspects of the physical and biological response to NAO variability").
  5. Review of environmental conditions
    - a) Marine Environmental Data Service (MEDS) Report for 1998
    - b) Review of environmental studies in 1998
      - i) Results from physical oceanographic studies
      - ii) Results from interdisciplinary studies
    - c) Overview of environmental conditions in 1998
  6. Formulation of recommendations based on environmental conditions in 1998.
  7. Environmental indices (implementation in the assessment process)
  8. Russian/German data evaluation (ICNAF/NAFO data, status report)

9. ICES/NAFO Symposium on Hydrobiological Variability, August 2001, Edinburgh, UK
  10. National representatives
  11. Other matters
- VI. Fisheries Science (STACFIS Chairman: R. Mayo)
1. Opening
  2. General review
    - a) Review of recommendations in 1998
    - b) General review of catches and fishing activity
  3. Stock assessments
    - a) Stocks within or partly within the Regulatory Area, as requested by the Fisheries Commission with the concurrence of the Coastal State (Attachment 1)(Shrimp in Div. 3M will be undertaken during Scientific Council Meeting 11-17 November, 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)
      - Shrimp (Div. 3LNO)(see also Attachment 1, item 7)
      - Squid (Subareas 3 and 4) (see also Attachment 1, item 3.f)
      - Greenland halibut (Subareas 2 and 3)
      - [Note also Attachment 1, item 6 concerning witch flounder in Div. 2J+3KL]
    - b) 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]
    - c) 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 Scientific Council Meeting, 11-17 November 1999):
      - Redfish (Subarea 1) (by species, if possible)
      - Other finfish and invertebrates (Subarea 1)
    - d) Stocks overlapping the fishery zones in Subareas 0 and 1, as requested by Canada and by Denmark on behalf of Greenland (Attachmentss 2 and 3) (Northern shrimp in Subareas 0 and 1 will be undertaken during Scientific Council Meeting, 11-17 November, 1999):
      - Greenland halibut (Subareas 0 and 1)
      - Roundnose grenadier (Subareas 0 and 1)

- e) Assessment of other stocks:
    - Roughhead grenadier (Subareas 2 and 3)
  - 4. Research activities
    - a) Comparative fishing surveys between Canada and EU-Spain in Spring 1999
    - b) Other activities
  - 5. Other matters
    - a) New Designated Experts
    - b) Other business
- VII. Research Coordination (STACREC Chairman: V. Shibanov)
- 1. Opening
  - 2. Review of recommendations in 1998
  - 3. Fishery statistics
    - a) Progress report on Secretariat activities in 1998/99
      - 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) Considerations for CWP 18th Session, Luxembourg, 5-9 July 1999
  - 4. Biological sampling
    - a) Report on activities in 1998/99
    - b) Report by National Representatives on commercial sampling conducted
    - c) Report on data availability for stock assessments (by Designated Experts)
  - 5. Biological surveys
    - a) Review of survey activities in 1998 (by National Representatives and Designated Experts)
    - b) Surveys planned for 1999 and early-2000
  - 6. Non-traditional fishery resources in the NAFO Area
    - a) Distribution data from surveys
    - b) Collection of scientific data and catch statistics on elasmobranchs and other non-traditional species
    - c) Expanded species list for STATLANT 21A and B
  - 7. Report of the Working Group on Biological Information Database (Chairman, E. De Cardenas, EU-Spain)
  - 8. Review of SCR and SCS Documents
  - 9. Protocol for scientific data on Pilot Observer Program
  - 10. Format of data from Pilot Observer Program for Scientific Council purposes

11. Other matters
    - a) Tagging activities
    - b) Conversion factors
    - c) Other business
- VIII. Publications (STACPUB Chairman: W. B. Brodie)
1. Opening
  2. Review of recommendations in 1998
  3. Review of STACPUB membership and chairmanship
  4. Review of scientific publications since June 1998
    - a) Journal of Northwest Atlantic Fishery Science
    - b) NAFO Scientific Council Studies
    - c) NAFO Statistical Bulletin
    - d) Index and Lists of Titles
    - e) Others
  5. Production costs and revenues for Scientific Council publications
    - a) Review of costs and revenues
    - b) Proposal for publication of 1999 Symposium proceedings
  6. Promotion and distribution of scientific publications
    - a) Invitational papers
    - b) Abstracts from Research Documents
    - c) NAFO Website
    - d) Scientific Citation Index (SCI)
    - e) CD-ROM versions of reports, documents
    - f) New initiatives for publications
  7. Editorial matters regarding scientific publications
    - a) Review of Editorial Board
    - b) Editorial workload related to publication of Symposium proceedings
    - c) Progress review of publication of 1998 Symposium
    - d) Review of editorial process –Scientific Council Studies
  8. Papers for possible publication
    - a) Review of proposals resulting from the 1998 Meetings
    - b) Review of contributions to the April-May 1999 meeting on Precautionary Approach
    - c) Review of contributions to the June 1999 Meeting
  9. Other matters
- IX. Arrangements for Special Sessions
1. Progress report on Special Session in 1999: Joint NAFO/ICES/PICES Symposium on "Pandalid Shrimp Fisheries – Science and Management at the Millennium" (co-conveners: P.A.Koeller, J. Boutillier and S. Tveite)

2. Proposal for Special Session in 2000
3. Progress report on Special Session in 2001: Symposium on Hydrobiological Variability

X. Future Scientific Council Meetings 1999 and 2000

1. Scientific Council Meeting and Symposium, September 1999
2. Scientific Council Meeting in November 1999 (assessment of shrimp stocks in Div. 3M, Subareas 0+1 and Denmark Strait)
3. Scientific Council Meeting, June 2000
4. Scientific Council Meeting and Symposium, September 2000
5. Scientific Council Meeting, November 2000
6. Scientific Council Meeting, November 2001

XI. Nomination and Election of Officers

1. Chairman Scientific Council
2. Vice-Chairman Scientific Council
3. Chairman STACPUB
4. Chairman STACFIS
5. Chairman STACREC

XII. Management Advice and Responses to Special Requests

1. Fisheries Commission (Attachment 1)
  - a) Request for advice on TACs and other management measures for year 2000
    - Redfish in Div. 3M
    - Yellowtail Flounder in Div. 3LNO
    - Squid in Subareas 3 and 4
    - Shrimp in Div. 3M
    - Greenland Halibut in Subareas 2 and 3
    - Cod in Div. 3M
    - American Plaice in Div. 3M
    - Witch Flounder in Div. 3NO
  - b) Request for advice on TACs, and other management measures for years 2000 and 2001
    - American Plaice in Div. 3LNO
    - Cod in Div. 3NO
    - Redfish in Div. 3LN
  - c) Special requests for management advice
    - i) Precautionary measures
    - ii) Criteria for re-opening fisheries
    - iii) Squid in Subareas 3 and 4
    - iv) Stock status of witch flounder in Div. 2J+3KL
    - v) Information on shrimp stock in Div. 3LNO
    - vi) Information on guidelines and protocol of fisheries research
2. Coastal States (Attachments 2 and 3)
  - a) Request by Canada and Denmark (Greenland) on Advice for TACs and other management measures for year 2000:



Greenland halibut in Subareas 0 and 1  
 Roundnose grenadier in Subareas 0 and 1

- b) Request by Denmark (Greenland) on Advice for TACs and other management measures for years 2000 and 2001
  - Redfish in Subarea 1
  - Other finfish
- c) Special requests on advice by Denmark (Greenland): comment on multiyear advice
- d) Request by Canada for advice for TACs for 2000 and other management measures (see section a)
  - Roundnose grenadier in Subareas 2 and 3
- e) Special requests for advice by Canada
  - i) Overall assessment for Greenland halibut throughout SA 0 to 3
  - ii) Stock status of cod in Div. 2J+3KL
  - iii) Stock structure of Greenland halibut in SA 0+1
  - iv) Effects of spatial distribution of recent annual catches on yield and SSB of Greenland halibut in SA 2 + Div. 3K and Divisions 3LMNO
  - v) Impact of by-catches in the NAFO Regulatory Area on the recovery of stocks currently under moratorium.
  - vi) Conservation measures (other than TACs based on reference points) in the context of the Precautionary Approach.

