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Northwest Atlantic Fisheries Organization

Report of the Fisheries Commission

20th Annual Meeting, 14-18 September 1998
Lisbon, Portugal

NAFO
Dartmouth, N.S., Canada
1998

Members of the Fisheries Commission:

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

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P. Gullestad
Chairman
September 1998

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Report of the Fisheries Commission and its Subsidiary Body (STACTIC), 20th Annual Meeting 14-18 September 1998 Lisbon, Portugal

List of Decisions and Actions by the Fisheries Commission (20th Annual Meeting, 14-18 September 1998)

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

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

PART I

Report of the Fisheries Commission Meeting

20th Annual Meeting, 14 - 18, September, 1998
Lisbon, Portugal

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

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

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

1.3 The provisional agenda was **adopted** (Annex 2).

1.4 ICES and NAMMCO were admitted as observers in the Fisheries Commission consistent with their previous admission in the General Council.

1.5 It was **agreed** that the normal NAFO practice regarding publicity should be followed and that no statements would be made to the media until after the conclusion of the meeting when a press release would be issued by the NAFO Secretariat.

2. Administrative (item 6)

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

3. Conservation and Enforcement Measures (items 7-14)

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

3.2 With respect to Agenda item 8, Consideration on the Establishment of a Permanent Scheme for Observers and Satellite Tracking and Agenda item 9, Report of STACTIC (FC 98/3 and 97/15), the chair of STACTIC, Mr. D. Bevan (Canada) reported on two intersessional meetings of STACTIC following the 19th Annual Meeting.

Mr. Bevan presented the results of the October 1997 Working Group on Satellite Tracking, which considered and made recommendations for automation of a satellite-based hail system and noted that STACTIC is seeking Fisheries Commission approval of a common hail message format. The Fisheries Commission **agreed** to adopt the format referenced in NAFO FC Doc. 97/15 (Annex 3 – Note: New document, FC Doc. 98/10, as notified to the Contracting Parties, GF/98-482 of 25 September 1998) with the stipulation that the formats are harmonized with the Northeast Atlantic Fisheries Commission (NEAFC).

Further discussion of the satellite system occurred during the May 14-15, 1998 STACTIC meeting in Copenhagen which noted that the system had not been fully implemented in terms of the ability to transmit data to inspection vessels. STACTIC determined that, overall, the hail system has improved. To enable a comparative evaluation of the methods of inspection for presentation at this annual meeting, STACTIC agreed to a uniform approach to reporting the performance data of these programs. STACTIC also identified the need to meet with the Scientific Council to discuss the use of observer data and the best means to collect such data. This meeting was to take place during the annual session.

With respect to discard and retention rules and protocols, Mr. Bevan reported that STACTIC will attempt to obtain further information from Contracting Parties to determine the extent of the problem. Toward this result, he asked each Contracting Party to provide discard data to the Secretariat in the format used by Norway (STACTIC Working Paper 98/14). Regarding the issue of sampling protocols, it was determined by STACTIC that no further action is needed at this time.

3.3 With respect to agenda item 10, the Report of STACTIC, Mr. Bevan reported that the evaluation of the pilot project contains strong empirical evidence of a positive change in compliance as demonstrated by the reduction in apparent infringements. STACTIC discussed the evaluation of the pilot project during this annual session and did not reach consensus on the reason for this change; the improvement could not be attributed to a single factor.

3.4 Referring to the evaluation of the pilot project presented in the STACTIC report, the Representative of Iceland noted that the pilot program lacked a control by which a comparison of variables could be made to determine which factor is producing the positive effect.

3.5 The Representative of Canada agreed with the conclusion that there had been substantial improvement in compliance. Furthermore, the types of infringements that most jeopardize stocks have all but been eliminated. He expressed the view that observer programs are more effective and fairer in terms of cost distribution among Contracting Parties which benefit from the resources. A comprehensive enforcement regime that includes 100% observer coverage is the key to restoring the public trust and confidence in NAFO's ability to conserve stocks. Other methods are unable to address certain issues such as bycatch, dumping, and discarding. The observer program may also prove beneficial by providing valuable scientific data or for implementing early-warning systems. He believes it is time to move forward to implement permanently the full observer program to the Conservation and Enforcement Measures.

The Representative of the USA stated that he supports efficiency in compliance programs and believes that valuable information could be derived from such programs, such as needed bycatch and discard information which cannot be obtained from satellite programs alone. The current observer program should be continued until there is an evaluation indicating there is no need for 100% coverage. The Representative of France (in respect of St. Pierre et Miquelon) agreed that the satellite program is effective and supports continuation of 100% observer coverage.

3.6 The Representative of Norway expressed the view that 100 % observer coverage in single species fisheries is not effective and that the costs are not justified. He noted that the shrimp grate provided a clean fishery and there is no incentive to avoid compliance with conservation and enforcement measures. The Representatives of Denmark (in respect of the Faroe Islands and Greenland) and Estonia supported Norway's position that a single species fishery in the Flemish Cap does not need 100 % observer coverage.

3.7 The Representative of the EU expressed concern regarding a permanent commitment to the level of expenditures necessary to implement the 100% observer coverage and illustrated this view with an inspection cost estimate of $0.5 Canadian per kilo of harvest. The EU believes that full use of satellite technology would reduce costs and suggested that it become a feature of all fishery control schemes. This view was supported by Iceland and Estonia. The Representative of the EU noted that Agenda Item 12, regarding an increase in obligatory inspection vessel presence in the NAFO Regulatory Area is pertinent to this discussion and he proposed reducing the threshold to 10 vessels. He stressed the need to revert to this matter at the 21st Annual Meeting in September 1999. The Representative of Denmark (on behalf of the Faroe Islands and Greenland) did not agree to reduce the threshold from 15 vessels to 10 vessels explaining that the management measures have to take into account that there are nations fishing in the Regulatory Area that, from an economic point of view, do not have possibilities to send an inspection vessel to the area. However, in co-operation with other Contracting Parties with inspection vessels operating in the Regulatory Area, they may be able to have inspectors available. The Representatives of Latvia, Lithuania, Iceland and Russia also questioned the cost-effectiveness of the observer program citing the expense of providing observers and analyzing data on an ongoing basis, profitability of fisheries considering the distance to the fishing grounds and the cost of running parallel systems. The Representative of Canada demonstrated that the EU estimate was grossly out of proportion with real costs and expressed the view that cost is an investment in rebuilding which will provide significant future benefits. The Representative of the USA pointed out that the analysis indicates there are major benefits of observer coverage but no analysis showing that a lower level would achieve the same result. Therefore, he concluded that the 100 % level should be maintained until parties could develop specific analysis showing that another level would achieve the same compliance rates.

3.8 Following an agreement which was reached during the Heads of Delegation meeting, the Fisheries Commission **adopted** a "Program for Observers and Satellite Tracking" as given in FC Working Paper 98/18 (Annex 4 – Note: New document, FC Doc. 98/7, as notified to the Contracting Parties, GF/98-482 of 25 September 1998). The agreement requires all Contracting Parties to employ 100% observer coverage on their vessels fishing in the Regulatory Area as from January 1, 1999; and, as soon as possible but no later that January 1, 2001, to require all vessels fishing in the Regulatory Area to be equipped with satellite tracking devices. The Representative of Iceland noted that the final position of Iceland is subject to further deliberation by appropriate Icelandic authorities.

3.9 It was agreed to refer to STACTIC the matter of how to amend the Conservation and Enforcement Measures requiring Contracting Parties to ensure their fishing vessels do not receive transshipments of fish from a Non-Contracting Party vessel engaged in fishing activities in the NAFO Regulatory Area (to implement the Scheme to Promote Compliance by Non-Contracting Party Vessels with the Conservation and Enforcement Measures Established by NAFO). FC Working Paper 98/17 was **adopted** (Annex 5 – Note: New document, FC Doc. 98/8, as notified to the Contracting Parties, GF/98-482 of 25 September 1998) with the recognition that Japan will be unable to enforce the measure against transport vessels due to a lack of authority in Japan's legislation.

3.10 The Report of STACTIC was **adopted** (Part II of this Report).

3.11 With respect to Agenda item 11, Report of the Working Group on the Precautionary Approach, the Chairman of the Scientific Council, Mr. H. P. Cornus (EU) summarized the meetings relevant to the development of the precautionary approach in fisheries management. A Scientific Council Workshop involving worldwide participation was held 17-27 March 1998. This Workshop reviewed developments o n the precautionary approach elsewhere, discussed the theoretical basis of the precautionary approach and the application of this approach to NAFO-managed stocks. A joint FC/SC Working Group on the Precautionary

Approach met in Copenhagen in May 1998 where it agreed that dialogue between scientists and managers was important and recommended to the Fisheries Commission a continuation of the joint Working Group through an intersessional meeting in the spring of 1999.

At the regular June 1998 meeting of the Scientific Council, participants reviewed the conclusions of the Workshop and examined methods for the determination of reference points, decision rules and criteria for re-opening fisheries, and developed specific reference points for selected NAFO-managed stocks. American plaice was selected as an example to explore the application of the precautionary approach because of the sufficiency of available data. Also examined were reference points for 3NO cod, yellowtail flounder and capelin with limited results. No conclusive reference points were developed for the remaining stocks under the responsibility of the Fisheries Commission due to many problems related to short time series and data quality problems. Mr. Cornus reported some general conclusions and findings: that stock-specific decision rules are needed, that the biology of a stock is thought to be different during depletion, as opposed to rebuilding, that the precautionary approach does not have to be limited to spawning stock biomass and mortality rates, and that establishing survey index-based reference points is considered to be a key to implementing the precautionary approach.

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

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

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

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

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

The Representative of the USA supported the proposal for the continuation of the Joint Working Group and suggested, in addition to the model stocks, that the principles and results be applied to other stocks.

The Representative of Canada remarked on the evident progress in bringing meaning to this concept, noting that it will bring about much needed change. The next step for Canada will be to take the work done to date and make it more operational. The Joint Working Group would bridge the two cultures and bring about a collective understanding of how the precautionary approach can be made to work in a practical sense. He expressed the view that the precautionary approach need not be limited to the development of limits and reference points and that it can include measures to protect juveniles and the spawning stock such as closed area nurseries, gear restrictions and bycatch protection. He asked if the Scientific Council had taken these measures into consideration in their deliberations of the precautionary approach. Mr. Cornus responded that the precautionary approach need not be limited to spawning stock biomass limits and mortality rates but explained that the process is very slow to develop other measures, especially for stocks with limited data. He suggested that such a discussion could take place at the proposed joint Working Group meeting.

The Representatives of the EU and Denmark (in respect of the Faroe Islands and Greenland) support wide application of the precautionary approach and suggested that it should be developed in coordination with ICES. The Representative of the EU expressed the view that a clear line should be drawn between the task of scientists and that of managers and noted that reference points can be overcautious. He supported the meeting of the Joint Working Group.

