

2.1 REPORT OF THE MANAGEMENT COMMITTEE

6 February 2002, Hotel Arctic, Ilulissat, Greenland

1. - 3. OPENING PROCEDURES

The Chair of the Management Committee, Kaj P. Mortensen, welcomed delegations and observers to the meeting. Participants to the meeting are listed in Appendix 1 of the Report of the Council. The agenda, as contained in Appendix 1, was adopted. Documents available to the meeting are listed in Appendix 2. Daniel Pike was appointed as rapporteur for the meeting.

4. NATIONAL PROGRESS REPORTS

National Progress Reports for the year 2000 were available from the Faroe Islands, Greenland, Iceland and Norway (see section 4 of this volume). The Secretary noted that Canada and the Russian Federation would also be invited to present summaries of relevant marine mammal research in future years, as had been decided by the Management Committee in 1998.

5. STATUS OF PAST PROPOSALS FOR CONSERVATION AND MANAGEMENT

The Committee considered document NAMMCO/11/MC/3 (Appendix 3) which was a record of past proposals for conservation and management put forward by the Management Committee. The Chair asked the Committee to comment on any regulatory or other measures that had been taken in response to these proposals.

5.1 Atlantic walrus

In 1995 the Management Committee recommended that Greenland take appropriate steps to arrest the decline of walrus along its west coast, and encouraged Canada to consider working co-operatively with Greenland to assist in achieving this objective. Greenland noted that in addition to the regulatory measures that were taken in 1999, it had been decided to introduce quotas on walrus. A new regulatory proposal has been drafted and public hearings will be held in the near future. The final regulatory proposal will take the results of these hearings into account.

5.2 Ringed seal

The Management Committee recalled its past conclusion that the harvest of ringed seals in "Area 1" (defined by Baffin Bay, Davis Strait, eastern Hudson Strait, Labrador Sea, Lancaster, Jones and Smith sounds) is sustainable, and noted that this conclusion was in accordance with the knowledge of Greenlandic hunters. The Greenland government is presently undertaking a regulatory initiative which will deal with hunting of all seals in Greenland, rather than just harbour seals as at present.

5.3 Harp seal

5.3.1 Northwest Atlantic

Greenland noted that this stock was shared with Canada and that the two countries hold regular bilateral discussions on management of this stock, including an exchange of information on harvest statistics, utilisation and stock assessment.

Canada brought to the attention of the Committee the recently completed Report of the Eminent Panel on Seal Management, which contains a full review of research and management of seals in Canada, with a primary focus on Northwest Atlantic harp and hooded seals. The Report is available at the following web site: <http://www.dfo-mpo.gc.ca/seal-phoque/reports/index.htm>. Canada also noted that an abundance survey of the Northwest Atlantic harp seals had been completed in 1999, and that published results were now available.

Greenland commented that sustainable catches may be obtained at other catch levels than those that provide replacement yields.

5.4 Hooded seals

5.4.1 Northwest Atlantic

Greenland noted that this stock was shared with Canada and that the two countries hold regular bilateral discussions on management of this stock, including an exchange of information on harvest statistics, utilisation and stock assessment.

5.4.2 Greenland Sea

While supporting the past conclusion of the Management Committee that catch levels for this stock are below replacement yield, Norway noted that the abundance estimate for this stock is dated and that it hoped that new information should soon be available from surveys planned for 2002.

5.5 Northern bottlenose whales

There were no comments under this item.

5.6 Long-finned pilot whales

In 1997 the Management Committee concluded that the Faroese drive hunt of pilot whales is sustainable. There have been no changes in annual take, new abundance estimates or other information that warrant any change in this conclusion.

5.7 Minke whales - Central North Atlantic

There were no comments under this item.

5.8 Beluga - West Greenland

The Management Committee noted its previous conclusion that a reduction in harvesting will be required to reverse the decline of the West Greenland beluga. Greenland informed the Committee that in November 2000 the government made a decision to introduce harvest quotas for beluga and narwhal. Public hearings on a draft regulatory proposal were held in spring 2001. The results of these hearings are being taken into account in the drafting of a revised regulatory proposal, and a final set of

regulations is expected to be introduced sometime in 2002. The Management Committee welcomed this information and commended Greenland for taking action on this difficult issue.