3. Scientific advice from Scientific Council on its own accord

Roughhead grenadiers in SA 2+3.

XIII. Report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals

XIV. Review of Scientific Council working procedures/protocols

- a) Review of Rules of Procedure
- b) Adoption of the form of advice to PA requirements
- c) NAFO Scientific Council observership at ICES ACFM meetings

XV. Other Matters

- a) Recommendations from 1998 Symposium on Growth and Maturation
- b) FAO ACFR Working Party on Status and Trends of Fisheries
- c) NAFO Working Group on Transparency
- d) Other business

XVI. Adoption of Committee Reports

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

XVII. Scientific Council Recommendations to General Council and Fisheries Commission

XVIII. Adoption of Scientific Council Report

XIX. Adjournment

**Attachment 1. Fisheries Commission's Request for Scientific Advice  
on Management in 2000 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 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.

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ATTACHMENT 2. CANADIAN REQUEST FOR SCIENTIFIC ADVICE ON  
MANAGEMENT IN 2000 OF CERTAIN STOCKS IN SUBAREAS 0 TO 4

1. Canada requests that the Scientific Council, at its meeting in advance of the 1999 Annual Meeting of NAFO, provide advice on the scientific basis for the management of the Roundnose grenadier in Subareas 2 and 3 in 2000.

It is also suggested that, subject to the concurrence of Denmark (Greenland), the Scientific Council, prior to the 1999 Annual Meeting of NAFO, provide advice on the scientific basis for management in 2000 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 is no biological basis for conducting separate assessments for Greenland halibut throughout Subareas 0-3, but has advised that separate TACs be maintained for different areas of the distribution of Greenland halibut. The Council is asked therefore, subject to the concurrence of Denmark (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 2000. 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 2000 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 2000 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 advise on any new information that may be available on the application the Precautionary Approach for those stocks.

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. In 1994, the Scientific Council noted that there was ongoing research which would allow the Scientific Council to review its opinion on the stock structure question pertaining to Greenland halibut in NAFO Subareas 0+1 (1994 Redbook, pg. 102). Therefore, the Scientific Council is requested to review this information and, in particular, any tagging studies which could be used to answer the following questions: 1) is there any evidence that the Greenland halibut in Division 1A contribute to the spawning stock in Div. 0+1 (offshore)? 2) Are the current management units for Greenland halibut in NAFO Subareas 0+1 (0+1 offshore, Division 1A) biologically appropriate?
5. For Greenland halibut in Subarea 2+Division 3K and Divisions 3LMNO, the Scientific Council is requested to evaluate the effects on yield and stock spawning biomass of the spatial distribution of recent annual catches in relation to the spatial distribution of the stock biomass. The Scientific Council is also requested to provide information on the distribution of fishing effort for Greenland halibut by Division and by depth.
6. The Scientific Council is requested to evaluate the impact of by-catches in the NAFO Regulatory Area on the recovery of stocks currently under moratorium. Specifically do the by-catches of these stocks in all other fisheries in the NAFO Regulatory Area impede their recovery?
7. The Scientific Council has been looking at the Precautionary Approach with respect to reference points for specific species. At the May 1998 Intersessional Meeting on the Precautionary Approach, other potential measures were also identified, such as mesh size, by-catch protocols, closures, etc. Could the Scientific Council discuss and recommend specific conservation measures (other than TACs based on reference points) that the Fisheries Commission could consider in the context of the Precautionary Approach framework?

P. S. Chamut  
 Assistant Deputy Minister  
 Fisheries Management, 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 SUBAREAS 0 AND 1

1. Denmark, on behalf of Greenland, request 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 stocks in Subarea 1 on a two-year basis (for the years 2000 and 2001):

Redfish (by species, if possible)  
 Any other stock of finfish of commercial interest, for which data allow a status report

Denmark, on behalf of Greenland, requests the Scientific Council to continue to monitor the status of these stocks annually and, should significant changes be observed in stock status, provide updated advice as appropriate.

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

Greenland halibut  
Roundnose grenadier

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 of this stock in Subarea 1 was unknown. The Council is therefore asked to comment on the following topics:

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

For roundnose grenadier in Subarea 0+1, the advice of the Scientific Council has been constrained by the lack of scientific information, as there are no recent estimates of biomass for the entire stock area. Subject to the concurrence of Canada, the Scientific Council is requested to comment on advantages and disadvantages of a multiyear management advice for this stock.

3. Subject to the concurrence of Canada, Denmark, on behalf of Greenland, further requests that the Scientific Council of NAFO before December 1999, provide advice on the scientific basis for management of Northern shrimp (*Pandalus borealis*) in Subareas 0 and 1 in year 2000 and as many years forward as data allow.

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

For Northern shrimp (*Pandalus borealis*) in Subareas 0 and 1 and in Denmark Strait the Scientific Council is requested to comment on advantages and disadvantages of a multiyear management advice.

Peder Munk Pedersen  
Director  
On behalf of The Ministry for Fisheries, Hunting &  
Agriculture





## JOINT NAFO/PICES/ICES SYMPOSIUM

### *PANDALID SHRIMP FISHERIES – SCIENCE AND MANAGEMENT AT THE MILLENNIUM*

(Hosted by the Scientific Council of the Northwest Atlantic  
Fisheries Organization), 8–10 September 1999

The Symposium "*Pandalid Shrimp Fisheries - Science and Management at the Millennium*", was held at the Holiday Inn Harbourview, Dartmouth, Nova Scotia, Canada with co-conveners P. A. Koeller (NAFO), J. Boutillier (PICES), and S. Tveite (ICES) during 8–10 September 1999. There were 96 participants from Canada, Denmark, Faroe Islands, Germany, Greenland, Iceland, Japan, Luxembourg, Norway, Portugal, Russia, Spain, Sweden, Ukraine, 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 Dartmouth, and presented a brief overview of NAFO and its activities.

Co-convenor P. A. Koeller (Canada), welcomed the participants, and gave a general outline of the objectives of the Symposium.

The Symposium considered advances in all aspects of *Pandalid* shrimp biology, stock assessments and fisheries management since the last international Symposium was held in Alaska, during 1979. In addition, a session on harvesting and processing highlighted recent changes in this sector.

**Keynote Paper:** Bo Bergström (Sweden) provided a comprehensive review of the biology of the genus *Pandalus*, comparing distributions, reproductive strategies, behaviour, growth, and population dynamics of the sixteen known species. Key gaps in our knowledge of *Pandalus* biology were identified including the long period of relative inactivity in laboratory studies since the 1970s despite the need for basic physiological information. A communications gap exists not only between stock assessment biologists and those working on fundamental biological and ecological problems, but also between shrimp assessment biologists themselves, who tend to be isolated within their own management regimes.