3.13 It was **agreed** to hold an intersessional meeting of the Joint Scientific Council and Fisheries Commission Working Group in the spring of 1999. The meeting will be structured to allow the Scientific Council to meet for 3 days in advance to prepare information, and followed immediately by a 2-day joint meeting with the managers. The Chair noted that no decisions are to be made at that meeting, it is to be a Working Group meeting for technical experts in the field of management. The meeting will develop simulations of a precautionary approach for three model stocks for presentation to the Fisheries Commission and Scientific Council.

3.14 The Chair referenced working papers FC 98/7 and 98/9 regarding the Scientific Council's proposal to implement a biennial assessment schedule for certain stocks under moratoria and for a change to the 3M shrimp schedule. The purpose of the proposal was to make some efficiencies of performance and time for the Scientific Council. The Representative of the USA strongly supported both proposals and noted an additional recommendation by the Scientific Council for the collection of elasmobranch catch data that the Fisheries Commission needs to consider. The Representative of the EU stated his strong preference to continue the usual schedule of assessments on an annual basis.

The Representative of Canada noted the need to reduce the burden of the annual workload, especially when there is not likely to be significant change in the status of stocks under moratoria. He supported the proposal based on the fact that bycatch would remain part of the reports provided to the Scientific Council and because these stocks will be monitored annually for significant changes. The Representative of the USA strongly agreed with Canada about the sufficiency of monitoring for changes through bycatch and other data and noted that observer data could potentially provide information for quick response if necessary. The Scientific Council proposals were adopted (Annex 6 - Note: The NAFO Secretariat issued FC Doc. 98/11 based on the Scientific Council proposals).

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

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

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

4 .Conservation of Fish Stocks in the Regulatory Area (items 15-19)

4.1 With respect to item 15 of the FC Agenda, Summary of Scientific Advice, the Chairman of the Scientific Council, Mr. H. P. Cornus (EU) presented a summary of NAFO SCS Doc. 98/17, "Report of the Scientific Council, 3-18 June, 1998" which provides the scientific advice for the management of stocks in the NAFO Regulatory Area for 1999 and addresses special requests to the Scientific Council. He summarized this advice as in the table below.

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

4.2 With regard to the special request for ***Illex* squid**, Mr. Cornus reviewed the biology of the species noting that it is an annual species comprised of a unit stock throughout its range from Newfoundland to Florida. The information on this species is not sufficient to allow a specific TAC. The Scientific Council recommended that the TAC be set within the range appropriate to a low productivity period.. Additional research is needed to enable forecasting of the productivity level.

4.3 Inquiries were made to the Chairman of the Scientific Council to clarify several questions regarding the scientific advice.

4.4 With regard to shrimp, the Representative of the USA questioned how **bycatch of Greenland halibut occurs in the shrimp fishery**, which requires the use of a grate and questioned what might account for the significant increase in 3L shrimp biomass? Mr. Cornus responded that the cause of the increase is unknown although it may be due to migration. The Representative of the USA asked that ways to reduce the bycatch of 3LN-3M redfish should be investigated.

The Representative of Denmark (in respect of the Faroe Islands and Greenland) expressed the view that the **3L shrimp fishery** is likely to increase due to the improved stock and noted that the bycatch rates of Greenland halibut are low while juvenile natural mortality is high and explained that a proportion of juveniles do not survive to contribute to the adult stock. He noted that the level of Greenland halibut bycatch is approximately 2.4%, according to the Scientific Council and expressed the view that this small level of bycatch is not of consequence. Based on these observations, he proposed an exploratory fishery in 3L during the period March - August, for the years 1999, 2000 and 2001. Each Contracting Party would report catch and bycatch and be limited to 2 vessels at a time, and a total allocation of 200 days per year.

In response to questions from Denmark (in respect of the Faroe Islands and Greenland) regarding whether the Scientific Council considers 3L shrimp to be at a level to allow a commercial shrimp fishery and whether the bycatch of Greenland halibut from the shrimp fishery could be quantified by area, Mr. Cornus stated that sustainable yields for 3L shrimp could not be determined at this time and that bycatch from the shrimp fishery could not be quantified by area because bycatch data are not area specific. The Representative of Latvia expressed sympathy with the proposal for an exploratory fishery based on the desire to use resources in the best available way and consistency with scientific advice.

The Representative of Canada expressed strong opposition to increased activities in areas where there are fisheries under moratoria, citing the devastating cost to Canada's fishing communities from the moratoria and the concern that juveniles could be caught in the grate. He referenced Canada's steps to maximize rebuilding potential (FC Working Paper 98/6) and stated that the impacts on other stocks from an exploratory fishery of this magnitude needed to be considered. The Representative of the USA stated that he could not support the proposal as written based on its magnitude and the appearance of developing an allocation scheme through an exploratory fishery proposal. He repeated the suggestion that scientific input is needed to guide the design of exploratory fisheries.

4.5 The Representative of Canada noted that the **skate fishery** is unregulated and asked the Chairman of the Scientific Council to comment on the susceptibility of skates to overfishing as compared to groundfish. Mr. Cornus responded with a general comment that this type of species is more vulnerable than others. The Representative of the USA noted that skates are vulnerable to overfishing but there is not enough information to answer precisely at this time. He stated that this situation is a good example, therefore, for the application of the precautionary approach.

4.6 In response to a question from the Representative of the European Union, with regard to the Fisheries Commission request for an evaluation of the **impact from 155mm versus 130mm mesh** in the Greenland halibut fishery, Mr. Cornus stated that the insufficiency of data prevents the Scientific Council from an assumption other that there would be no difference in its escapement mortality.

4.7 In response to a question from the Representative of the European Union, Mr. Cornus stated that although the Scientific Council is concerned about bycatch measures to address bycatch from the **yellowtail fishery**, they have not been discussed.

4.8 In response to a question from the Representative of the European Union regarding whether it is possible to scale down the **3M redfish TAC** more gradually, Mr. Cornus stated that there is a lack of precise information and it was decided that a 50% reduction would be an effective and significant measure. The Representative of Japan noted that the TAC for 3M redfish has been set at 20,000t for the past 5 years but the catch has been much below that level. He assumed that the TAC was set to allow recovery and sustainability and does not see new evidence to indicate that a 50% reduction is necessary. Mr. Cornus explained that more precision in the scientific advice is not possible at this time. The Scientific Council noted that the spawning stock biomass is declining and considered a TAC equal to 20,000t to be absolutely too high and detrimental to the spawning stock, which is at a low level. Preliminary information from the 1998 survey indicates a drastic decline in the 3M stock but this information won't be fully evaluated until next year.

The Representative of Japan stated he was not convinced by the evidence of the need for a 50% reduction, but because the present catch does not exceed 10,000t, there could be little reason to object to a reduction. The Representative of the EU accepts the reduction of the TAC and noted, in response to a comment by the Representative of the USA that many of these issues arise from the lack of a clear allocation process, that the EU is willing to discuss allocation issues in the Working Group forum. The Representative of Russia stated that he believes that the evidence presented by the Scientific Council must be used as basis to set the TAC on this stock and supports further discussion on the allocation of the TAC.

4.9 The Representative of the European Union noted there seemed to be some uncertainty with regard to the TAC recommendation for **Greenland halibut** based on the use of the term "about" and asked if the Scientific Council could evaluate the upper limit in 1999 of catches that would still generate recovery of the stock, especially on whether minor changes such as 2-4,000t in 1999 would endanger the recovery. He expressed the view that the advice concerning the TAC is a clear signal to increase catch from this stock and that such an increase in catch should not impede recovery. The Representative of the USA stated that it is the advice of the Scientific Council that the direction of the TAC should be 30,000t or less.

4.10 The Representative of Canada raised the issue of the distribution of fishing effort for Greenland halibut (FC Working Paper 98/11), and requested the Scientific Council to provide advice on how catches and effort should be distributed. The Representative of the European Union requested that the evaluation look at the effect of that effort distribution on the stock.

4.11 Canada stated that it had increased the mesh size used in the **Greenland halibut fishery** in Canadian waters from 130 to 145mm due to concern about juveniles. He noted that the Fisheries Commission has an obligation to ensure consistency in the NAFO Regulatory Area with measures taken by the coastal State (Article XI.3 of the NAFO Convention). He stated that other species would also benefit from an increase in mesh size.

4.12 The Representative of Norway noted that the **bycatch of Greenland halibut in the shrimp** fishery is reduced almost to zero by the grate. Experience in Norwegian waters show great effectiveness even during periods of high abundance of groundfish and notes that the advice by the Scientific Council is cautious because the evaluation occurred from a period of low abundance. The USA noted a similar experience with the grate in its waters. The Chair of the Scientific Council acknowledged that the Scientific Council does not have any experience of bycatch when abundance is increasing.

In response to a question from Denmark (in respect of the Faroe Islands and Greenland) regarding clarification of Canadian bycatch of Greenland halibut in the shrimp fishery and what precautions have been taken, the Representative of Canada explained that shrimp quotas have increased in the Canadian zone and that the bycatch was 0.5% in 1997 and declined to 0.2% in 1998 as a result of further restrictions such as decreased grate spacing, longer toggle chains on the footrope as well as the increased experience of the captains with the gear. He reported there is virtually no bycatch of other groundfish species.

4.13 With regard to bycatch of **3LNO American plaice**, the Representative of Canada noted that bycatch has more than doubled since 1995 from the Greenland halibut and unregulated skate fisheries and asked whether this level of bycatch would impede recovery and whether the Scientific Council could recommend measures that could be implemented to reduce bycatch.

The Representative of the EU expressed the intent to explore ways to reduce bycatch of American plaice and welcomed ideas from other delegations. In his view, the change in mesh size from 130 to 145mm would not be effective as both would catch juveniles. He firmly believed that fishermen should be given the opportunity to fish an increase within the bounds of the scientific advice. The Representative of the USA suggested Canada's bycatch standard of 5% per tow could be adopted as a standard for American plaice bycatch.

4.14 The Chair requested delegates to put their questions and requests for scientific investigations in writing for submission to the Scientific Council for future evaluation.

4.15 With respect to FC Agenda item 16, Management and Technical Measures for Fish Stocks in the Regulatory Area, the Chair noted that the Scientific advice for 3NO cod, 3LN redfish, 3LNO American plaice, 3NO capelin 2J3KL cod and 2J3KL witch flounder, is to continue the moratoria. It was **agreed** by the Fisheries Commission to continue the moratoria for these stocks for the 1999 fishing year.

4.16 The Representative of Denmark (in respect of the Faroe Islands and Greenland) noted the importance of **3M cod** to Denmark and expressed the view that the Fisheries Commission has acted responsibly about 3M cod and proposed a continuation of the 1998 quota of 2000 mt.

The Representative of Canada noted that the **3M cod stock** has collapsed and stated his support for the scientific recommendation of no directed fishery in 1999. The Representatives of Norway and the USA concurred with Canada and the scientific advice to introduce a moratorium. The Representative of the USA stated his view that there was no justification to allow a fishery on a collapsed stock.