5.9 Narwhal - West Greenland

The Management Committee noted its previous concern about the sustainability of harvests in some areas but recognised that assessments had not yet developed to the stage where firm conclusions could be reached. As for beluga, harvest quotas will be introduced for West Greenland narwhal in the near future. The Canada/Greenland Joint Commission on Narwhal and Beluga (JCNB) also has primary management authority for these stocks and the Management Committee reiterated its statements on this matter under 5.8 above.

5.10 Fin whales - East Greenland - Iceland stock area

There were no comments under this item.

5.11 Incorporation of users' knowledge in the deliberations of the Scientific Committee

The Management Committee had previously asked the Secretariat to proceed with a proposal by the Scientific Committee to use stock status reports as a starting point for discussions with resource users to incorporate their knowledge in advice to Council, and to use the stock status report on minke whales as a pilot project. However, in 2000 the Management Committee recommended that a proposal for a conference on incorporating user knowledge and scientific knowledge into management advice should proceed, and asked the Conference Advisory Group to plan this conference to evaluate whether and how the previous proposal for incorporating users knowledge into the Scientific Committee's deliberations could be incorporated into the conference. Progress on this matter therefore awaits further progress in planning the proposed conference.

Greenland informed the Committee that a person had been hired at the Greenland Institute of Natural Resources to deal with these issues, and that this employee is also on the Advisory Board of the Conference.

6. STATUS OF PAST REQUESTS TO THE SCIENTIFIC COMMITTEE

The Chair drew the attention of the Committee to the updated summary of requests by the NAMMCO Council to the Scientific Committee, and responses by the Scientific Committee (Appendix 4).

In response to a query as to why the Scientific Committee had not responded to requests for advice on environmental issues, including radioactive and organochlorine contaminants (Appendix 4, 2.1 and 2.2), it was recalled that these requests had been forwarded directly to ICES and had never been on the agenda of the Scientific Committee.

7. NEW PROPOSALS FOR CONSERVATION AND MANAGEMENT, REQUESTS FOR ADVICE FROM THE SCIENTIFIC COMMITTEE AND RECOMMENDATIONS FOR SCIENTIFIC RESEARCH.

7.1 Economic aspects of marine mammal - fisheries interactions

7.1.1 *New request for advice*

The Management Committee noted the conclusion of the Scientific Committee that the estimation and model uncertainties are such that the economic aspects of marine mammal-fishery interactions in candidate areas cannot be quantified without further work. The Management Committee therefore recommended that the Scientific Committee should hold a workshop on ecosystem models aiming for a better understanding of the ecological role of minke whales and harp and hooded seals in the North Atlantic, as proposed in the Scientific Committee report (page 165).

7.1.2 *Recommendations for scientific research*

The Management Committee recommended the following, as priorities for future research in this area (not listed in order of priority):

- Distribution of prey species in space and time;
- Spatial and temporal distribution of the diet composition of harp and hooded seals;
- Diet composition of dolphins (white-beaked, white-sided and bottlenose dolphins);
- Field metabolic rate of harp and hooded seals;
- Temporal changes in energy density of prey species;
- Spatial and temporal distribution of the diet composition of minke whales in the Northeast Atlantic, Icelandic waters and further west;
- Consumption estimates synthesised within a modelling framework including full uncertainty evaluation.

7.2 Harp and hooded seals

7.2.1 *New request for advice*

The Management Committee recommended that the Scientific Committee regularly update the stock status of North Atlantic harp and hooded seal stocks as new information becomes available.