### DISCUSSION

A comment after the keynote address reiterated the major gaps in knowledge of *Pandalid* biology outlined by Dr. Bergström, including the gap between the flurry of laboratory studies in the 1970s and the present, and the gap between stock assessment biologists and those working on fundamental biological and ecological problems. While the lack of research funding has contributed to the first gap, this may improve in areas such as the Northwest Atlantic as shrimp overshadow groundfish in economic importance. The second gap may be addressed with available tools, including international meetings of this nature, and e-mail facilities such as the SHRIMP-NORTH discussion list.

Much discussion reiterated the sensitivity, apparent in many of the presentations, of *Pandalus* spp. stock distributions and abundances to hydrographic changes. Process studies on the planktonic stages were considered essential to establish the links between environmental changes and recruitment which have been inferred from historical time series analysis. The use of modern tools such as the satellite imagery of Sea Surface Temperatures showing the instability of the water masses off east Greenland and their possible effect on shrimp distribution is essential if hydrographic data is to figure in shrimp stock predictions. Although workers in ocean climate

may never be in a position to "forecast" beyond the short term, they are working towards predicting likely longer term trends in some areas. Discussions of a warming trend in the Northwest Atlantic associated with the North Atlantic Oscillation, and an anticipated cooling trend in the North Pacific perhaps delayed by recent unusual El Niño-Southern Oscillation (ENSO) events and their probable effect on shrimp stocks suggest a growing confidence in our ability to, if not understand all the linkages between ocean climate and shrimp populations, at least formulate testable hypotheses involving such large scale events.

The discussion clearly identified the need for further work on the influence of predation on shrimp stock dynamics and eventually, to develop the ability to recognize and separate effects due to predation from those due to environmental factors and fishing. A fundamental question in this area is the extent to which predation changes the size composition of a stock, which influences our interpretation of important parameters such as growth and distribution, and ultimately biases our interpretation of stock health.

Presented papers clearly showed that two main components of any stock assessment model, fishing mortality (F) and natural mortality (M), vary substantially. It was noted that it is essential that the varying predation component of M be incorporated into the advisory process in a quantitative way. In the absence of clearly defined M, assuming constant high natural mortality and the inevitable large, environmentally induced population fluctuations, the tendency of industry is to argue that fishing doesn't matter i.e. in the short term, fishing should be as high as possible because "they all die anyway", and in the longer term it should be as high as possible because "the stock will collapse anyway". In fact, total mortality, Z, representing the combined effects of environment, predation and fishing, results in survival of a certain spawning stock which must be related to stock survival through knowledge of the stock-recruitment relationship, the other essential component of M.

It was pointed out that more comparative biological and ecological studies of different stocks are needed to identify differences in population dynamics and vulnerabilities to overfishing. It is unlikely that the sustainable exploitation rate of a small stock isolated within a pocket of favourable environmental conditions at the southern end of the species range would be the same as a large northern stock well within the species range. It was felt the biological basis for more precaution in some stocks *versus* others should be established and documented.

Discussion on management focused on the application of the Precautionary Approach to shrimp stocks, specifically the Traffic Light adopted by shrimp assessments biologists and managers on the east coast of Canada, and adopted as an interim method for low data stocks within NAFO. This discussion quickly polarized into 2 camps, namely those who felt that the approach was not quantitative and should be interim, and those who felt it was quantitative and could be a long-term alternative to traditional methods. On the defensive, proponents pointed out that traditional quantitative models often give the perception of providing more information or certainty than is actually there in reality, especially to those unfamiliar with the underlying assumptions. In addition, important ancillary observations are often ignored or devalued because there is no place for them in the model. Traffic Light scores incorporate a suite of observations and their respective interpretations ranging from quantitative assessment results from surveys, commercial sampling, and VPAs if available, to semi-quantitative biological observations on demographic stability, natural mortality, environmental conditions, distribution, etc., to qualitative anecdotal information provided by industry, into a single score that represents current stock status more comprehensively and precautionously than traditional models. Simulations show that this score, when translated directly into a management response through harvest control rules, performs better than a constant exploitation approach in terms of yield-per-unit risk. Results are consistent with shrimp stock dynamics and precautionary management requirements and indicate that the method has considerable potential in the creation of an integrated management framework. It was pointed out that the management response as presently implemented in the model is limited to exploitation

rates *via* TACs and should also incorporate additional response controls on fishing mortality *via* e.g. effort controls.

There was considerable discussion on the wide variety of sampling strategies, survey methods and data analysis techniques adopted by the various organizations, many of which have undergone considerable change recently. While much of these differences in methods are dictated by *different stock characteristics* it is clear that large differences also occur among organizations with relatively similar stock characteristics, e.g. the large stocks on both sides of the North Atlantic. There may be some advantage to continued dialogue between these organizations in terms of standardization and/or improvement of methodologies. The need for recruitment indices was emphasized and it was pointed out that these could be obtained through relatively simple and inexpensive means, for example the "juvenile bag" used in Iceland, and the "underbelly" bags used in the Barents Sea.

During the discussions after the session on harvesting and processing, it was pointed out that the phenomenal success of the Nordmore grate and similar By-catch Reduction Devices (BRDs) is not without problems. These devices have been accepted and used for a relatively short time (10 yr) and their long-term effects are still to be determined. In particular, their impact on commercially important juvenile fish may be considerable in some areas and times. In Norway, fishermen feel that the release of "trash" fish by the grate may impact shrimp stocks negatively by increasing predation pressure. These problems can only be addressed by continuing to improve the selectivity of the gears. The trend in cooperative government-industry research and management in Canada was lauded by the industry representative as exemplary, but it was pointed out that successful industry participation is contingent on a guarantee of access to the resource and its early participation in the development of any management framework.





Co-conveners: S. Tveite, P. A. Koeller, J. Boutillier



Keynote Speaker: B. Bergström



## Annex 1. List of Participants

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B. L. Marshall, Statistical Clerk  
C. L. Kerr, Statistical/Reception Clerk

**Scientific Council Annual Meeting**  
**7, 13-17 September, Dartmouth, N.S., Canada**

Chairman: H. P. Cornus

Rapporteur: Assistant Executive Secretary, T. Amaratunga

The Scientific Council met at NAFO Headquarters, 2 Morris Drive, Dartmouth, Nova Scotia, Canada, 7 September and at Holiday Inn during 13-17 September 1999. Representatives attended from Canada, Denmark (in respect of Faroe Islands and Greenland), European Union (France, Germany, Portugal and Spain), Iceland, Japan, Russian Federation and the United States of America (Annex 1).

The Agenda was adopted (Annex 2).

The Chairman noted that the meeting of 7 September would be devoted to specifically address the Fisheries Commission request for scientific information on shrimp in Div. 3LNO. The Chairman proposed that the information review be undertaken by the Council. Accordingly, the STACFIS agenda was modified.

The Council conducted the review of shrimp in Div. 3LNO through the course of 7 September 1999, and prepared its response to the Fisheries Commission.

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

**FISHERY SCIENCE**

**Shrimp (*Pandalus borealis*) in Divisions 3LNO**

The Fisheries Commission, with the concurrence of the Coastal State, requested 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.*

The Council provided detailed responses to the questions which summary is presented herewith.

On fishing mortality: Information on by-catches in a shrimp fishery is available in the NRA of Div. 3L. The following Table shows, for two periods, the average number of Greenland halibut, redfish, cod and American plaice caught for each ton of shrimp with or without a sorting grate with 22 mm bar spacing.