4.17 With regard to **3M shrimp**, Denmark (in respect of Faroe Islands and Greenland) noted a special interest in this stock as some of its trawlers depend totally on it. The Scientific Council noted that biomass is increasing and recommended using a period of stability in the fishery upon which to base conservation measures. Denmark understood this period to be 1993 - 1995 and proposed that the number of days for 1999 be the same as in 1998, which is 90 % of the 1996 level.

The Representative of Canada raised a general concern with regard to **effort control systems** and advocated a change to a TAC management system to ensure conservation objectives are met. In his view, the effort system does not cap fishing mortality and creates a large incentive to improve vessel capacity to maximize harvest opportunity. He further pointed out the potential to catch 80,000t based on the allocation of days times a catch estimate of 8,000t per day. The Representative of the USA noted that the issue is again the lack of a clear allocation process. He noted there is little basis to change the current management system until there was a clear process for determining allocation.

4.18 The Representative of Denmark (in respect of the Faroe Islands and Greenland) tabled a paper FC Working Paper 98/10 proposing that the Western slope of the Flemish Cap be considered part of the **3L shrimp stock** for management purposes, consistent with the scientific acceptance of the Flemish cap as one unit stock. He proposed that a small portion of 3L should be incorporated into Division 3M and allowed to be fished under the 3M allocation. The Representatives of Estonia and Norway supported this proposal, with Norway noting that the fishery is a clean fishery because of the grate. Latvia also agreed on the basis of creating more fishing possibilities.

4.19 Management Measures for Shrimp in Div. 3M for 1999 **was adopted** by the Fisheries Commission at the closing session, on 18 September 1998 (Annex 7 – Note: A new document, FC Doc. 98/9 was issued and circulated to all Contracting Parties).

4.20 Regarding **3LNO yellowtail flounder**, the Representative of France (with respect of St. Pierre et Miquelon) stated that in his view, the quota for this stock allocated to the EU should instead have been allocated to St. Pierre et Miquelon and that this issue should have been resolved. He stated that France may distribute a paper on this issue in the future.

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

4.21 Regarding ***Illex*** **squid**, the Representative of Canada noted that the abundance of squid could fluctuate from low to high productivity and that the onset of this fluctuation could be sudden. Because it is a short-lived species, it is desirable to have the appropriate quota in place during periods of high productivity so as not to lose fishing opportunity. He asked the Scientific Council to recommend improvements in predicting the periods of high or low productivity.

Regarding squid in areas 3 & 4, the Representative of Japan proposed that the status quo TAC of 150,000t be continued for 1999. Acknowledging the scientific advice, he noted that the timing of the fishery is such that information to determine the biomass is not available until it is too late. He shared Canada's concern that a high abundance year could be missed. He requested that the Scientific Council give further consideration to the matter and suggested the setting of 2 TACS respectively for high and low productivities and ask Canada to determine the appropriate quotas based on test fisheries. He concluded that he saw little likelihood of a sizeable catch in the next year which would allow the Scientific Council to address its concerns and develop a scheme for the future.

The Representative of the USA noted the importance of the **squid fishery** in US waters (SA 5 and 6) and explained that because it is a unit stock, the existing level of TAC creates a potential to undermine the health of the stocks for entire coast. The situation argued for taking a precautionary approach and, in any case, there was no possible justification for maintaining a quota at least 10 times the maximum fishery level in 1998. Because there is no means to adjust the TAC in season, the precautionary approach would be not to overfish during periods of low productivity. He stated that the TAC should be set at 19,000t.

The Representative of Canada agreed that a TAC of 150,000t is scientifically unsubstantiated and contrary to the precautionary approach. He noted, however, that a low TAC was not

appropriate under a quickly changing situation and that there needed to be some flexibility to adjust if the stock status were to change from low to high productivity.

4.22 The Chair noted that **agreement** was reached in the Heads of Delegation meeting on a package containing the following measures:

Cod 3M	no directed fishery
Redfish 3M	13,000t
American plaice 3M	no directed fishery
Shrimp 3M	effort limitation (with amendments in NAFO FC Working Paper 98/13-second revision). Portion of 3L division on the Flemish Cap may be fished under the effort limitation scheme.
Cod 3NO	no directed fishery
Redfish 3LN	no directed fishery
American plaice 3LNO	no directed fishery
Yellowtail flounder 3LNO	6,000t
Witch flounder 3NO	no directed fishery
Capelin 3NO	no directed fishery
Squid (Illex)(SA 3&4)	75,000t with the understanding that this is a transitional year .
Shrimp 3LNO	no directed fishery
Greenland halibut 3LMNO	24,444t
Cod 2J3KL in NRA	no directed fishery
Witch 2J3KL in NRA	no directed fishery

4.23 The Fisheries Commission **then adopted the Quota Table** (Annex 8).

4.24 The Representative of Norway tabled a request for the Secretariat to have the responsibility monitoring the effort limitation scheme through the hail system (FC Working Paper 98/16).

4.25 The Representative of the USA noted that agreement was made in the interest of moving forward with the work of NAFO, and expressed his concern over the risk of overfishing the squid resource acknowledging that the movement is in the right direction. He noted that 1999 would be a transitional year toward full adoption of the scientific advice. He reiterated that many of the problems arise from a lack of clarity on the allocation process which highlighted the need to continue work in developing a clear and flexible process.

4.26 Regarding item 18, Formulation of Request to the Scientific Council for the management of fish stocks in 1999, FC Working Paper 98/19 **was adopted** (Annex 9).

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

5. Closing Procedures (items 20-22)

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

5.2 Item 21, Other Business: a notional timetable was proposed for intersessional working group meetings. (Note: This timetable was adopted at the General Council meeting, please see Annex 11, GC Report).

5.3 Item 22, Adjournment; the Annual Meeting of the Fisheries Commission was adjourned at 1230 hrs on 18 September 1998.

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Annex 2. Agenda

I. Opening Procedure

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

II. Administrative

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

III. Conservation and Enforcement Measures

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

IV. Conservation of Fish Stocks in the Regulatory Area

15. Summary of Scientific Advice by the Scientific Council
16. Management and Technical Measures for Fish Stocks in the Regulatory Area, 1999
    - 16.1 Cod in Div. 3M
    - 16.2 Redfish in Div. 3M
    - 16.3 American plaice in Div. 3M
    - 16.4 Shrimp in Div. 3M

17. Management and Technical Measures for Fish Stocks Straddling National Fishing Limits, 1999

17.1 Cod in Div. 3NO
17.2 Redfish in Div. 3LN
17.3 American plaice in Div. 3LNO
17.4 Yellowtail flounder in Div. 3LNO
17.5 Witch flounder in Div. 3NO
17.6 Capelin in Div. 3NO
17.7 Squid (*Illex*) in Subareas 3 and 4
17.8 Shrimp in Div. 3LNO
17.9 Greenland halibut in Div. 3LMNO
17.10 If available in the Regulatory Area:
i) Cod in Div. 2J3KL
ii) Witch flounder in Div. 2J3KL

18. Formulation of Request to the Scientific Council for:

a) Scientific advice on the management of fish stocks in 2000

19. Transfer of Quotas Between Contracting Parties

V. Closing Procedure

20. Time and Place of the Next Meeting

21. Other Business

22. Adjournment

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

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

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

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

The document consists of the following elements:

Example 1

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

Example 2

- File format for satellite tracking report

Example 1

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

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

EXPLANATORY NOTES

a) The formats herein conform with the requirements for the NAFO Hails System as set out in FC Document 97/1 Part III Annex I Hail System Message Format.

b) The formats consist of variable length delimited records, and are based on systems currently in use in the EU, Iceland and Norway.

c) The variable length record is preferred over a fixed length record as some Contracting Parties collect more information from their vessels than is required by NAFO, and are forwarding the entire record to NAFO. The format is conducive to extraction of the required data fields by the receiving parties.

d) The following convention is used in this paper: //FIELD NAME/field value//, where the field name is shown in uppercase, followed by the character "/", followed by the field value in lowercase. Fields are separated by "//".

e) Each record begins with the string //SR// to indicate the Start of the Record.

f) Each record ends with the string //ER// to indicate the End of the Record.

g) Character fields (CHAR) shall conform with the ISO 8859.1 character set standard.

h) Country codes used for addressee (AD) and sender (FR) shall conform with the ISO 3166 (1993) standard. E/F 7.3 states that user-assigned country codes shall start with the character "X", therefore it is proposed that the code XNS be used to designate the NAFO Secretariat, the addressee for hail messages.

Example 1
(continued)

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

1.1 ENTRY HAIL

//SR		Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDDMM
//TM/indication of the message code	CHAR(3)	ENT
//DI/NAFO Division into which the vessel is about to enter.	CHAR(2)	

//HO/total round weight of fish by species (3 alpha codes) on board in kilograms rounded to the nearest 100 kilograms. Allow several pairs of fields, consisting of species + weight, with each field separated by a space. e.g. //HO/species weight species weight species weight//

SPECIES	CHAR(3)	FAO Codes
WEIGHT	NUM(7)	

//MA/name of the Master	CHAR(30)	
//DS/directed species (target species)	CHAR(3)	FAO Codes

Allow several species to be entered, with the values separated by spaces,
e.g. //DS/species species species//

//ER//	-	End Record

Example 1
(continued)

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

1.2 MOVE HAIL

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

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

Allow several fields to be entered, with the fields separated by spaces,
e.g. //DS/species species species//

//ER//	-	End Record

Example 1
(continued)

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

1.3 TRANSZONAL HAIL (between NAFO Divisions)

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

//SR	-	Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDDMM
//TM/indication of the message code	CHAR(3)	ZON
//MA/name of the Master	CHAR(30)	
//DS/directed species (target species)	CHAR(3)	FAO Codes

Allow several fields to be entered, with the fields separated by spaces,
e.g. //DS/species species species//

//ER//	-	End Record

Example 1
(continued)

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

1.4 *EXIT HAIL*

//SR	-	Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDDMM
//TM/*indication of the message code*	CHAR(3)	EXI
//DI/NAFO Division from which the vessel is about to leave.	CHAR(2)	

//CA/catch in round weight taken in the Regulatory Area by species (3 alpha codes) in kilograms (rounded to the nearest 100 kilograms). Allow several pairs of fields, consisting of species + weight, with each field separated by a space. e.g. //CA/species weight species weight species weight//

SPECIES	CHAR(3)	FAO Codes
WEIGHT	NUM(7)	

//MA/name of the Master	CHAR(30)	
//ER//	-	End Record

Example 1
(continued)

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

1.5 TRANSHIPMENT HAIL

//SR	-	Start Record
//FR/from	(ISO-3)	
//AD/addressee	XNS	
//SQ/sequence number	NUM(4)	
//NA/name of vessel	CHAR(40)	
//RC/call sign	CHAR(8)	
//XR/external identification letters and numbers	CHAR(14)	
//DA/date	CHAR(8)	YYYYMMDD
//TI/time	NUM(4)	HHMM UTC
//LA/latitude	CHAR(5)	NDDMM
//LO/longitude	CHAR(6)	WDDDMM
//TM/indication of the message code	CHAR(3)	TRA