7.3 Beluga - West Greenland

7.3.1 *Proposal for conservation and management*

In 2000 the Management Committee accepted that the Canada/Greenland Joint Commission on Conservation and Management of Narwhal and Beluga (JCNB) would provide management advice for this stock, which is shared by Canada and Greenland. The Management Committee noted with pleasure that a joint meeting of the NAMMCO Scientific Working Group on the Population Status of North Atlantic Narwhal and Beluga and the JCNB Scientific Working Group had been held in May 2001, and recommended that this co-operation at the scientific level should continue. The Management Committee also reiterated its recommendation that closer links be developed between NAMMCO and the JCNB on this and other issues of mutual concern.

7.3.2 Recommendations for scientific research

The Management Committee supported the recommendations of the Scientific Committee for areas of future research:

- The highest priority is to conduct reliable surveys in West Greenland at regular intervals, with careful planning including local knowledge. The 2004 survey currently being planned would be an essential step;
- A series of focused discussions with hunters should be implemented, to review in greater detail their concerns about assumptions in the assessment models, and the values used for aspects of beluga biology, and to plan appropriate programs in response to their concerns;
- The re-analyses of the 1996 survey in the Canadian High Arctic should be completed, to evaluate whether or not the estimate of stock size is altered substantially from the estimate previously tabled;
- Co-operative programs with hunters, to improve the accuracy of reported landings and provide better data on killed-and-lost, should be continued and expanded to other communities where possible;
- Continue research on stock discrimination using contaminant and genetic study and satellite tagging.

7.4 Narwhal - West Greenland

7.4.1 New request for advice

The Management Committee recommended that the Scientific Committee should concentrate its assessment efforts on the West Greenland narwhal in the near term.

7.4.2 Recommendations for scientific research

The Management Committee recommended the following areas for research:

- Abundance surveys of the Canadian summer aggregations. A team including technical experts and knowledgeable hunters should develop a comprehensive plan for a survey. Priority should be given to new surveys in areas known to support large abundance of narwhal, and areas where catches are concentrated;
- Satellite tagging and contaminants work should proceed on as wide a basis as feasible to help clarify stock structure and seasonal migration patterns;
- A series of focused discussions with hunters should be implemented, to review in greater detail their concerns about assumptions in the assessment models, and the values used for aspects of narwhal biology, and to plan appropriate programs in response to their concerns;
- Co-operative programs with hunters, to improve the accuracy of reported landings and provide better data on killed-and-lost, should be continued and expanded to other communities where possible.

7.5 Fin whales

7.5.1 New request for advice

The Management Committee clarified its previous request for advice on fin whales, asking that the Scientific Committee continue with its assessments of fin whale stocks in the areas of interest to NAMMCO countries with existing and new information on abundance and stock delineation as it becomes available.

7.5.2 Recommendation for scientific research

The Management Committee recommended that a research program to address the technical problems of deploying satellite tags on large whales should be carried out. This could be done using a model species, such as killer or humpback whale that could be tagged relatively easily and perhaps relocated after the tag had failed. An alternative approach would be to apply multiple tags to single animals.

7.6 White-beaked, white-sided and bottlenose dolphins

7.6.1 Recommendation for scientific research

In reference to the need for information on diet noted under 7.1, the Management Committee recommended that member countries should make use of by-caught animals to provide samples for determining the diet of these species, when samples from directed takes are not available.

7.7 North Atlantic Sightings Surveys

7.7.1 New request for advice

The Management Committee recommended that remaining abundance estimates from the NASS-95 and new estimates from the NASS-2001 surveys should be developed as soon as feasible, with the target species of the surveys being of highest priority. The Management Committee emphasised that this work should be published in a timely manner.

7.8 Others

7.8.1 Minke whales

7.8.1.1 New request for advice

The Management Committee recommended that the Scientific Committee should complete an assessment of Central Atlantic minke whales once new abundance estimates from NASS-2001 become available.

7.8.2 Grey seals

7.8.2.1 New request for advice

The Management Committee noted that there has been a decline in the numbers of grey seals around Iceland, possibly due to harvesting at rates that are not sustainable. The Scientific Committee had previously provided advice in response to a request to review and assess abundance and stock levels of grey seals in the North Atlantic, with an emphasis on their role in the marine ecosystem in general, and their significance as a source of nematodal infestations in fish in particular (NAMMCO 1995). Given the apparent stock decline in Iceland, an apparent increase in Southwest Norway and in the United Kingdom, and the fact that this species interact with fisheries in three NAMMCO member countries, the Management Committee recommended that the Scientific Committee provide a new assessment of grey seal stocks throughout the North Atlantic.