<b>WITH A GRATE OF 22 MM BAR SPACING</b>				
<b>Period</b>	<b>Greenland halibut</b>	<b>Redfish</b>	<b>Cod</b>	<b>American plaice</b>
Oct-Nov 1998	111	43	0	12
Jun-Jul 1999	13	8	0	2
<b>WITHOUT A GRATE</b>				
Oct-Nov 1998	857	188	6	238
Jun-Jul 1999	302	56	9	41

On abundance indices and distribution of stocks: Canadian autumn research survey index of shrimp biomass Div. 3LNO were about 6 000 tons, 21 000 tons, 47 000 tons and 62 000 tons for the years 1995 to 1998, respectively. These include the biomass both inside Canada's 200-mile zone and in the NRA. At least 85% of the shrimp biomass was within Division 3L and at depths of about 185-550 m.

A review of the current distribution of shrimp from research survey data compared to current and historical distribution of juveniles of various groundfish species currently under moratorium indicated only limited overlap with cod and American plaice. There is overlap with areas where juvenile redfish have been traditionally found, particularly in the Sackville Spur and 'nose' areas of Div. 3L. These are the same areas where the highest concentrations of shrimp occur. Detailed distribution maps were presented in the Report.

On shrimp distribution: Approximately 86% of the Div. 3LNO biomass of shrimp was found within Div. 3L (and 11%-23% of those were in the Regulatory Area). Division 3N accounted less than 14% and 3O, less than 1%.

On reference points: Scientific Council was unable, with the current data, to provide reference points related to a Precautionary Approach to exploitation of this resource. Scientific Council, however, recommended that the development of any fishery in the Div. 3L area take place in a gradual manner with conservative catch limits imposed and maintained for a number of years in order to monitor stock response.

On an overlap with juvenile fish under the moratoria: The information presented in response to (b) indicates little overlap with juvenile Atlantic cod or American plaice in areas of highest shrimp biomass. Juveniles of these species are, however, present in shallower water. Restriction of fishing to depth greater than 200 m would prevent overlap in distribution of effort and these juveniles. For redfish and Greenland halibut there is considerable overlap in distribution such that exclusion zones would not be feasible. Other measures should be considered for these species such as use of longer toggle chains.

On potential yield: Scientific Council was unable to provide information at this time on annual yield potential for this resource. As indicated in the response to (d), a cautious approach to

development of any fishery in this area was recommended and any fishing should be restricted to in Div. 3L only and depths greater than 200 m.

On a research level: Canada currently conducts an annual autumn multi-species survey in the Div. 3LNO area during which information on both fish and invertebrates including shrimp is collected. Results from these surveys will allow for monitoring, on an ongoing basis, the status of the shrimp resource as well as its distribution in relation to groundfish. It is important that there be fully adequate monitoring of any commercial fishery in this area. Detailed information on shrimp catch (including discards) effort, by-catch (kept and discarded) and fishing gear used should be collected on an ongoing basis.

On a special area on Flemish Cap: The area of Div. 3L encompassed by the coordinates represent an area with contours continuous with those of the Div. 3M portion of Flemish Cap. These are well separated from similar depths further west in Div. 3L by the Flemish Pass which has depths to 1 500 m. As such, Scientific Council considers that shrimp in this area represent part of the overall Flemish Cap shrimp stock rather than a portion of any stock to the west of Flemish Pass. Based on information from research surveys, Scientific Council did not consider that any by-catch and loss of yield of groundfish resources as a result of fishing in the area bounded by the given coordinates would not be different compared to that occurring as a result of the shrimp fishery in the Div. 3M portion of Flemish Cap.

**Special Request from Concurrent Fisheries Commission Meeting - Request Regarding Cod in Divisions 2J and 3KL**

*The Scientific Council was requested to evaluate the impact of catch in the range 5 000-10 000 yearly on the recovery of cod 2J+3KL stock unit.*

*The Scientific Council was also requested to evaluate the impact of by-catches of cod in other fisheries inside the Canadian zone and the NRA.*

The Scientific Council responded:

As indicated in the June 1999 Report of Scientific Council, "An analytical assessment of the Div. 2J and 3KL cod stock was not attempted. The inability to reconcile reported catches and the research vessel index in the late-1980s and early-1990s has not been resolved. Perhaps more importantly, the surveys do not cover the shallow coastal waters where good catch rates have been experienced in both the sentinel surveys and the 1998 index fishery, and the sizes and ages of cod taken in the offshore surveys do not represent the larger and older cod caught in the inshore."

Because of this, Scientific Council is not in a position to provide risks associated with fishing at different levels comparable to those made available for cod in Div. 3NO.

However, it is clear that the size of the stock as a whole remains at a very low level. It is also clear that any removals (including directed catch and by-catch in other fisheries) will hamper recovery of the resource although the extent of this delay cannot be determined with available data.

**DEVELOPMENT OF PRECAUTIONARY APPROACH**

The Council reviewed a paper "*On the Criteria (Reference Points) of Biomass, and Approaches to Some Fishery Management in the North Western Atlantic Ocean*".

In the discussion that followed, the Scientific Council indicated that this paper served to illustrate the difficulties associated with the definition of limit reference points for many of the stocks. It

was pointed out that more emphasis should be put on the definition of an optimal range (as opposed to limits) for the stock spawning biomass and total biomass. In that context, a possible PA strategy could be to ensure that the exploitation rates are regulated so as to maintain the biomass in its optimal range. In terms of the NAFO PA framework, this points at the importance of defining the target for biomass ( $B_{tr}$ ) as well as the limits ( $B_{lim}$ ) and that a strategy or harvest control rule should recognize both types of reference points.

On future development of the Precautionary Approach, the Council noted that the Fisheries Commission proposed that a meeting of the Joint Scientific Council/Fisheries Commission Working Group be held in the intersessional period.

The Council noted from the review of the Joint Scientific Council/Fisheries Commission Meeting that international harmonization of PA terminology, particularly between NAFO and ICES was important and it was agreed a formal proposal to FAO from the NAFO Scientific Council and ICES ACFM should be initiated. A joint letter was drafted by the Council Chairman and reviewed by the Council.

### **FUTURE SPECIAL SESSIONS**

The Council reviewed the proposal for a Workshop on Assessment Methods, to be limited to Scientific Council participants. The proposal outlined a hands-on approach whereby the participants can be exposed to techniques and tools that they can try on data relevant to NAFO stocks. The proposal described four possible items or sessions:

1. Tools for Data Management;
2. Age-structured analyses and stock abundance estimation;
3. PA reference points; and
4. Simulations and risk analyses.

The Council believed that the priority should go to items 2 and 4, while giving only an introduction/overview on the PA software for the determination of reference points (item 3). It was also agreed that item 1 is important, but should be developed during the June meetings through examples or implementations on actual data. It was agreed that the Integrated Catch Analysis should be included in the exploration of age-structured analyses.

### **SCIENTIFIC COUNCIL WORKING PROCEDURES AND PROTOCOLS**

#### **Rules of Procedure**

#### **STACPUB Membership**

The Council noted that STACPUB had addressed the issue of STACPUB membership, and the recommendation to change Rule 5.1 (c) (ii) of the Rules of Procedure for the Scientific Council and modify the scheme of nominating members, was accepted (see Item IV Publications above).

The Council noted the appointment of a new, sixth, member of STACPUB should take place as soon as possible with the 3-year term beginning effective as of 17 September 1999.

#### **Observers at Scientific Council Meetings**

The Council noted that a Working Group proposal to modify the Rules of Procedures of General Council and Fisheries Commission was under review by those constituent bodies. The Council agreed to defer its consideration of Rule 1.3 of its Rules of Procedure.