//KG/total round weight by species (3 alpha codes) to be transshipped in kilograms (rounded to the nearest 100 kilograms) Allow several pairs of fields, consisting of species + weight, with each field separated by a space. e.g. //KG/species weight species weight species weight//

SPECIES	CHAR(3)	FAO Codes
WEIGHT	NUM(7)	

//MA/name of the Master	CHAR(30)	
//ER//	-	End Record

Definition of mandatory data elements

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

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

Definition of optional data elements

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

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

Example of messages based on the standardized file format

//SR//FR/NOR//AD/XNS//SQ/345//RC/TFLN//XR/VI-5943//NA/VESSEL NAME//
FS/RUS//DA/YYYYMMDD//TI/0400//TM/MOV//DI/3M//LA/N4721//LO/W04640//ER//
Optional elements: //MA/MASTERS NAME//DS/DIRECTED SPECIES//

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

Annex 4. Program for Observers and Satellite Tracking (FC Doc. 98/7)

NAFO CONSERVATION AND ENFORCEMENT MEASURES

AMEND PART VI – to read as follows

PART VI - PROGRAM FOR OBSERVERS AND SATELLITE TRACKING

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

A. Observers

1. Each Contracting Party shall require all its vessels fishing in the Regulatory Area to accept observers on the basis of the following:

   a) each Contracting Party shall have the primary responsibility to obtain, for placement on its vessels, independent and impartial observers;

   b) in cases where a Contracting Party has not placed an observer on a vessel, any other Contracting Party may, subject to the consent of the Contracting Party of the vessel, place an observer on board until that Contracting Party provides a replacement in accordance with paragraph a);

   c) no vessel shall be required to carry more than one observer pursuant to this Program at any time.

2. Each Contracting Party shall provide to the Executive Secretary a list of the observers they will be placing on vessels in the Regulatory Area.

3. Observers shall:

   a) monitor a vessel's compliance with the relevant Conservation and Enforcement Measures. In particular they shall:

      i) record and report upon the fishing activities of the vessel and verify the position of the vessel when engaged in fishing;

      ii) observe and estimate catches with a view to identifying catch composition and monitoring discards, by-catches and the taking of undersized fish;

      iii) record the gear type, mesh size and attachments employed by the master;

      iv) verify entries made to the logbooks (species composition and quantities, round and processed weight and hail reports).

   b) collect catch and effort data on a set-by-set basis. This data shall include location (latitude/longitude), depth, time of net on the bottom, catch composition and discards; in particular the observer shall collect the data on discards and retained undersized fish as outlined in the protocol developed by the Scientific Council.

c) carry out such scientific work (for example, collecting samples) as requested by the Fisheries Commission based on the advice of the Scientific Council;

d) within 30 days following completion of an assignment on a vessel, provide a report to the Contracting Party of the vessel and to the Executive Secretary, who shall make the report, available to any Contracting Party that requests it. Copies of reports sent to other Contracting Parties shall not include location of catch in latitude and longitude as required under 3 b), but will include daily totals of catch by species and division.

4. The observer shall monitor the functioning of, and report upon any interference with, the satellite system. In order to better distinguish fishing operations from steaming and to contribute to an *a posteriori* calibration of the signals registered by the receiving station, the observer shall maintain detailed reports on the daily activity of the vessel.

5. When an apparent infringement of the Conservation and Enforcement Measures is identified by an observer, the observer shall, within 24 hours, report it to a NAFO inspection vessel using an established code, which shall report it to the Executive Secretary.

6. Contracting Parties shall take all necessary measures to ensure that observers are able to carry out their duties. Subject to any other arrangements between the relevant Contracting Parties, the salary of an observer shall be covered by the sending Contracting Party.

7. The vessel on which an observer is placed shall provide suitable food and lodging during the observer's deployment. Vessel masters shall ensure that all necessary cooperation is extended to observers in order for them to carry out their duties including providing access, as required, to the retained catch, and catch which is intended to be discarded.

B. Satellite Tracking

1. Each Contracting Party whose vessels fish, or plan to fish, in the Regulatory Area, shall:

a) require as soon as possible and not later than January 1, 2001 of its vessels fishing in the Regulatory Area to be equipped with an autonomous system able to transmit automatically satellite signals to a land-based receiving station permitting a continuous tracking of the position of the vessel by the Contracting Party of the vessel;

b) install at least one receiving station associated with their satellite tracking system;

c) transmit to the Executive Secretary, on a real time basis, messages of movement between NAFO divisions (as per the requirements of the Hail System outlined in Part III. E of these Measures) for its vessels equipped with satellite devices. The Executive Secretary shall, in turn, transmit such information to Contracting Parties with an inspection vessel or aircraft in the Convention Area;

d) cooperate with other Contracting Parties which have a NAFO inspection vessel or aircraft in the Convention Area, in order to exchange information on a real-time basis on the geographical distribution of fishing vessels equipped with satellite devices and, on specific request, information related to the identification of a vessel.

2. Subject to any other arrangements between Contracting Parties, each Contracting Party shall pay all costs associated with the satellite tracking system.

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

Part I. Management – to add:

I. Other Measures – No Transshipment of Fish From Non-Contracting Party Vessels

1. Contracting Parties shall ensure that their fishing vessels do not receive transshipments of fish from a Non-Contracting Party vessel which has been sighted and reported, as having engaged in fishing activities in the NAFO Regulatory Area.

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

19. (i) Contracting Parties shall report to the NAFO Secretariat all sightings, made by inspectors, of Non-Contracting Party fishing vessels engaged in fishing activities (i.e. fishing, fish processing operations, the transshipment of fish or fish products, and any other activity in preparation for or related to fishing) in the NAFO Regulatory Area. Such reports shall include all information derived from the inspector's observations concerning the Non-Contracting Party fishing vessel's activities and be made using Part I of the surveillance report provided in Part IV, Annex VIII.

(ii) The inspector shall attempt to inform the Non-Contracting Party fishing vessel that it has been sighted engaging in fishing activities, that a surveillance report has been completed, that there may be consequences for the vessel, and that this information will be distributed to all NAFO Contracting Parties and to the flag-State of the vessel.

(iii) In the event that the Non-Contracting Party vessel, which has been sighted and reported as engaged in fishing activities in the NAFO Regulatory Area, is boarded by inspectors, the findings of the inspectors shall be transmitted to the Executive Secretary. The Executive Secretary will transmit this information to all Contracting Parties within 72 hours of receiving this information, and to the flag-State of the boarded vessel as soon as possible.

PART IV - ANNEX VIII- SURVEILLANCE REPORT

1. The forms for the Surveillance Report shall be collated in a booklet with each page having an original and two self-carbon copies (preferably coloured and preferably 1 golden rod and 1 blue).

2. Page packets are to be perforated at the top and bottom of the page for easy removal.

3. Booklets should be bound preferably with 50 copies of the surveillance report.

4. The size of every page, after removal from the packet, should be 355.5 mm (14") in length by 216 mm (8 1/2") in width.

FISHERIES COMMISSION OF THE NORTHWEST ATLANTIC FISHERIES ORGANIZATION

SURVEILLANCE REPORT

PART I

AUTHORIZED INSPECTORS

1. Name(s) ..... Document Identity No.(s).....
....
....

Contracting Party.....

2. Identification/Call Sign of Surveillance Craft .....

Patrol Originating in Reg. Area at (Posn) .....on (Date) (time) UTC

Patrol Leaving Reg. Area at (Posn) .....on (Date) (time) UTC

DETAILS OF VESSEL OBSERVED

3. Contracting Party/Non-Contracting Party/Flag State.....

4. Vessels Name and Letters and Numbers of Registration.....

5. Other Identifying Features (Type of vessel, colour of hull, superstructure, etc.).....
.....
.....

6. Date/Time UTC When First Identified ..... Course & Speed .....

Position at Time at First I.D. NAFO Sub Div.....
Lat. .....
Long. .....

Equipment used in Determining Position .....

7. WEATHER CONDITIONS

Wind Dir..... Sea State.....
Wind Speed..... Visibility.....

8. DETAILS OF PHOTOGRAPHS TAKEN

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

PART II

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

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

Authorized Inspector: .....

Signature: .....

Annex 6. Scientific Council Proposals/Recommendations with the implication on the Conservation and Management of Fish Stocks in the NAFO Convention Area (FC Doc. 98/11)

This document summarizes the Scientific Council proposals/recommendations forwarded to the Fisheries Commission during the 20th Annual Meeting, Lisbon, Portugal, 14-18 September 1998. The proposals/recommendations were adopted by the Fisheries Commission at the closing session, 18 September 1998, for the purpose of conservation and management of fish stocks in the NAFO Convention/Regulatory area, on the following terms and conditions:

1. The timing of Scientific Council advice for certain stocks (from FC Working Paper 98/7)

   The assessment of certain (six) stocks by the Scientific Council on an alternating year basis will be as follows:

   The time horizon for the assessments are depicted in the Table below (check marks identify the year of the assessments).

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

   For Capelin in Div. 3NO, advice will not be provided until appropriate date are available.

2. Scientific advice for the shrimp in Div. 3M (from FC Working Paper 98/9)

   The Scientific Council will conduct the assessment of shrimp in Div. 3M in November. First time, in November 1999, the scientific advice would be presented (at the 22nd Annual Meeting, September 2000) to the year 2001 and annually thereafter.

3. Statistical data, and identification and reporting of elasmobranchs, "grenadiers" and non-traditional species (from FC Working Paper 98/14)

   The following scientific recommendations were agreed by the Fisheries Commission:

   i) The analyses on the distribution and abundance of elasmobranchs and other non-traditional species be carried out and the results presented to the Scientific Council at the earliest opportunity.

   ii) The inter-agency statistical data harmonization (catch data between NAFO and FAO) be continued as a regular procedure in order that the discrepancies be detected at as early a stage as possible, and that national authorities should be requested to submit statistics with a maximum of detail with regard to the species composition of the catch, in order to minimize one of the main causes of inter-agency discrepancies.

iii) The NAFO Contracting Parties should encourage training in identification and reporting of elasmobranchs (within the national data collection centers prior to submission to international organizations).

iv) An expanded list of individually identified species of elasmobranchs be included on the STATLANT 21A questionnaire and that the national authorities be requested to submit catch statistics with a maximum degree of detail.

v) The identification of grenadier should also be publicized, and that Contracting Parties with data on roughhead grenadier in SA 2+3 bring such data to Scientific Council June 1999 meeting to attempt an assessment on this species.

Annex 7. Management for Shrimp 3M
(FC Doc. 98/9)

NAFO CONSERVATION AND ENFORCEMENT MEASURES

AMEND PART I.F – to read as follows:

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

1. Vessels fishing for shrimps in Division 3M in 1999 shall use nets with a minimum mesh size of 40 mm.

2. Vessels fishing for shrimp in Division 3M in 1999 shall use sorting grids or grates maximum spacing between the bars of 22 mm.