7.8.3 Humpback whales

7.8.3.1 New request for advice

The Management Committee noted the conclusions of the Scientific Committee that there was evidence of a rapidly increasing abundance of humpback whales around

Iceland, and recommended that the Scientific Committee complete abundance estimates for this species as a high priority. The Scientific Committee should also consider the results of the "Years of the North Atlantic Humpback" (YoNAH) project as it pertains to member countries in providing advice for this species.

7.8.4 Pilot whales

7.8.4.1 Recommendation for scientific research

The Management Committee recommended the continuation of the satellite tagging work on pilot whales initiated in the Faroe Islands in 2000.

8. REPORT OF THE WORKING GROUP ON BY-CATCH

In the absence of Chair Arne Bjørge, Daniel Pike presented the Report of the Working Group on By-catch from their teleconference of 15 January 2002 (Section 2.2).

The Working Group discussed an initiative of the European Union to monitor cetacean by-catch in their fisheries. Reporting of cetacean by-catch through logbooks will become mandatory in the European Union for vessels greater than 10 m in length by 2002 and an observer program may supplement this. The European Union will use the Potential Biological Removal Level method to identify acceptable by-catch limits. In several European countries, methods for by-catch reduction are currently being tested, and have been implemented with considerable success in Denmark.

In considering the progress of NAMMCO member countries in monitoring marine mammal by-catch, the Working Group found that some progress has been made in implementing functional logbook reporting in all member countries. However the procedures had not yet reached a stage where an evaluation of their effectiveness could be conducted. The format of the National Progress Reports has been modified to incorporate the reporting of by-catch to NAMMCO, and member countries have begun to utilise the revised format to report by-catch. The Working Group recommended some changes to the format, which would facilitate a future evaluation of by-catch monitoring in member countries.

The Management Committee supported the recommendations of the Working Group, as follows:

- NAMMCO member countries are encouraged to report their by-catch to NAMMCO through the new National Progress Report format. Reports should discriminate between no by-catch, and an apparent lack of by-catch because of inadequate monitoring.
- The format of the National Progress Reports should be modified to include a brief explanation of how by-catch information was collected. The explanation should include the methodology used (e.g. log book, observers, questionnaires), the fisheries covered and the extent of the coverage by fishery, and should be adequate for a future evaluation of by-catch monitoring procedures by the Scientific Committee and/or the Working Group. The Secretariat is requested to proceed with these modifications.

Report of the Management Committee

- Norway should continue to report on the "European Initiative" in by-catch monitoring and reduction to NAMMCO through the Working Group, and other members should report developments in this regard from other areas.

9. REPORT OF THE *AD HOC* COMMITTEE ON INSPECTION AND OBSERVATION

The Chair of the *ad hoc* Committee on Inspection and Observation, Egil Ole Øen, presented the report from the telephone meeting held on 11 January 2002 (Section 2.3). At its last meeting (Sandefjord September 2000) the Management Committee asked the *ad hoc* Committee to draft a proposal for its own terms of reference.

The *ad hoc* Committee presented its proposal for Terms of Reference to the Management Committee for approval:

- The Committee shall function as a standing review body to monitor the implementation of the Observation Scheme and provide recommendations for improvement.
- The Committee shall upon request from the Secretariat provide advice on the Observation Scheme.
- The Committee shall report annually to the Management Committee.

The Management Committee noted that the Terms of Reference would be open for future adjustments and additions.

The *ad hoc* Committee had, upon request from the Secretariat, reviewed the Secretariat report on the Observation Scheme for 2001 and recommended that actions taken by the Secretariat in cases of violations or infringements are included in the Observation Scheme report to the Management Committee. The Committee reiterated its recommendations from 2000 that local authorities and relevant personnel are informed about the NAMMCO Observation Scheme, and reviewed steps taken by the member countries in this regard. The Committee appealed to the member countries to adhere to the deadlines for implementing the Scheme.