## **Other Procedures or Protocols**

### **Standard Software**

The Council reviewed the value of developing standard software for STACFIS stock assessments. It was agreed that the present day rapid changes and upgrades of software would make this very difficult to achieve, while also placing constraints on individual scientist's initiatives.

### **Standard Database**

The Council reviewed the value of developing standard databases for STACFIS stock assessment. The Council noted that a proposed spreadsheet regarding data exchange format is under development, and this will be reviewed at the June 2000 Scientific Council Meeting.

### **Intermediate Stock Status Report for Stocks with Multiannual Advice**

The Council agreed there was a need to establish a standard method of monitoring stock status. It was, however, observed that Designated Experts are the responsible authorities to conduct this work, and that it was also very likely that requests for scientific advice would be forthcoming if stock status were observed to be changing.

The Council agreed, however, that Designated Experts should be requested to monitor the stock status and provide reports to the Scientific Council each year.

## **OTHER MATTERS**

### **Future Computer Requirements and Improvement of NAFO Website**

As agreed by the Council during its June 1999 Meeting that a Working Group be established to look into the future computer requirements and improvements of the NAFO website, the Council established the *ad hoc* Working Group consisting of M. Stein (EU-Germany), F. M. Serchuk (USA) and L. Motos (EU-Spain) to be working intersessionally. It was proposed M. Stein should take the lead role in the Working Group, and the Working Group work with the Assistant Executive Secretary on this matter.

### **Working Group on Reproductive Potential**

The Council was informed that further to the recommendation of the 1998 Symposium on "Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish", and discussions during the June 1999 Meeting of the Scientific Council, a Working Group has been formed with E. Trippel (Canada) as Chairman and provisionally 11 members. The members list will be finalized shortly by the Chairman.

### **NAFO Observer Protocol**

The harmonized scientific protocol for the NAFO Observer Program was presented to the Standing Committee on International Control (STACTIC) at the September 1999 Meeting. The draft protocol was well received by STACTIC. STACTIC noted that issues of confidentiality of concern to Contracting Parties must still be addressed.

Instructions for observers to complete the data collection forms, coding and sampling procedures were not included with the draft scientific protocol, and STACTIC requested these elements be made available for review. STACREC recommended that the Working Group on NAFO Observer Protocol communicates by e-mail with STACREC members during development of the coding

and sampling procedures in order to ensure concurrence with the recommendations tabled by STACTIC for consideration during the proposed STACTIC intersessional meeting.

STACTIC noted that several observer manuals are currently in use by Contracting Parties, and had proposed that an intersessional meeting be held, with Scientific Council representation to incorporate all inspection and scientific elements of the NAFO Observer Program into a harmonized reporting format. STACREC noted that the Scientific Council was in agreement with this proposal.



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

**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 Science (STACFIS Chairman: R. K. Mayo)
  1. Opening
  2. Matters Related to Stock Assessments
    - a) Nomination of Designated Experts
  3. Other Matters
    - a) Review of SCR and SCS Documents (if needed)
    - b) Other Business
  
- III. Research Coordination (STACREC Chairman: V. N. Shibanov)
  1. Opening
  2. Fisheries Statistics
    - a) Progress Report on Secretariat Activities
      - i) Acquisition of STATLANT 21 data
      - ii) Publication of statistical information
    - b) Review of SCR and SCS Documents (if needed)
    - c) NAFO Observer Protocol
      - i) Report of the *Ad hoc* Working Group on NAFO Observer Protocol
    - d) Report of CWP 18<sup>th</sup> Session
  3. Other Matters
    - a) Progress Report on Biological Database Format Exchange (Cod in Divisions 3NO)
    - b) Other Business
  
- IV. Publications (STACPUB Chairman: W.B. Brodie)
  1. Opening
  2. Review of Scientific Publications
    - a) Status of Papers from June 1999 Meeting
    - b) Status of Papers from 1999 Symposium
    - c) Other Reviews

3. Status of Scientific Council Studies
  4. Review of Meeting with Editorial Board during 1999 Symposium  
[Note: this item depends on arranging an *Ad hoc* Meeting between available members of STACPUB and the Editorial Board during the 8-10 September Symposium in Dartmouth.]
  5. Other Matters
- V. Management Advice and Responses to Special Requests
1. Shrimp in Divisions 3LNO (see Agenda II, Annex 1, Item 7)
  2. Intersessional information on shrimp in Div. 3M
  3. Special Requests from Concurrent Fisheries Commission Meeting
- VI. Development of Precautionary Approach
1. Review of Papers Related to Precautionary Approach
  2. Review of Meetings at San Sebastian, 27 April-5 May 1999 (see SCS Doc. 99/4; FC Doc. 99/2)
  3. Future Development
- VII. Review of Future Meeting Arrangements
1. Scientific Council Meeting, June 2000
  2. Special Session and Annual Meeting, September 2000
  3. Other Meetings in 2000 and 2001
- VIII. Future Special Sessions
1. Progress Report on Special Session in 2000
  2. Progress Report on Special Session in 2001
- IX. Scientific Council Working Procedures and Protocols
1. Review of Rules of Procedure
    - a) STACPUB Membership
    - b) Observers at Scientific Council Meetings
  2. Other Procedures or Protocols
    - a) Standard Software
    - b) Standard Database
    - c) Intermediate Stock Status Report for Stocks with a Multiyear Advice
- X. Other Matters
1. *Ad hoc* Working Group on Future Computer Requirements and Improvement of NAFO Website
  2. NAFO Scientific Council Observer at ICES ACFM
  3. Report from Scientific Council Representative at STACFAD
  4. Joint ICES/NAFO Working Group on Harp and Hooded Seals
  5. Working Group on Reproductive Potential

## XI. Adoption of Reports

1. Consideration of Report from the Symposium of 8-10 September 1999
2. Committee Reports of Present Meeting (STACFIS, STACREC, STACPUB)
3. Report of Scientific Council Present Meeting, 7, 13-17 September 1999

## XII. Adjournment



**Scientific Council Meeting**  
**11-17 November 1999, Reykjavik Iceland**

Chairman: W. B. Brodie (Canada)

Rapporteur: Assistant Executive Secretary, T. Amaratunga

The Scientific Council met at Marine Research Institute, Skulagata 4, 121 – Reykjavik, Iceland, during 11-17 November 1999. Representatives attended from Canada, Denmark (in respect of Faroe Islands and Greenland), European Union (Germany), Iceland, Latvia (registered on 16 November 1999), Norway and United States of America (Annex 1).

The Provisional Agenda was considered and adopted without changes (Annex 2).

**FISHERY SCIENCE**

The Council adopted the STACFIS Report, which summary is presented below.

***Northern Shrimp (*Pandalus borealis*) in Division 3M***

**Background:** The shrimp fishery in Div. 3M began during April 1993. Since then as many as 15 nations have joined the fishery.

**Fishery and catches:** Total catches were approximately 28 000 tons in 1993, increased to 48 000 tons in 1996 and declined thereafter.

The provisional catches are as follows:

Year	Catch <sup>1</sup> (‘000 tons)	TAC	
		Recommended	Agreed
1993	28	na	-
1994	24	tm	tm
1995	33	tm	tm
1996	48	ndf	er
1997	25	lpl	er
1998	30	lpl	er
1999 (to October) <sup>2</sup>	32	30	er
2000	30		

<sup>1</sup> STACFIS estimates.

<sup>2</sup> STACFIS estimate to end of 1999 is about 35 000 tons.

na No advice.

tm Technical measures.

ndf No directed fishery.

er Effort regulations.

lpl Lowest possible level.