3. In the event that total by-catches of all regulated groundfish species in any haul exceed 5 percent by weight, vessel shall immediately change fishing area (minimum of 5 nautical miles) in order to seek to avoid further by-catches of regulated groundfish.

4. a) Each Contracting Party shall limit in 1999 the number of vessels fishing for shrimp in Div. 3M to the number that have participated in this fishery in the period from 1 January 1993 to 31 August 1995.

   b) Each Contracting Party shall, in 1999, limit the number of fishing days by its vessels fishing for shrimp in Div. 3M to 90% of the maximum number of fishing days observed for their vessels in one of the years 1993, 1994 or 1995 (until 31 August 1995). However, for Contracting Parties with a track record in the period from 1 January 1993 to 31 August 1995, a minimum level of 400 fishing days is permitted.

   c) Contracting Parties with no track record in the shrimp fishery in the period from 1 January 1993 to 31 August 1995 may, in 1999, fish for shrimp with one vessel in 100 fishing days.

   d) Each Contracting Party shall communicate the number of fishing days to the Executive Secretary before 1 November 1998 that are available to that Contracting Party for 1999. The number of days shall be counted from the hail reports of vessels fishing for shrimp in Div. 3M and shall include the days of entry and exit from the Regulatory Area. In the case where vessels fishing for shrimp and other species on the same trip the number of days shall be counted from the day the vessel entered the shrimp fishery to the day the vessel ceased that fishery.

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

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

f) For vessels conducting trans-zonal fishery for shrimps between Div. 3M and the area defined in footnote 1, the same regulations as in "NAFO Conservation and Enforcement Measures, Part III – Annex I – Hail System Message Format, no. 1.3., shall apply.

g) Each Contracting Party shall in 1999 closely monitor its vessels fishing for shrimp and close the fishery when the number of fishing days available to that Party is exhausted.

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

h) In the case where a vessel is fishing for shrimp and other species on the same trip, the change of fishery shall be hailed and the number of fishing days counted accordingly.

i) Fishing days are not transferable between Contracting Parties.

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

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

	Cod		Redfish		American plaice		Yellowtail	Witch	Capelin	G. halibut	Squid (*Illex*)[2,3]
Contracting Party	Div. 3M	Div. 3NO*	Div. 3M	Div. 3LN*	Div. 3M*	Div. 3LNO*	Div. 3LNO	Div. 3NO*	Div. 3NO*	Div. 3LMNO	Subareas 3+4
1. Canada	0	0	500	0	0	0	5850[7]	0	0	3 667	N.S.[4]
2. Cuba	0	-	1750	0	-	-	-	-	0	-	1 125
3. Denmark (Faroe Islands and Greenland)	0	-	69	-	-	-	-	-	-	-	-
4. European Union	0	0	3100	0	0	0	120[7]	-	0	13 530	N.S.[4]
5. France (St. Pierre et Miquelon)	-	-	69	-	-	-	-	-	-	-	1 000
6. Iceland	-	-	-	-	-	-	-	-	-	-	-
7. Japan	-	-	400	-	-	-	-	-	0	2 506	1 125
8. Korea	-	-	69	-	-	-	-	-	-	-	1 000
9. Norway	0	-	-	-	-	-	-	-	0	-	-
10. Poland	0	-	-	-	-	-	-	-	0	-	500
11. Estonia 12. Latvia 13. Lithuania 14. Russia	0	0	13 850[1]	0	0	-	-	0	0	-	2 500[1]
15. United States of America	-	-	69	-	-	-	-	-	-	3 117	1 000
16. Others	0	0	124	0	0	0	30[7]	0	-	1 624[5]	1 750
Total Allowable Catch	*	*	13 000[6]	*	*	*	6 000[8]	*	*	24 444	75 000

[1] 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.

[2] The opening date for the Squid (Illex) fishery is 1 July.

[3] 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.

[4] 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.

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

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

[7] Contracting Parties shall inform the NAFO Executive Secretary before 1 December 1998 of the measures to be taken to meet the advice of the NAFO Scientific Council.

[8] The provisions of Part I, Section A.5b) of NAFO Conservation and Enforcement Measures shall apply.

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

Annex 9. Fisheries Commission's Request for Scientific Advice on Management in 2000 of Certain Stocks in Subareas 3 and 4

(FC Working Paper 98/19)

1. The Fisheries Commission with the concurrence of the Coastal State as regards the stocks below which occur within its jurisdiction, requests that the Scientific Council, at a meeting in advance of the 1999 Annual Meeting, provide advice on the scientific basis for the management of the following fish and invertebrate stocks or groups of stocks in 2000:

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

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

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

   To implement this system of assessments in alternating years, the Scientific Council is requested to conduct the assessment of these six stocks as follows:

   - In 1999, all six stocks will be assessed. The assessment advice, however, will pertain to different time periods to allow the introduction of the new scheme over the next three years.
   - In 1999, advice will be provided for 2000 and 2001 for American plaice in 3LNO, cod in 3NO and redfish in 3LN. The next assessment of these stocks will thus be conducted in 2001.
   - In 1999, advice will be provided for 2000 for cod in 3M, American plaice in 3M and witch flounder in 3NO. The next assessment of these stocks will be conducted in 2000 with advice provided for 2001 and 2002. These stocks will then next be assessed in 2002.

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

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

   a) For those stocks subject to analytical-type assessments, the status of the stocks should be reviewed and management options evaluated in terms of their implications for fishable stock size in both the short and long term. As general reference points, the implications of fishing at $F_{0.1}$, F_{1998} and F_{max} in 2000 and subsequent years should be evaluated. The present stock size and spawning stock size should be described in relation to those observed historically and those expected in the longer term under this range of options.

      Opinions of the Scientific Council should be expressed in regard to stock size, spawning stock sizes, recruitment prospects, catch rates and TACs implied by these management

strategies for the short and the long term. Values of F corresponding to the reference points should be given. Uncertainties in the assessment should be evaluated.

b) For those stocks subject to general production-type assessments, the time series of data should be updated, the status of the stock should be reviewed and management options evaluated in the way described above to the extent possible. In this case, the general reference points should be the level of fishing effort or fishing mortality (F) which is calculated to be required to take the MSY catch in the long term and two-thirds of that effort level.

c) For those resources for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management requirements for long-term sustainability and the advice provided should be consistent with the precautionary approach.

d) Spawning stock biomass levels that might be considered necessary for maintenance of sustained recruitment should be recommended for each stock. In those cases where present spawning stock size is a matter of scientific concern in relation to the continuing reproductive potential of the stock, management options should be offered that specifically respond to such concerns.

e) Presentation of the results should include the following:

I. For stocks for which analytical-type assessments are possible:
- a graph of historical yield and fishing mortality for the longest time period possible;
- a graph of spawning stock biomass and recruitment levels for the longest time period possible;
- a graph of catch options for the year 2000 and subsequent years over a range of fishing mortality rates (F) at least from $F_{0.1}$ to F_{max};
- a graph showing spawning stock biomass corresponding to each catch option;
- graphs showing the yield-per-recruit and spawning stock per recruit values for a range of fishing mortalities.

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

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

f) Squid (*Illex*) in Sub-areas 3 and 4 is a short-lived species such that a change in productivity could be sudden. The Fisheries Commission and Coastal States request that the Scientific Council provide advice on the approach that could be used on an ongoing basis to allow timely identification of the onset of a new productivity level (higher or lower). It is also requested that the Scientific Council advise on catch levels that would be appropriate for different levels of productivity (e.g. low, medium and high). Further, the Scientific Council is requested to evaluate the potential impacts of fisheries for squid in Subareas 3 and 4 on the portion of the squid (*Illex*) resource in Subareas 5 and 6.

4. In 1996, the Fisheries Commission requested that the Scientific Council comment on Article 6 and Annex II of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. Noting the progress made by the Scientific Council on the development of a framework for implementation of the Precautionary Approach, the Fisheries Commission requests that the Scientific Council provide,

in their June 1999 report, the following information for the 1999 Annual Meeting of the Fisheries Commission for all stocks under its responsibility (i.e. cod in 3M and 3NO, American plaice in 3M and 3LNO, yellowtail flounder in 3LNO, witch flounder in 3NO, redfish in 3M and 3LN, Greenland halibut in SA 2+3, capelin in 3NO, shrimp in 3M and squid in SA 3+4):

a) the limit and target precautionary reference points described in Annex II indicating areas of uncertainty;
b) information including medium term consideration and associated risk or probabilities which will assist the Commission to develop the management strategies described in paragraphs 4 and 5 of Annex II in the Agreement;
c) information on the research and monitoring required to evaluate and refine the reference points described in paragraphs 1 and 3 of Annex II of the Agreement; these research requirements should be set out in order of priority considered appropriate by the Scientific Council; and,
d) any other aspect of Article 6 and Annex II of the Agreement which the Scientific Council considers useful for implementation of the Agreement's provisions regarding the precautionary approach to capture fisheries.

5. The Fisheries Commission requests that the Scientific Council develop criteria to be evaluated during any consideration of possible fisheries re-openings.

6. The Fisheries Commission with the concurrence of the Coastal State requests that the Scientific Council review available information, including any Canadian assessment documentation on the stock status, and provide advice on catch levels for the 2J3KL witch flounder resource. Any information pertaining to the relative distribution of the resource within the stock area, as well as changes in this distribution over time should also be provided.

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

a) provide information on the fishing mortality on shrimp in Divisions 3LNO in recent years, as well as information on by-catches of groundfish in 3LNO shrimp fisheries;
b) provide information on abundance indices and the distribution of the stock in relation to groundfish resources, particularly for the stocks which are under moratorium;
c) provide information on the distribution of shrimp in Divisions 3L, 3N and 3O, as well as describe the relative distribution inside and outside the NAFO Regulatory Area;
d) advise on reference points and conservation measures that would allow for exploitation of this resource in a precautionary manner;
e) identify and delineate fishing areas and exclusion zones where fishing would not be permitted, with the aim of reducing the impact on the groundfish stocks which are under moratorium, particularly juveniles;
f) provide information on annual yield potential for this stock;
g) determine the appropriate level of research that would be required to monitor the status of this resource on an ongoing basis with the aim of providing catch options that could be used in the context of management by Total Allowable Catches (TAC); and
h) provide advice on whether shrimp found in the area of the Flemish Cap defined by the following geographical coordinates

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

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

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

PART II

Report of the Standing Committee on International Control (STACTIC)

1. Opening of Meeting

The Chairman, D. Bevan (Canada) opened the meeting at 1015 on 14 September 1998. Representatives from the following Contracting Parties were present: Canada, Cuba, Denmark (in respect of the Faroe Islands and Greenland), Estonia, the European Union (EU), France (St. Pierre & Miquelon), Iceland, Japan, Latvia, Lithuania, Norway, the Republic of Korea, Russia and the United States.

2. Appointment of Rapporteur

Paul Steele (Canada) was appointed Rapporteur.