The Management Committee adopted the terms of reference, and formally constituted the Committee on the Inspection Scheme. It was noted that the Finance and Administration Committee would continue to deal with the financial issues of the Scheme.

10. IMPLEMENTATION OF THE JOINT NAMMCO CONTROL SCHEME

10.1 NAMMCO International Observation Scheme 2001

The Chair referred to the Report of the NAMMCO International Observation Scheme under the Joint Control Scheme for the Hunting of Marine Mammals, prepared by the Secretariat. The Secretary presented the report to the Management Committee.

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The Management Committee noted that the member countries expressed satisfaction with the implementation of the Scheme.

The Management Committee noted the recommendation repeated from last year that the NAMMCO member countries should provide the Secretariat with names of contacts for the observers.

The Secretary reported on one violation of the Scheme in the Norwegian whale hunt. The NAMMCO observer had been unable to fulfil his duties when he was denied access to one of the whaling vessels, to its logbooks, the catch report and the catch itself. It was noted that while this is in violation with Article B.2.2 of the NAMMCO Scheme, no specific infractions were reported by the National Inspector. The Management Committee noted that Norway had responded by requesting a report of the incident from the whaling captain in question, and by presenting him with a written warning. The Management Committee agreed to the request by Norway that the captain's report is reflected in the report from the Secretariat, and that this would be the practice in future incidents.

The Secretary reported that the NAMMCO Observer in Greenland had noted that the equipment used in whaling activities did not adhere to the current regulations, but that the equipment nevertheless was satisfactory for the job it was designed to do. The Management Committee noted Greenland's response that the described equipment is acceptable in whale hunting, and that the Greenlandic authorities would change the regulations to legalise this type of equipment.

The Management Committee recommended that the Secretariat ensures anonymity of vessels and individuals in future reports.

In 2001 the Secretariat had to delay the observation activities because some of the countries were too late in providing the names of their nominees. The Management noted that this has been a recurring problem and asked member countries to adhere to the deadlines for implementing the Scheme.

10.2 NAMMCO International Observation Scheme 2002

The Management Committee noted that the Secretariat are exploring the possibility of carrying out observations on board Norwegian whaling vessels, and thereby expand on the experiences with the Observation Scheme. It was noted that it might be necessary to allocate all the funds to this type of observation activity. The Management Committee noted, however, that finances permitting observations would also be planned for the pilot whale hunting in the Faroe Islands.

The Management Committee noted that Norway welcomed the on board observations. It was further noted that because all Norwegian vessels carry National Inspectors, only a few of the whaling vessels could accommodate an additional passenger. The Management Committee noted that such observation plans would not lead to additional costs, but would be carried out within the current budgetary constraints.

Report of the Management Committee

11. ELECTION OF OFFICERS

11.1 Election of Chair

Kaj P. Mortensen (Faroe Islands) was re-elected as Chair.

11.2 Election of vice-Chair

Johán Williams (Norway) was elected as vice-Chair.

12. ANY OTHER BUSINESS

There was no other business.

13. ADOPTION OF REPORT

A draft report of the meeting, containing all matters of substance agreed by the Management Committee, was reviewed and approved.