**State of the Stock:** Scientific Council is unable to estimate absolute stock size. However, based on the EU survey and commercial data the stock appears to have increased from 1997 to 1999.

**Recommendations:** Available data indicated an increase in stock size since 1997, supported by recruitment of several relatively strong year-classes. Based on current information on biomass and

expected recruitment, Scientific Council maintains its advice for 2000. Given the current stock biomass and assuming that the 1997 year-class recruiting to the 2001 fishery will be of average strength, the Scientific Council advises that catches in 2001 should not exceed 30 000 tons.

The Council's 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.

#### *Northern Shrimp (Pandalus borealis) in Sub-areas 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 the largest fishery in Davis Strait.

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

Year	Catch ('000 tons) <sup>1</sup>			TAC ('000 tons) Recommended
	Inshore	Offshore	Total	
1996	17.4	51.9	69.2	60.0
1997	13.5	51.0	64.5	60.0
1998	9.4	6.6	66.1	55.0
1999			67.5 <sup>2</sup>	65.0

<sup>1</sup> Provisional.

<sup>2</sup> Projected to the end of 1999

**State of the Stock:** Scientific Council is not able to provide estimates of absolute stock size. However, based on available indices, the stock size does not appear to have changed in recent years under the present level of exploitation.

**Recommendations:** Based on the observed stability in the stock at recent catches of approximately 65 000 tons, Scientific Council repeats the advice given in 1998 and recommends that catches of northern shrimp in Subareas 0 and 1 in 2000 should not exceed 65 000 tons.

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

**Background:** The fishery for northern shrimp began in areas north of 65°N in Denmark Strait in 1978. Areas south of 65°N were exploited 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 ('000 tons)	
		Recommended	Agreed
1996	9.7	5.0	9.6
1997	11.6	5.0	9.6
1998	9.3	5.0	9.6
1999 (to 1 Nov)	7.1	9.6	10.6

<sup>1</sup> Provisional.

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



**Recommendation:** Given the lack of change in the CPUE index for the total stock from 1998 to 1999 at recent catch levels Scientific Council repeats the advice given in 1998 and recommends that catches of northern shrimp in Denmark Strait in 2000 should not exceed 9 600 tons.

#### **Response to the Fisheries Commission**

The Fisheries Commission at its September 1999 Meeting requested the Scientific Council to respond to the following:

*The Scientific Council is requested at its 11-17 November 1999 Meeting to evaluate, on the basis of the best data available, whether the provision for a Div. 3M shrimp closure in FC Working Paper 99/16 would be a precautionary approach-based measure and if so, whether the proposed area and timing of the closure are appropriate.*

*In the period from 1 June 2000 (00.01 GMT) to 30 September 2000 (24.00 GMT), fishing for shrimp in the area defined by the coordinates in the central part of Flemish Cap should be prohibited.*

At present, the Scientific Council was unable to provide an assessment of the impact of the proposed closure and cannot comment on the appropriateness of the coordinates, the area or the timing of the closure. However, it seems that analysis of existing fishery and survey data could give insights on the distribution of shrimp on the Flemish Cap. If relevant information is presented to the Scientific Council Meeting of November 2000, the Council notes that it could be possible to evaluate the impact of the proposed measure.

#### **Response to Coastal States**

The Scientific Council was requested by Denmark (Greenland) for northern shrimp (*Pandalus borealis*) in Subareas 0 and 1 and in Denmark Strait to comment on advantages and disadvantages of multiyear management advice.

Scientific Council discussed the possibilities of providing multiyear advice for northern shrimp in Subareas 0+1 and Denmark Strait. Two obstacles to implementing a multiyear approach were noted:

- i) Scientific Council is unable to forecast medium-term changes in shrimp stocks at present, because of lack of age-structured data, estimates of natural mortality and recruitment index.
- ii) Northern shrimp is a short-lived species, and stock size may change drastically within a short time owing to changes in the environment, variation in recruitment, or changes in abundance of predators.

Scientific Council noted that the provision of a single year advice for northern shrimp for Subareas 0+1 and Denmark Strait is a consequence of the situation noted in items i and ii above. The advice for the fishery for the coming year is based on survey and commercial data from the current year. The advice is therefore based on the most recent data and when prediction of the coming year's fishery conditions can be as reliable as possible.

Multiyear advice (usually for 2, sometimes 3 years) has been implemented for some stocks of finfish in the Northwest Atlantic. Their common feature is that they are usually long-lived species, presently at a low level and stock status is not expected to change suddenly.

## Responses to Fisheries Commission and Coastal States

The Scientific Council was requested to advise on any new information that may be available on the application of the Precautionary Approach.

Scientific Council noted that the "traffic light" approach which was considered at the Scientific Council Meeting in April-May 1999 in San Sebastian, Spain, did not provide information on reference points under the PA. To progress with this method will require some quantification of the evaluations and some links to proposed management measures when the "traffic lights" change color.

The Council, however, agreed to proceed with this approach. A template was agreed upon and evaluations of various categories of information were conducted. Scientific Council recognized that further work on this approach was necessary and recommended that *Designated Experts for the three northern shrimp stocks work by correspondence to develop the "traffic light" methodology for the November 2000 Scientific Council Meeting on shrimp.*

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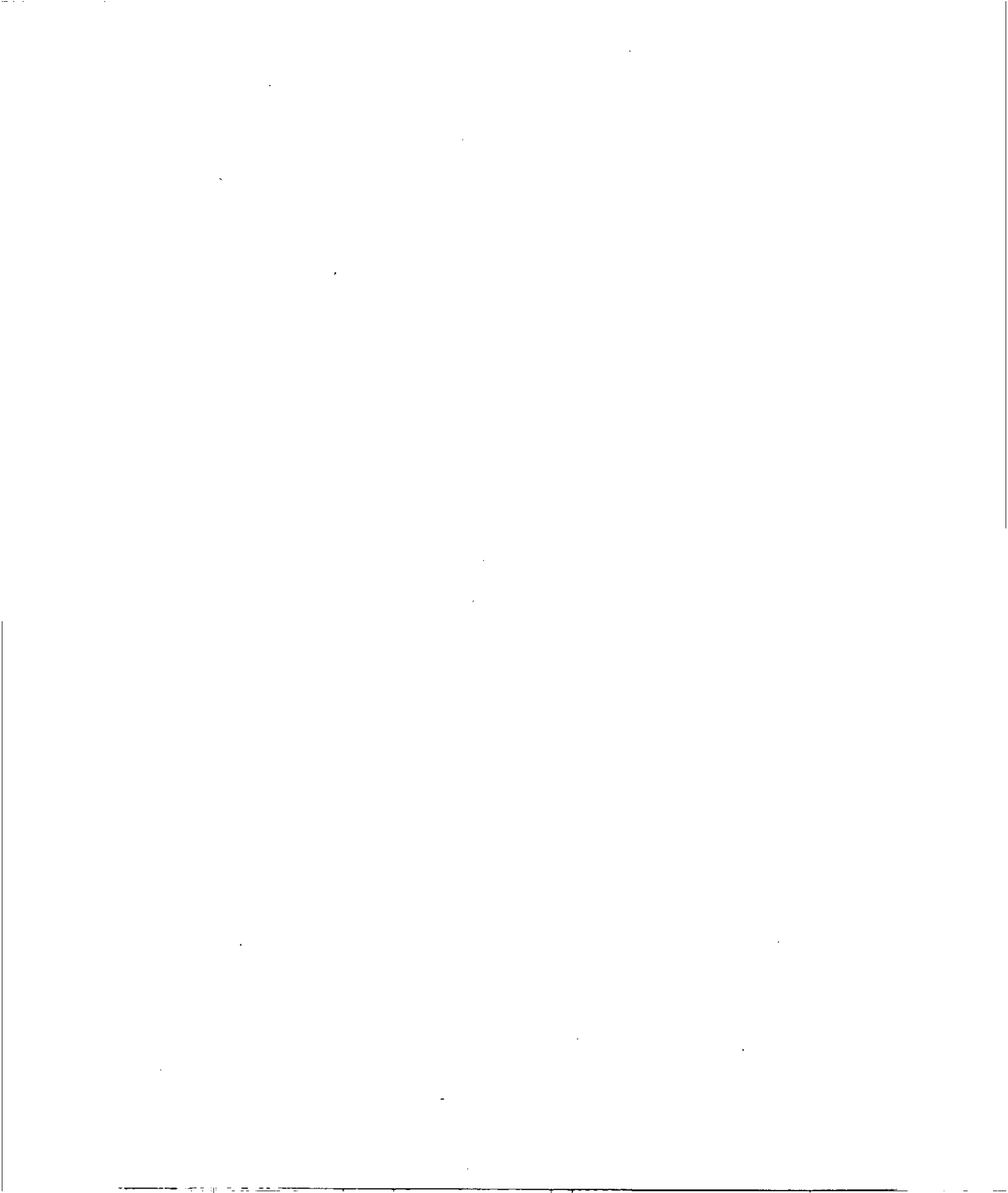
## Annex 2. Agenda