3. Adoption of Agenda

The agenda was adopted as attached (Annex 1).

4. Review of Annual Returns of Infringements

The Chairman referred the Contacting Parties to NAFO FC Doc. 98/5 (Summary of Inspection Information for 1997) and NAFO/FC Doc. 98/6 (Summary of Undisposed Apparent Infringements for 1993-1997). He then requested comments or updates from Contracting Parties with regard to the disposition of apparent infringements reported by them to the NAFO Secretariat.

The representative from Norway informed that the disposition of the two apparent infringements, which were issued to a Norwegian vessel in 1997, had not yet been reported to the Secretariat. One apparent infringement, which involved the requirement for the vessel master to produce a capacity plan to describe the fishing hold capacity, is still being considered by Norwegian authorities. It appears that there may have been some confusion between the terms "fishing room" and "fishing bins."

The representative from Canada commented that the capacity plans should describe the fishing hold capacity of the vessel, and it should not matter what terminology is used by the vessel as long as the document accurately describes the capacity of the space onboard where the fish is stored. The Norwegian representative noted that the particular fishing vessel in question has been fishing in the NAFO Regulatory Area for several years and has undergone numerous inspections without any problems identified regarding the capacity plans until the most recent inspection.

The second apparent infringement came about because the NAFO inspector took the position that the fishing vessel in question was required to complete a NAFO logbook. The Norwegian authorities are of the opinion that a Norwegian logbook should be sufficient as long as the required information is entered into the logbook.

The representative from Iceland advised that he would submit, later in the meeting, a written report on the disposition of apparent infringements detected on Icelandic vessels during the period 1993-1998.

The representative from Denmark (in respect of the Faroe Islands and Greenland) advised that his government does not agree with two citations issued to a Faroese vessel in 1997. The citations were issued because the NAFO inspectors felt that the vessel in question was engaged in a commercial fishery, whereas the Danish government's view is that the vessel was engaged in research activity as

per the notification that had been given to the NAFO Secretariat. The representative from Denmark (in respect of the Faroe Islands and Greenland) advised that a letter will be submitted to the NAFO Secretariat with regard to this matter. He also advised that a written warning was issued to another vessel as a result of a citation issued by an EU inspector on November 3, 1997 and that another citation, issued by an EU inspector on November 4, 1997, is still under review.

The representative from the European Union stated that no legal action would be taken as a result of the catch record discrepancy issued to a European Union vessel on April 6, 1997. The rationale for that decision is that the discrepancy fell within the tolerance exercised by the European Union.

The representative from Canada pointed out that although the European Union exercises a 20% tolerance on catch record discrepancies, no such tolerances are specified in the NAFO Conservation and Enforcement Measures. Therefore, NAFO inspectors are required to issue citations for discrepancies, whether or not they fall within the European Union's tolerance.

The Chairman noted that the submission of reports on the disposition of apparent infringements has improved significantly since the last annual meeting. He reminded Contracting Parties of the requirement for regular reports and asked them to submit any available updates before the conclusion of this meeting.

5. Review of Surveillance and Inspection Reports

STACTIC Working Paper 98/9 was tabled by the Executive Secretary, who explained the methodology used in the development of the table entitled "Objectivity of NAFO Inspections – 1997."

The representative from Denmark (in respect of the Faroe Islands and Greenland) commented that although the above-noted table shows four apparent infringements for Denmark (Faroes) in 1997, the Danish government's position is that two of those citations were determined not to be infringements.

A discussion followed about the usefulness of this type of analysis. Working Paper 98/9 is an amended version of two similar reports submitted by the Executive Secretary at previous meetings (FC Doc. 97/3 and STACTIC Working Paper 97/21). It was generally agreed that Working Paper 98/9 is an improvement over the previous versions. The European Union representative noted that this type of analysis is helping Contracting Parties to get a better appreciation of the relative objectivity in the distribution of inspections. He suggested that more work should be done to further refine Table 1 of the report. As an example, he suggested that the first four columns of the table may be sufficient.

The Chairman tabled STACTIC Working Paper 98/11 (Information on Inspections, Catch Record Discrepancies and/or Apparent Infringements, 1997).

The representative from Canada tabled STACTIC Working Paper 98/13. He noted that the total number of sightings in 1997 was 2,759, compared to 4,473 sightings in 1996. The representative from the United States asked if Canada could provide the number of patrol sea days and air hours for 1997 and 1996. The representative from Canada indicated that the numbers were slightly lower for 1997 in comparison to 1996.

6. Review of the Pilot Project for Observers and Satellite Tracking

STACTIC Working Paper 98/15 was tabled by the Executive Secretary. This paper was compiled by the NAFO Secretariat, on the basis of data submitted by Contracting Parties, to compare the number of apparent infringements, the number of fishing vessels and the number of patrol sea days in the Regulatory Area during the period of 1992-1997.

The European Union representative noted that only certain Contracting Parties (Canada, Estonia, the European Union, and Japan) have provided data to the NAFO Secretariat for the preparation of this

table. (Norway has since provided data as well.) He suggested that other Contracting Parties should submit their data as soon as possible in order for the table to be finalized. The representative from Iceland indicated that Iceland will do so soon.

The representative from Denmark (in respect of the Faroe Islands and Greenland) pointed out that care must be taken in attempting to draw conclusions on the basis of this data. He stated that it would be useful to include the number of observer days in the analysis.

The representative from Iceland noted that it is important to keep in mind that there is no control group to which the data can be compared. He suggested that the paper should make note of this and any other limitations that are applicable.

The representative from Iceland also noted that although the total number of fishing vessels declined significantly (23,352 days in 1993 compared to 12,473 days in 1997), there were also major changes during that period with regard to the composition of the fleet that participated in the fisheries in the Regulatory Area. For example, the shrimp fishery underwent a major expansion, with many new vessels becoming involved. On the other hand, some of the vessels that had traditionally fished in the Regulatory Area have not fished in recent years. These changes may have had a significant impact on the trends that we see in compliance rates for the 1993-1997 period.

The representative from Canada suggested that the infringements listed in the paper should be broken down into two categories – those that have relevance to the pilot project and those which do not. It was agreed that the Canadian delegation would develop a revised paper on this basis. The revised paper was later tabled by Canada as STACTIC Working Paper 98/19.

The representative from Norway pointed out that, although the pilot project was implemented January 1, 1996, the sharp decline in infringements began in 1995. The representative from Canada responded by noting that Canada and the European Union had implemented 100% observer coverage in May, 1995. The European Union representative commented that STACTIC should present the factual data without attempting to explain the reasons behind the decline in infringements. He said that STACTIC should simply identify the trends and let others draw their own conclusions as to the factors that contributed to them.

The representative from Denmark (in respect of the Faroe Islands and Greenland) suggested that Working Paper 98/19 be revised to reflect the level of fishing effort on an annual basis. The European Union representative agreed and suggested that the number of patrol sea days, as well as some explanatory text, should be added to the paper. The representative from Canada agreed to make these changes and submit a revised Working Paper. Following deliberations, Annex 2 (STACTIC Evaluation of the Observer and Satellite Tracking Project) was **accepted** by the Committee.

The European Union representative pointed out that STACTIC Working Paper 98/16 includes updated information on the costs related to European Union patrol activity.

The Lithuanian representative tabled STACTIC Working Paper 98/18, which responded to the questions regarding the pilot project which had been posed at the May 14-15, 1998 STACTIC meeting. He indicated that Lithuania intends to resolve the problem of observer reports not being submitted to the NAFO Secretariat, as required by the Conservation and Enforcement Measures.

Representatives from France (St. Pierre & Miquelon), Estonia and Russia tabled Working Papers (STACTIC Working Papers 98/20, 98/22 and 98/23, respectively) which responded to the above-noted questions regarding the pilot project.

The representative from Norway questioned whether the Canadian government has been paying the costs involved in providing observer coverage for Lithuanian vessels. The response given was that the Canadian government has been paying these costs, although this assistance may no longer be required as training of Lithuanian observers has now been completed.

7. Review of Operation of the Hail System

The Executive Secretary tabled STACTIC Working Paper 98/10. He noted that there continue to be a number of undisposed apparent infringements (see page 2 of Working Paper 98/10) and he asked Contracting Parties to submit the required information as soon as possible.

The Executive Secretary advised the Contracting Parties that a computer networking and cabling system has been installed at the Secretariat offices. Arrangements are now being made to enter into a contact for the additional technical work required in order to implement an automated system for the receipt and transmission of satellite tracking data.

The European Union representative asked whether confidentiality of the data is still a concern. The Secretariat staff replied that a private contractor has submitted a proposal whereby the data would be accessed through the NAFO Secretariat website on the internet. The Chairman stated that STACTIC will need to address the confidentiality issue at a future meeting.

8. Discussion of Other Conservation and Enforcement Measures

a) Compatibility and applicability of discard/retention rules for conservation and utilization of fishery resources

The Chairman noted that this issue had been discussed at the 1997 annual meeting of STACTIC in St. John's, Newfoundland. Canada had proposed that the Conservation and Enforcement Measures be revised to clarify that all fish discarded must be counted against quotas. At the St. John's meeting, Contracting Parties were asked to provide data with regard to 1997 discards by Contacting Party vessels fishing in the Regulatory Area.

The Chairman tabled STACTIC Working Paper 98/14, which summarized the information received to date from four Contracting Parties (Canada, Denmark in respect of Greenland, Japan and Norway). Iceland and Estonia provided reports during the meeting (STACTIC Working Papers 98/21 and 98/22 respectively). The representative from the United States advised that, since no U.S. vessels fished in the NAFO Regulatory Area in 1997, the United States will not be providing data regarding discards

The European Union representative noted that it would be useful to compare the amounts discarded to the total catches of each species, as this would give a better perspective regarding the seriousness and extent of the problem. He also noted that discard levels generally appear to be relatively modest and there is no evidence to suggest that TACs are being exceeded as a result of excessive discards.

The Canadian representative noted that a major reason for the confusion on the issue of discarding may be that there is a misunderstanding of the definition of the term "catch." He said that some may interpret "catch" to mean "landings," although the Conservation and Enforcement Measures are quite clear that "catch" includes all fish taken on board a fishing vessel. He also noted that although discards may be considered low at present, it must be remembered that most of the NAFO-managed stocks are under moratorium, and when they are all open there may be many more vessels in the area, which could significantly increase the level of discards. He said that the time to get this issue clarified is now, not later when it may be more difficult to do so.

The representative from Norway stated that the amount of fish discarded in the shrimp fishery is generally quite small (in the range of 2%-5%). He suggested that consideration could be given to setting aside a portion of the overall quota to cover discards.

The representative from Denmark (in respect of the Faroe Islands and Greenland) called attention to the situation where a Contracting Party has no quota to cover off the discards of by-catches taken in a directed fishery for a quota species, e.g. redfish discarded when directing for shrimp.