AGENDA

1. Chair's opening remarks
2. Adoption of agenda
3. Appointment of rapporteur
4. National Progress Reports
5. Status of past proposals for conservation and management
 - 5.1 Atlantic walrus
 - 5.2 Ringed seal
 - 5.3 Harp seal
 - 5.3.1 Northwest Atlantic
 - 5.3.2 White/Barents Sea
 - 5.3.3 Greenland Sea
 - 5.4 Hooded seal
 - 5.4.1 Northwest Atlantic
 - 5.4.2 Greenland Sea
 - 5.5 Northern bottlenose whales
 - 5.6 Long-finned pilot whales
 - 5.7 Minke whales - Central North Atlantic
 - 5.8 Beluga - West Greenland
 - 5.9 Narwhal - West Greenland
 - 5.10 Fin whales - East Greenland - Iceland stock area
 - 5.11 Incorporation of users' knowledge in the deliberations of the Scientific Committee
6. Status of past requests to the Scientific Committee
7. New proposals for conservation and management, requests for advice from the Scientific Committee and recommendations for scientific research.
 - 7.1 Economic aspects of marine mammal - fisheries interactions
 - 7.1.1 Proposals for conservation and management
 - 7.1.2 New requests for advice
 - 7.1.3 Recommendations for scientific research
 - 7.2 Harp and hooded seals
 - 7.2.1 Proposals for conservation and management
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 - 7.2.3 Recommendations for scientific research
 - 7.3 Harbour porpoise
 - 7.3.1 Proposals for conservation and management
 - 7.3.2 New requests for advice
 - 7.3.3 Recommendations for scientific research
 - 7.4 Beluga - West Greenland
 - 7.4.1 Proposals for conservation and management
 - 7.4.2 New requests for advice
 - 7.4.3 Recommendations for scientific research
 - 7.5 Narwhal - West Greenland
 - 7.5.1 Proposals for conservation and management
 - 7.5.2 New requests for advice

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- 7.5.3 Recommendations for scientific research
- 7.6 Fin whales
 - 7.6.1 Proposals for conservation and management
 - 7.6.2 New requests for advice
 - 7.6.3 Recommendations for scientific research
- 7.7 White-beaked, white-sided and bottlenose dolphins
 - 7.7.1 Proposals for conservation and management
 - 7.7.2 New requests for advice
 - 7.7.3 Recommendations for scientific research
- 7.8 North Atlantic Sightings Surveys
 - 7.8.1 Proposals for conservation and management
 - 7.8.2 New requests for advice
 - 7.8.3 Recommendations for scientific research
- Others
- 8. Report of the Working Group on By-catch
- 9. Report of the *ad hoc* Committee on Inspection and Observation
- 10. Implementation of the Joint NAMMCO Control Scheme
 - 10.1 NAMMCO International Observation Scheme 2001
 - 10.2 NAMMCO International Observation Scheme 2002
- Other matters
- 11. Election of Officers
 - 11.1 Election of Chair
 - 11.2 Election of Vice-Chair
- 12. Any other business
- 13. Adoption of report

LIST OF DOCUMENTS

NAMMCO/11/MC/1	List of documents
NAMMCO/11/MC/2	Agenda
NAMMCO/11/MC/3	List of proposals for conservation and management (up to and including NAMMCO/10)
NAMMCO/11/MC/4	Summary of requests by NAMMCO Council to the Scientific Committee, and responses by the Scientific Committee
NAMMCO/11/MC/5	Report of the <i>ad hoc</i> committee on inspection and observation
NAMMCO/11/MC/6	Report of the NAMMCO International Observation Scheme 2001
NAMMCO/11/MC/7	Report of the Management Working Group on By-catch
<u>National Progress Reports</u>	
NAMMCO/SC/9/NPR-F	Faroe Islands - Progress Report on Marine Mammal Research in 2000
NAMMCO/SC/9/NPR-G	Greenland - Progress Report on Marine Mammal Research in 2000
NAMMCO/SC/9/NPR-I	Iceland - Progress Report on Marine Mammal Research in 2000
NAMMCO/SC/9/NPR-N	Norway - Progress Report on Marine Mammal Research in 2000
<u>Council documents</u>	
NAMMCO/11/6	Report of the Scientific Committee, 9 - 12 October 2001

LIST OF PAST PROPOSALS FOR CONSERVATION AND MANAGEMENT

(Up to and including NAMMCO/11 - 2002)

PINNIPEDS

Atlantic walrus

The Management Committee examined the advice of the Scientific Committee on Atlantic Walrus and noted the apparent decline which the Scientific Committee identified in respect to "functional" stocks of walrus of Central West Greenland and Baffin Bay.

While recognising the over all priority of further work to clarify and confirm the delineation and abundance of walrus stocks in the North Atlantic area, the Management Committee recommends that Greenland take appropriate steps to arrest the decline of walrus along its west coast.