- I. Opening (Chairman: W. B. Brodie)
  1. Appointment of rapporteur
  2. Adoption of agenda
  3. Plan of work
  
- II. Fisheries Science (STACFIS Chairman: H. J. Rätz)
  1. Review of Recommendations in 1998 and 1999
  2. General environmental review
  3. Stock assessments
    - Shrimp (Div. 3M)
    - Northern shrimp (Subareas 0 and 1)
    - Northern shrimp (in Denmark Strait and off East Greenland)
  4. Other business
  
- III. Research Coordination (STACREC Chairman: R. K. Mayo)
  1. Protocol for exchange of biological data for northern shrimp stocks
  2. Other business
  
- IV. Formulation of Advice
  1. Advice for Northern Shrimp
    - Northern shrimp (Div. 3M)
    - Northern shrimp (Subareas 0 and 1)
    - Northern shrimp (in Denmark Strait)
  2. Responses to Special Requests
  
- V. Other Matters
  1. Meeting of November 2000
  2. Meeting of November 2001
  
- VI. Adoption of Reports
  
- VII. Adjournment



**PART IV**  
(pages 175 to 190)

**Administrative and Financial Report  
for the year ended 31 December 1999**





## Administrative Report for the Year Ended 31 December 1999

### Meetings and NAFO Secretariat Activities

1. The Working Group on Dispute Settlement Procedures (DSP), Bergen, Norway, 3-5 February 1999.
2. The Working Group on Transparency, NAFO Headquarters, Dartmouth, N.S., Canada 2-4 March 1999.
3. The Working Group on Allocation of Fishing Rights to Contracting Parties of NAFO and Chartering of Vessels Between Contracting Parties, Dartmouth, N.S., Canada, 13-15 April 1999.
4. The International Fisheries Commission Pension Society Annual Meeting, Ottawa, Canada, 19-21 April 1999. The NAFO Secretariat was represented by Mr. F. D. Keating and Mr. S. M. Goodick.
5. The Scientific Council Meeting on Precautionary Approach, San Sebastian, Spain, 27 April - 1 May 1999.
6. The Joint Scientific Council and Fisheries Commission Working Group on Precautionary Approach, San Sebastian, Spain, 3-5 May 1999.
7. The Scientific Council and its Standing Committees, Dartmouth, N.S., Canada, 3-16 June 1999.
8. Symposium on "Pandalid Shrimp Fisheries - Science and Management at the Millennium", Dartmouth, N.S., Canada, 8-10 September 1999.
9. The Annual Meeting of the Organization including all constituent bodies - the General Council, the Fisheries Commission, the Scientific Council, Dartmouth, N.S., Canada, 13-17 September 1999.
10. The Scientific Council, Reykjavik, Iceland, 11-17 November 1999.

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 1999. The basic publications were the following:

- a) *NAFO Annual Report* for the year 1998 (216 pages) was distributed in April 1999.
- b) *NAFO Meeting Proceedings* for the year 1998 (238 pages) was distributed in January 1999.

- c) *NAFO Scientific Council Reports* for 1998 (257 pages) was distributed in January 1999.
- d) *NAFO Journal of Northwest Atlantic Fishery Science* Volume 25 (233 pages) was distributed in October 1999.
- e) *NAFO Scientific Council Studies* Number 32 (133 pages) was distributed in April 1999.
- f) *NAFO Newsletter "NAFO News"* No. 10 for January-June, 1999 was issued in July 1999, and No.11 for July-December 1999 was issued in January 2000.

### **Fishery Statistics**

The NAFO statistical database is at the NAFO Secretariat and available in computer diskette form or hard copies to the Contracting Parties, and from 1999, the statistical data of catches have been posted on the NAFO website [www.nafo.ca](http://www.nafo.ca).

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 - USA; for 1998 - Denmark (Faroes) 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), USA; for 1997 - Denmark (Faroes), USA; for 1998 - Denmark (Faroes), USA and questions with Norway.

## Financial Report for the Year Ended 31 December 1999

An audit of the NAFO accounts for the fiscal year 1999 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 statement of financial position of the Northwest Atlantic Fisheries Organization as at December 31, 1999 and the statements of revenue and expenditures, statement of changes in net assets and changes in cash flow 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 in Canada. 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, 1999, these enhanced benefits amounted to approximately \$60,300. Failure to record this amount as a liability in 1999 is not in accordance with the Organization's stated accounting principles. Had the liability been recorded \$60,300 would have been reflected as a prior period adjustment and the net assets at the end of the year would have been reduced by \$60,300.

In our opinion, except for the effects of the Organization's failure to record the liability referred to in the preceding paragraph, and the policy not to capitalize capital assets as referred to in Note 10, these financial statements present fairly, in all material respects, the financial position of the Organization as at December 31, 1999 and the results of its operations and the changes in its cash flow 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.

March 1, 2000

Deloitte & Touche  
Chartered Accountants

**Statement of Revenue and Expenditures**  
**(Year Ended 31 December 1999)**

(Expressed in Canadian Dollars)

	Budget 1999	Actual 1999	Actual 1998
<b>Revenue</b>			
Contributions assessed Contracting			
Parties (Note 5) .....	\$ 921,846	\$ 921,846	\$ 913,574
Allocation from surplus for operations.....	170,154	170,154	163,426
Personal income taxes			
Federal.....	-	123,188	106,169
Provincial .....	-	42,653	49,424
Interest.....	-	29,016	23,544
Sales of publications .....	-	5,600	8,920
Shrimp symposium contributions.....	-	<u>36,452</u>	<u>-</u>
	<u>1,092,000</u>	<u>1,328,909</u>	<u>1,265,057</u>
<b>Expenditures</b>			
Salaries .....	632,000	666,288	642,162
Vacation pay .....	1,000	3,269	402
Superannuation (Note 6).....	77,000	74,519	73,649
Additional help.....	1,000	-	-
Group medical and insurance plan .....	47,000	50,785	44,218
Termination benefits (Note 4) .....	33,000	53,178	27,632
Travel .....	8,000	9,233	22,324
Transportation.....	1,000	783	765
Communications .....	63,000	49,008	52,377
Publications .....	27,000	27,655	27,456
Contractual services.....	42,000	42,466	34,237
Materials.....	30,000	31,687	27,547
Equipment .....	5,000	4,887	4,287
Meetings.....	65,000	98,289	91,611
Computer services.....	60,000	20,120	13,992
Shrimp symposium .....	-	<u>36,452</u>	<u>-</u>
	<u>1,092,000</u>	<u>1,168,619</u>	<u>1,062,659</u>
Excess of revenue over expenditures before provision for uncollectible accounts.....	-	160,290	202,398
Provision for uncollectible accounts and write-off of contributions.....	<u>31,933</u>	<u>31,933</u>	<u>32,244</u>
<b>(Deficiency) excess of revenue over expenditures ..</b>	<u>\$ (31,933)</u>	<u>\$ 128,357</u>	<u>\$ 170,154</u>