The Chairman stated that more data is required on discards by Contracting Party vessels. He asked that each Contracting Party provide discard data to the Secretariat in the format used by Norway in STACTIC Working Paper 98/14. Once this data has been compiled, the issue may be re-visited at the next STACTIC meeting.

b) Sampling protocols

The European Union representative reviewed the background to this issue. He indicated that it had been raised in 1995 in response to concerns that NAFO inspectors did not have clear and consistent instructions on how to conduct sampling on board vessels involved in mixed fisheries. He questioned whether this continues to be an issue in 1998. From the European Union's perspective, it is not a serious concern at the present time.

The representative from Denmark (in respect of the Faroe Islands and Greenland) pointed out that the Conservation and Enforcement Measures already provide for mandatory in-port inspections, whereby inspectors can determine the exact amount of each species on board fishing vessels.

The Chairman concluded that no further action needs to be taken on this issue at this time. If problems are identified by any Contracting Party at a later date, the issue will again be raised at STACTIC.

9. Time and Place of Next Meeting

The next meeting of STACTIC will be held during the 21st Annual Meeting of the Fisheries Commission, 1999, in Halifax, N.S., Canada.

10. Other Issues

A joint meeting of STACTIC and the Scientific Council was held to discuss the type of observer data required by the Scientific Council. Following discussion, it was agreed that there is a need for the Scientific Council to further define their data requirements so that STACTIC can then consider the development of more consistent formats and procedures for data collection as well as possible improvements in the availability of data. In doing so, it will be important to keep in mind the various tasks of observers and the time required to complete them in order to ensure that an unreasonable workload is not imposed on the observers.

It was agreed that all Contracting Parties will forward copies of the forms currently completed by their observers to the NAFO Secretariat, who will in turn forward this information to the Scientific Council in advance of their June, 1999 meeting. Following their review at the June meeting, the Scientific Council will provide new information on their data requirements. This issue will then be addressed at another joint meeting of STACTIC and the Scientific Council at the September, 1999 NAFO meeting.

Discussion of STACFAC Working Paper 98/1 regarding Transshipment of Fish from Non-Contracting Party Vessels and Inspection of Non-Contracting Party Vessels.

A discussion was held with regard to STACFAC Working Paper 98/1 – Proposed Revisions to NAFO Conservation and Enforcement Measures. Following discussion, amendments were made to the STACFAC proposal. The revised proposal (STACTIC Working Paper 98/25) – Proposed Revisions to NAFO Conservation and Enforcement Measures was referred to the Fisheries Commission (was **adopted**, please see item 3.9 and Annex 5 of FC Report). STACTIC noted that Japan will be unable

to enforce the proposed Part IV.5(i)c of the Conservation and Enforcement Measures. This is due to the fact that Japanese legislation does not provide authority for enforcement against transport vessels.

11. Adoption of Report

The report was adopted by STACTIC.

12. Adjournment

The meeting adjourned at 14:30 on Thursday, 17 September 1998.

Annex 1. Agenda

1. Opening by the Chairman, D. Bevan (Canada)
2. Appointment of Rapporteur
3. Adoption of Agenda
4. Review of Annual Returns of Infringements
5. Review of Surveillance and Inspection Reports
6. Review of the Pilot Project for Observers and Satellite Tracking
7. Review of Operation of the Hail System
8. Discussion of Other Conservation and Enforcement Measures (including possible requests from the Fisheries Commission):
   a) compatibility and applicability of discard/retention rules for conservation and utilization of fishery resources (follow-up of the STACTIC discussions)
   b) sampling protocols
   c) review of disposition of outstanding infringements by the Contracting Parties
9. Time and Place of the Next Meeting
10. Other Matters
11. Adoption of Report
12. Adjournment

Annex 2. STACTIC Evaluation of the Observer and Satellite Tracking Pilot Project – Executive Summary

STACTIC has completed its evaluation of the three-year 100% observer, 35% satellite tracking project initiated in 1996. STACTIC noted that the implementation of the observer component of the pilot project started in 1995 and was fully implemented in 1996. The satellite tracking component of the program was only partially implemented and as late as 1997 further meetings were held to facilitate use of satellite tracking data. In reviewing the STACTIC evaluation of the pilot project this fact should be considered.

Significant changes have been noted by STACTIC with respect to the compliance to NAFO Conservation and Enforcement Measures. However, there are many variables with respect to fishing practices in the NAFO Regulatory Area and therefore no consensus could be reached on the precise reason for observed improvement in compliance.

Table 1 shows the relative efficacy, efficiency, and relevance of monitoring by the observer, satellite tracking and traditional methods. Table 2 shows the relative costs of the three different monitoring and surveillance systems.

Tables 3, 4 and 5 provide information related to compliance versus surveillance efforts and are graphically depicted in Figures 1, 2 and 3. While the causes of the changes cannot be proven, these tables and graphs demonstrate that there has been a significant change in compliance. For example, while fishing effort declined by 47% and patrol efforts have been reduced by 2%, apparent infringements related to measures needed to conserve stocks have been reduced by 83%.

Table 1. Evaluation Framework Summary Table

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

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

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

1. Bolded ratings reflect consensus view, subject to explanatory notes.

2. Shaded areas reflect no consensus on efficiency/efficacy.

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

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

Explanatory Notes

Management Measure	Contracting Party	Note
Catches retained on board effective.	Denmark (Faroes & Greenland)	Observers assumed 100%
No. of Operations Moderate,	European Union	Satellite Tracking – depending on number of positions per day.
Gear Used sorting grid.	European Union	Includes mesh size and
	Canada	Traditional – High during inspections.
Discards	European Union	Evaluation of discards goes beyond simple enforcement effectiveness.
Landing/Transshipments	EU/Norway	No transshipments observed.
Port/Location	EU	Observer-High, but not included in observer duties.
Efficiency/Efficacy (Observer)	Iceland	Overall – Not in terms of cost efficiency.
		Fishing location – High, in respect of accuracy but this is not real time location so it will not support inspection control.
		Juveniles – Not relevant for shrimp fishery.
		By-catches, high-grading and Processing by species – High, but not significant issue in shrimp fishery.
Efficiency/Efficacy (Satellite)	Iceland	All fishing activities (excluding gear used) – High, but due to low coverage, potential efficiency does not equal actual efficiency.
		Fishing time – High, can be obtained by calculation of vessel speed, although variable or lower speed may not necessarily indicate fishing.
Efficiency/Efficacy (Traditional)	Iceland	May be improved through enhanced use of electronic data exchange.

Efficiency/Efficacy (Traditional)	Canada	Dependent on level of surveillance by platform type (aircraft, patrol vessel, dockside monitoring).
Overall	Iceland, Norway Denmark (Faroes & Greenland)	Evaluation based on experience in the shrimp fishery only.

Table 2. Estimated Cost of Surveillance – NAFO Regulatory Area
(Based on 1996 information)

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

CONTRACTING PARTY	Secretariat	Norway	Den(Grind)	Canada	Latvia	USA	Den(Far)	Japan	Estonia	Iceland	EU	Russia	Total	Average
Reference Documents	97/4	97/1,97/2	97/3,97/25	97/8,97/32	97/12	97/29	98/4	97/16	97/17	97/19	97/33,97/34			
Satellite Tracking Technology														
Capital	$ 21,000	$ 100,000			$12,000	$70,000	$ 22,000		$ 24,000	$ 200,000			$ 449,000	
Operating Costs	$ 6,000	$ 20,000		$ 150,000	$ 4,000	$20,000	$ 1,000		$ 8,000	$ 24,000	$ 500,000		$ 733,000	
Operations Center							$ 20,000						$ 20,000	
Other	$ 5,000				$ 2,000				$ 3,000				$ 10,000	
Observer Coverage														
Operating Costs($/sea day)		$ 400	$ 388	$ 350	$ 350	$ 352	$ 200	$ 530	$ 350	$ 318	$ 320		$ 3,558	$ 356
Traditional Surveillance														
Vessels				$ 3,800,000							$2,300,000		$ 6,100,000	
Aircraft				$ 5,500,000									$ 5,500,000	
Administration				$ 1,500,000							$ 150,000		$ 1,650,000	
Total Inspections				278							97		375	
Cost/Inspection				$ 19,000							$ 24,000		$ 43,000	$ 18,000
Number of Vessels (WG WP 98/4)		15	6	8	3		15	2	6	39	47		141	
Number of observer and fishing days (WP 97/21)		1550	172	179	171		1883	320	1085	5964	7678		19002	
Total costs														
Satellite Technology														
One Time	$ 21,000	$ 100,000			$12,000	$70,000	$ 22,000		$ 24,000	$ 200,000			$ 449,000	
Annual	$ 11,000	$ 20,000		$ 150,000	$ 6,000	$20,000	$ 21,000		$ 11,000	$ 24,000	$ 500,000		$ 763,000	
Observer Coverage		$ 606,000	$ 67,000	$ 63,000	$60,000		$ 377,000	$171,000	$380,000	$1,896,000	$3,000,000		$ 6,076,000	$ 320
Traditional Surveillance				$10,800,000							$2,450,000		$ 13,250,000	$ 697

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

Table 3

	1997	1996	1995	1994	1993	1992
OBSERVER RELEVANT						
Recording of Catch	6	1	7	15	17	19
Incidental Catch Limits	1					
Quota (includes conducting a directed fihsery when a ban on fishing in effect)	2	3		10	11	2
Retaining Undersize fish			3	10	4	
Gear: Mesh size, chafers, straps, sorting straps	1	8	2	19	23	13
Catch record discsrepancy	1	1	4	14	4	5
Hail system	2	4	8	20	18	32
SUBTOTAL	**13**	**17**	**24**	**88**	**77**	**71**
NOT OBSERVER RELEVANT						
Documentation	7	8	9	27	25	21
Failure to carry observer		3				
Other: Improper boarding ladder, Refusal/interference with Inspection	3	6	5	4	3	2
SUBTOTAL	**10**	**17**	**14**	**31**	**28**	**23**
GRAND TOTAL	***23***	***34***	***38***	***119***	***105***	***94***

Table 4. Number of fishing vessels, *fishing effort*, inspections and observer relevant Apparent Infringements, 1993-1997