Taking into account the views of the Scientific Committee that the Baffin Bay walrus stock is jointly shared with Canada and that the West Greenland stock might be shared, the Management Committee encourages Canada to consider working co-operatively with Greenland to assist in the achievement of these objectives (*NAMMCO Annual Report 1995*: 49).

Ringed seals

The Management Committee noted the conclusions of the Scientific Committee on the assessment of ringed seals in the North Atlantic, which had been carried out through the Scientific Committee Working Group on Ringed Seals. In particular, the Management Committee noted that three geographical areas had been identified for assessing the status of ringed seals, and that abundance estimates were only available for Area 1 (defined by Baffin Bay, Davis Strait, eastern Hudson Strait, Labrador Sea, Lancaster, Jones and Smith sounds - see *NAMMCO Annual Report 1996*:149 (Fig.1)).

While recognising the necessity for further monitoring of ringed seal removals in Area 1, the Management Committee endorsed the Scientific Committee's conclusions that present removals of ringed seals in Area 1 can be considered sustainable (*NAMMCO Annual Report 1996*: 81).

Harp seals in the Northwest Atlantic

Northwest Atlantic

The Management Committee noted that a new abundance estimate for Northwest Atlantic harp seals of 4.8 million was available, based on a pup production estimate for 1994 of 702,900. The Management Committee also noted the conclusion that the Northwest Atlantic population of harp seals has been growing at a rate of 5% per year since 1990, and that the 1996 population was estimated to be 5.1 million, with a

calculated replacement yield of 287,000.

The Management Committee concluded that catch levels of harp seals in Greenland and Canada from 1990 to 1995 were well below the calculated replacement yields in this period (*NAMMCO Annual Report 1996*: 81).

The Management Committee noted that combined estimated catches of harp seals in Canada and Greenland are in the order of 300,000 and that these catches are near or at the established replacement yields (*NAMMCO Annual Report 1998*: 22).

White/Barents Sea

The Management Committee noted the stock status and catch options presented by the Scientific Committee, and concluded that the catch level in 1998 was well below the calculated replacement yield. Catches at the same level in the future may result in population increase. From a resource management point of view, future quota levels approaching the replacement yield are advised. (*NAMMCO Annual Report 1999*:86)

Greenland Sea

The Management Committee noted the stock status and catch options presented by the Scientific Committee, and concluded that the catch level in 1998 was well below the calculated replacement yield. Catches at the same level in the future may result in population increase. From a resource management point of view, future quota levels approaching the replacement yield are advised. (*NAMMCO Annual Report 1999*:86)

Hooded seals

Northwest Atlantic

Noting the Scientific Committee's review of available analyses of hooded seal pup production, which recognised that calculations are dependent on the particular rate of pup mortality used, as well as the harvest regimes, the Management Committee concluded that present catches of hooded seals in the Northwest Atlantic (1990-1995) were below the estimated replacement yields of 22,900 calculated for a harvest of pups only, and 11,800 calculated for a harvest of 1-year and older animals only (*NAMMCO Annual Report 1996*: 81-82).

The Management Committee noted that the total catch of hooded seals in the Northwest Atlantic in 1996 slightly exceeded the replacement yield while in 1997 the total number of seals taken was much lower (*NAMMCO Annual Report 1998*: 23).

Greenland Sea

The Management Committee noted the stock status and catch options presented by the Scientific Committee, and concluded that the catch level in 1998 was well below the calculated replacement yield. Catches at the same level in the future may result in population increase. From a resource management point of view, future quota levels approaching the replacement yield are advised (*NAMMCO Annual Report 1999*:86).

CETACEANS

Northern bottlenose whales

The Management Committee discussed the advice of the Scientific Committee on the status of the northern bottlenose whale and noted that this was the first conclusive analysis on which management of the northern bottlenose whale could be based.