**Statement of Changes in Net Assets**  
**(Year Ended 31 December 1999)**

(Expressed in Canadian Dollars)

	1999	1998
<b>Balance, beginning of year</b> .....	\$ 245,154	\$ 238,426
Allocations		
To operations.....	<u>170,154</u>	<u>163,426</u>
	75,000	75,000
Excess of revenue over expenditures .....	<u>128,357</u>	<u>170,154</u>
<b>Balance, end of year</b>	<u>\$ 203,357</u>	<u>\$ 245,154</u>

## Statement of Financial Position as at 31 December 1999

(Expressed in Canadian Dollars)

	1999	1998
<b>ASSETS</b>		
<b>Current</b>		
Cash and short-term deposits.....	\$ 193,625	\$ 219,748
Contributions receivable (Note 3) .....	22,193	30,736
Accounts receivable .....	12,616	11,285
Accrued interest receivable.....	10,280	10,695
Grant receivable-Province of Nova Scotia.....	45,000	49,424
Prepaid expenses .....	<u>10,847</u>	<u>19,679</u>
	294,561	341,567
<b>Investments segregated for employee termination benefits</b>	<u>284,232</u>	<u>256,600</u>
	<u>\$ 578,793</u>	<u>\$ 598,167</u>
<b>LIABILITIES</b>		
<b>Current</b>		
Accounts payable and accrued liabilities .....	\$ 15,851	\$ 37,640
Accrued vacation pay payable.....	11,558	8,289
Advance contributions .....	<u>10,618</u>	<u>22,852</u>
	38,027	68,781
<b>Provision for employee termination benefits (Note 4) .....</b>	<u>337,409</u>	<u>284,232</u>
	<u>375,436</u>	<u>353,013</u>
<b>MEMBERS' NET ASSETS</b>		
<b>Accumulated Surplus .....</b>	<u>203,357</u>	<u>245,154</u>
	<u>\$ 578,793</u>	<u>\$ 598,167</u>
<b>Commitments (Note 7)</b>		

**Statement of Changes in Cash Flow**  
**(Year Ended 31 December 1999)**

(Expressed in Canadian Dollars)

	1999	1998
<b>Net inflow (outflow) of cash related to the following activities:</b>		
<b>Operating</b>		
Excess of revenue over expenditures .....	\$ 128,357	\$ 170,154
Item not affecting cash		
Allocation from surplus .....	(170,154)	(163,426)
	(41,797)	6,728
Changes in non-cash operating working capital items (Note 9) .....	(9,871)	(19,637)
	(51,668)	(12,909)
<b>Investing</b>		
Increase in investments segregated for employee termination benefits .....	(27,632)	(15,873)
<b>Financing</b>		
Increase in provision for employee termination benefits .....	53,177	27,632
<b>Net cash outflow</b> .....	(26,123)	(1,150)
<b>Cash position, beginning of year</b> .....	219,748	220,898
<b>Cash position, end of year</b> .....	\$ 193,625	\$ 219,748

**Notes to the Financial Statements**  
(Year Ended 31 December 1999)

(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 optimum 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.

h) Cash is made up of funds held in the Organization's bank account.

**3. Contributions Receivable**

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

	<u>1999</u>	<u>1998</u>
Bulgaria .....	\$ 15,967	\$ 16,122
Cuba .....	17,072	17,931
Romania .....	15,967	16,122
Ukraine .....	5,121	-
United States of America .....	-	12,805
	<hr/>	<hr/>
	54,127	62,980
Less: Allowance for uncollectible assessments .....	<u>31,934</u>	<u>32,244</u>
	<u>\$ 22,193</u>	<u>\$ 30,736</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, 1999, the additional liability resulting from this enhancement amounted to approximately \$60,300, 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 (20th Annual Meeting, September, 1998).

#### 5. Contributions Assessed Contracting Parties

	<u>1999</u>	<u>1998</u>
Bulgaria .....	\$ 15,967	\$ 16,122
Canada .....	364,145	347,092
Cuba .....	17,072	17,931
Denmark (in respect of the Faroe Islands and Greenland) .....	102,275	117,641
Estonia .....	17,405	18,753
European Union .....	30,790	34,814
France (in respect of St. Pierre et Miquelon) .....	16,027	16,186
Iceland .....	31,011	22,754
Japan .....	18,677	19,411
Republic of Korea .....	15,967	16,122
Latvia .....	16,851	16,889
Lithuania .....	17,128	16,889
Norway .....	21,553	25,769
Poland .....	15,967	16,122
Romania .....	15,967	16,122
Russian Federation .....	20,170	23,960
Ukraine .....	5,121	-
United States of America .....	<u>179,753</u>	<u>170,997</u>
	<u>\$ 921,846</u>	<u>\$ 913,574</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, 1999. At that time, the accrued pension obligation was \$2,013,000 while the assets were valued at \$1,950,000, resulting in an unfunded pension liability of \$63,000. The estimated accrued pension obligation and value of the assets at December 31, 1999 are \$2,165,000 and \$2,098,741 respectively, resulting in an unfunded pension liability of \$66,259. The unfunded pension liability is being funded at a rate of \$28,500 per year.

### 7. Operating Lease Obligations

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

<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
\$22,794	\$19,922	\$10,227	\$5,052

### 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>1999</u>	<u>1998</u>
Contributions receivable .....	\$ 8,543	\$ (2,055)
Accounts receivable .....	(1,331)	(4,896)
Accrued interest receivable .....	415	(5,954)
Accrued <i>ex gratia</i> grant receivable .....	4,424	(49,424)
Prepaid expenses .....	8,832	(857)
Accounts payable and accrued liabilities .....	(21,789)	20,295
Accrued vacation pay .....	3,269	402
Advance contributions .....	<u>(12,234)</u>	<u>22,852</u>
	<u>\$ (9,871)</u>	<u>\$ (19,637)</u>

### 10. Capital Assets

Capital assets are expensed on acquisition which, as noted in the Auditors' Report is contrary to the accounting requirements of the Canadian Institute of Chartered Accountants. Capital assets held at December 31, 1999 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, 1999, and the amortization of them over the same period, is reflected in the following:

	<u>Cost</u>	<u>Accumulated Amortization</u>	<u>Rates</u>	<u>Net Book Value</u>	
				<u>1999</u>	<u>1998</u>
Computer equipment	\$ 45,424	\$ 29,218	25%	\$ 16,206	14,797
Office furniture and equipment	<u>178,029</u>	<u>132,633</u>	10%	<u>45,396</u>	<u>57,799</u>
	<u>\$ 223,453</u>	<u>\$161,851</u>		<u>\$ 61,602</u>	<u>\$ 72,596</u>



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