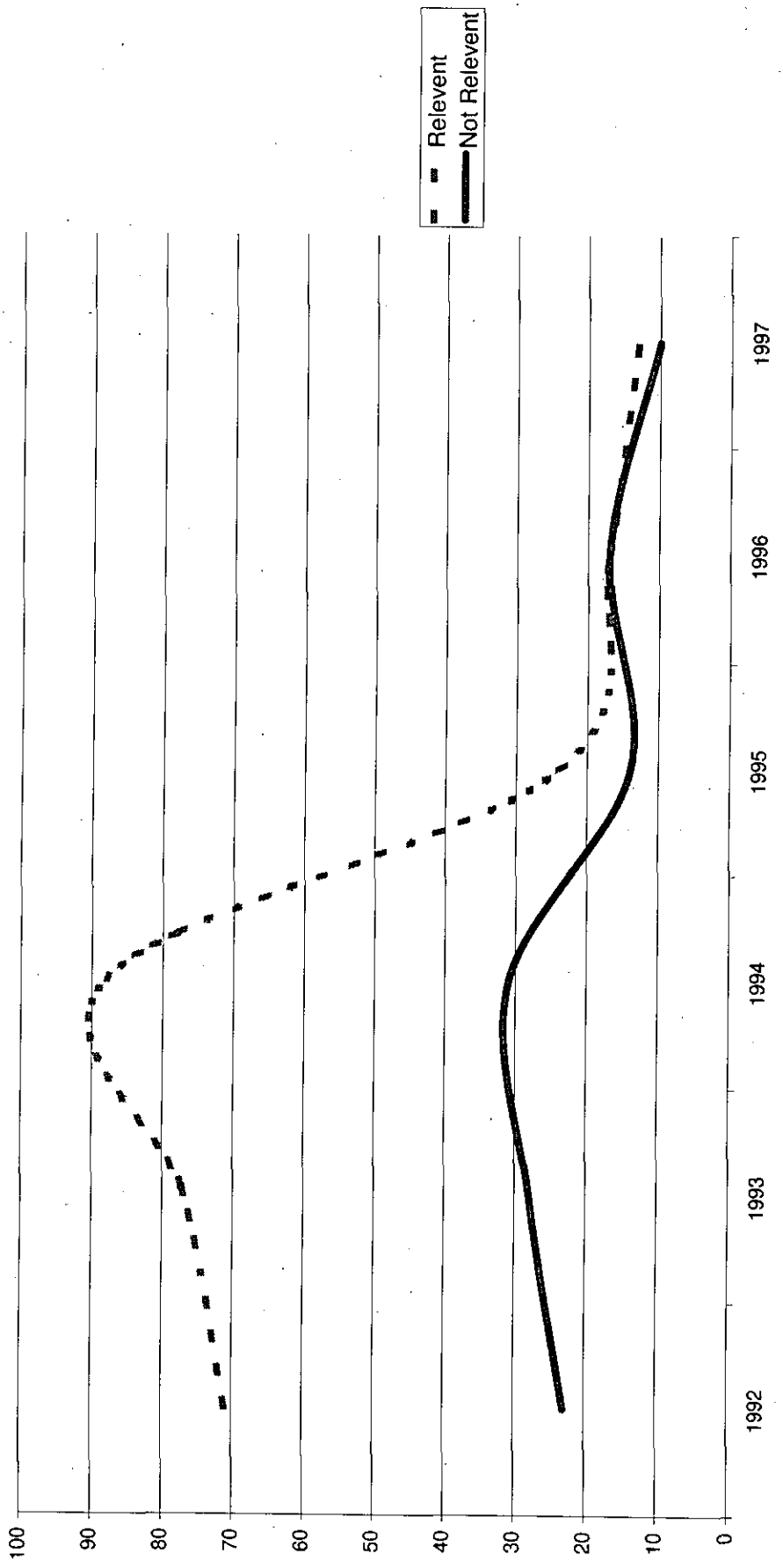
Year	F/vessels	F*N* effort	P*N* effort	Inspections	Infringements Obs. Related
1993	233	23,352	548	518	77
1994	181	22,816	647	628	88
1995	189	23,842	556	343	24
1996	169	17,157	514	375	17
1997	101	12,473	536	350	13

Table 5. Inspections and fishing days/observer relevant infringement and fishing days/patrol vessel day

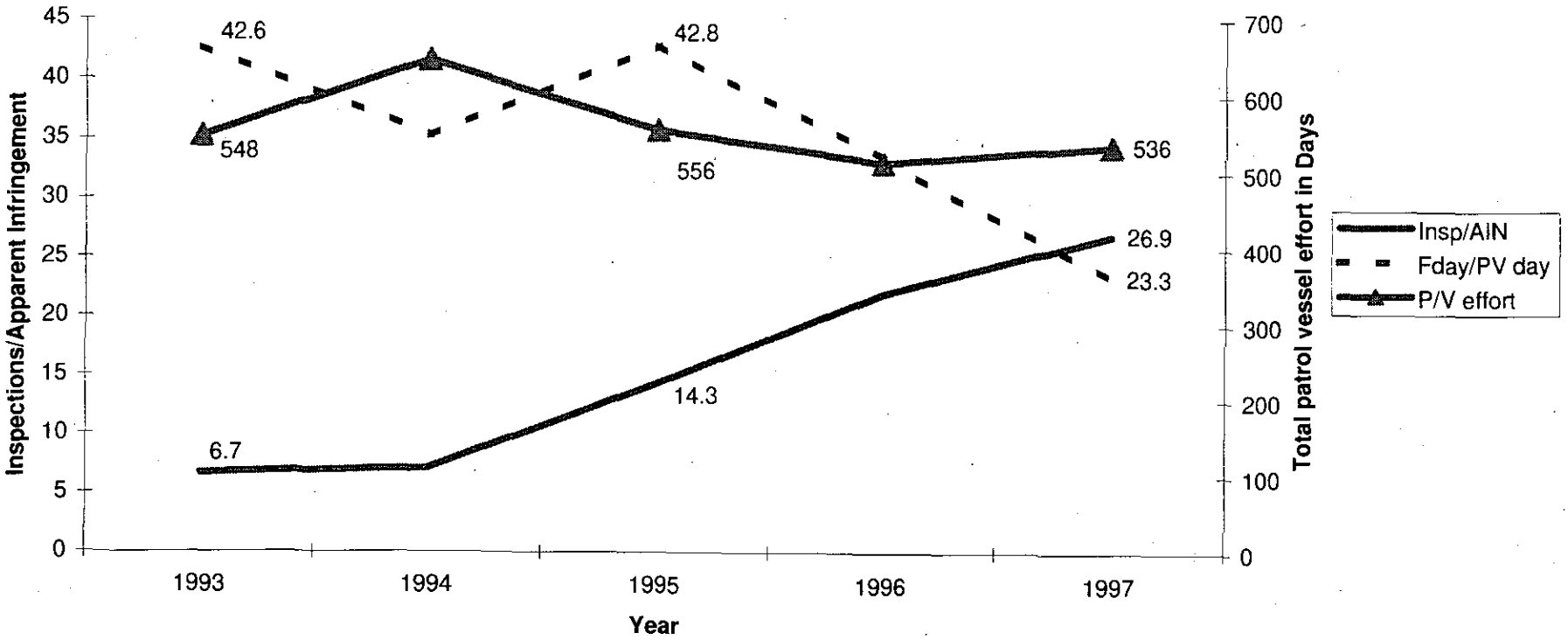
Year	**Insp/AIN**	**Fday/AIN**	**Fday/PV day**
1993	6.7	303	42.6
1994	71	259	35.2
1995	14.3	993	42.8
1996	22	1009	33.4
1997	26.9	959	23.3

Source of Information:
NAFO Secretariat based on hail and surveillance reports from Contracting Parties.

Graph 1: Apparent Infringements
1992-1997
Observer Relevent vs Observer Not Relevent

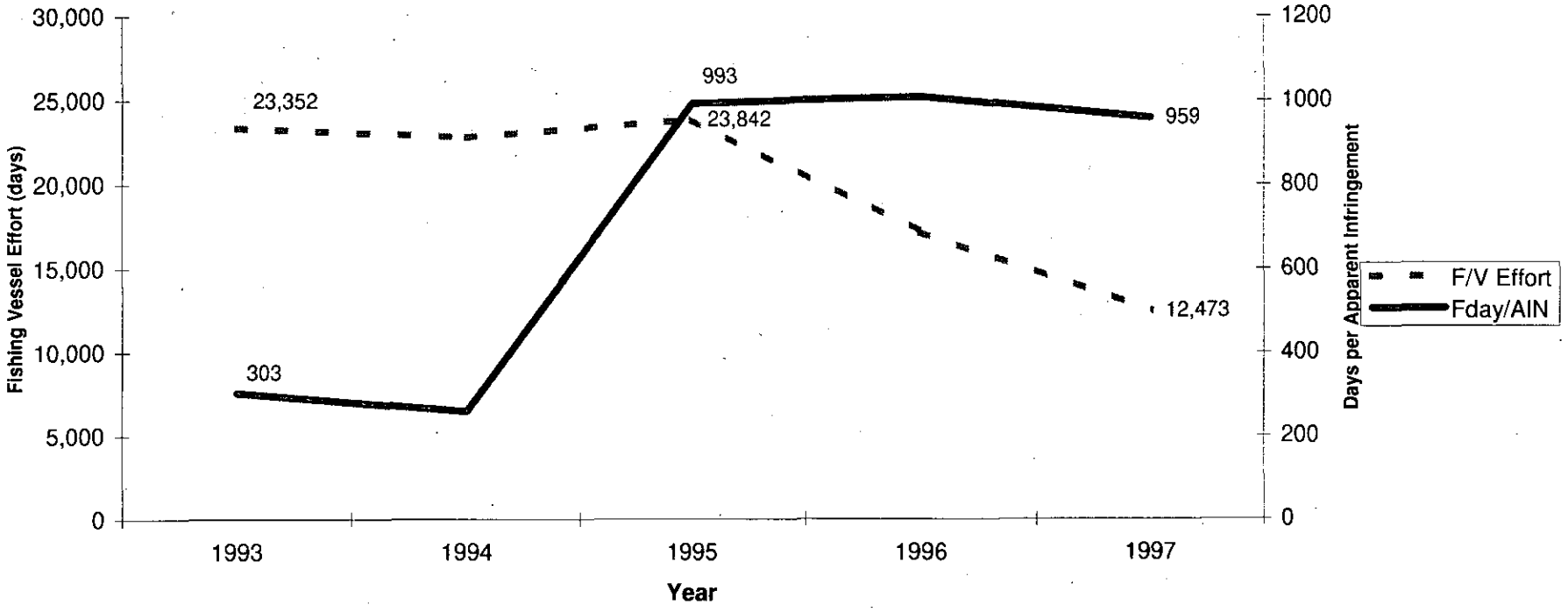


Graph 2: Inspections/Apparent Infringement(AIN), Fishing Days(Fday)/Patrol Vessel day(PV day), Patrol Vessel days 1993-1997



- This chart shows that while patrol activity has remained constant, the number of inspections required to detect an apparent infringement has increased fourfold from 1993 to 1997.
- Patrol vessel days have remained relatively constant during the 1993-97 period at approximately 550 days annually.
- Fishing days/patrol vessel days have declined from approximately 41 during the 1993-95 period to 23 in 1997.
- Observer relevent infringements/inspection have decreased from one in 6.7 inspections in 1993 to one in 26.9 inspections in 1997.

Graph 3: Fishing Vessel Effort and Fishing Days/Observer Relevent Apparent Infringements



- This chart shows that while fishing effort has decreased from 1993 to 1997, the number of fishing days per apparent infringement has increased by 70% from approximately 275 in 1993-94 to 1000 for 1995-97
- Fishing vessel effort was approximately 23,000 days from 1993 to 1995 declining to 12,500 days in 1997