The Management Committee accepted that the population trajectories indicated that the traditional coastal drive hunt in the Faroe Islands did not have any noticeable effect on the stock and that removals of fewer than 300 whales a year were not likely to lead to a decline in the stock (*NAMMCO Annual Report 1995: 48*)

Long-finned pilot whales

The Faroe Islands informed the Management Committee of their wish to continue to utilise pilot whales in an opportunistic manner as has been done for centuries. Catches of pilot whales may vary from year to year and total allowable catches are not considered appropriate for this form of hunt. In some years catches may exceed 2,000 whales, and in other years they may be much smaller, while the average annual catch since 1971 (1971-96) has been c. 1,400.

The Management Committee noted the findings and conclusions of the Scientific Committee, through its review of the ICES Study Group Report and the analysis of data from NASS-95 with respect to the status of long-finned pilot whales in the North Atlantic (Section 3.1, item 3.1), which also confirmed that the best available abundance estimate of pilot whales in the Central and Northeast Atlantic is 778,000. With respect to stock identity it was noted that there is more than one stock throughout the entire North Atlantic, while the two extreme hypotheses of i) a single stock across the entire North Atlantic stock, and ii) a discrete, localised stock restricted to Faroese waters, had been ruled out.

The Management Committee further noted the conclusions of the Scientific Committee that the effects of the drive hunt of pilot whales in the Faroe Islands have had a negligible effect on the population, and that an annual catch of 2,000 individuals in the eastern Atlantic corresponds to an exploitation rate of 0.26%.

Based on the comprehensive advice which had now been provided by the Scientific Committee to requests forwarded from the Council, the Management Committee concluded that the drive hunt of pilot whales in the Faroe Islands is sustainable (*NAMMCO Annual Report 1997: 64-65*).

Minke Whales - Central North Atlantic

The Management Committee accepted that for the Central Stock Area the minke whales are close to their carrying capacity and that removals and catches of 292 animals per year (corresponding to a mean of the catches between 1980-1984) are sustainable. The Management Committee noted the conservative nature of the advice from the Scientific Committee (*NAMMCO Annual Report 1998:75*)

Beluga - West Greenland

Maniitsoq – Disko

The Management Committee noted that a series of surveys conducted since 1981 indicate a decline of more than 60% in abundance in the area Maniitsoq to Disko. It further noted that with the present harvest levels (estimated at 400/yr) the aggregation of belugas in this area is likely declining due to overexploitation.

Avanersuaq – Upernavik

The present harvest in the area Avanersuaq - Upernavik is estimated to be more than 100/yr. The Management Committee noted that since this beluga occurrence must be considered part of those wintering in the area from Maniitsoq to Disko, it is considered to be declining due to overexploitation.

Finally the Management Committee noted the conclusion by the Scientific Committee that with the observed decline a reduction in harvesting in both areas seems necessary to halt or reverse the trend (*NAMMCO Annual Report 1999:99*)

It was accepted that the Canada/Greenland Joint Commission on Conservation and Management of Narwhal and Beluga (JCNB) would provide management advice for this stock, which is shared by Canada and Greenland. The Management Committee therefore recommended that closer links be developed between NAMMCO and the JCNB on this and other issues of mutual concern. Greenland stated that this issue again will be thoroughly discussed with the hunters, and that the Greenland Government does share the concerns expressed (*NAMMCO Annual Report 2000:75*)

In 2000 the Management Committee accepted that the Canada/Greenland Joint Commission on Conservation and Management of Narwhal and Beluga (JCNB) would provide management advice for this stock, which is shared by Canada and Greenland. The Management Committee noted with pleasure that a joint meeting of the NAMMCO Scientific Working Group on the Population Status of North Atlantic Narwhal and Beluga and the JCNB Scientific Working Group had been held in May 2001, and recommended that this co-operation at the scientific level should continue. The Management Committee also reiterated its recommendation that closer links be developed between NAMMCO and the JCNB on this and other issues of mutual concern. (*NAMMCO Annual Report 2001:100*)

Narwhal - West Greenland

Avanersuaq

The Management Committee noted that the present exploitation level in Avanersuaq of 150/yr seems to be sustainable, assuming that the same whales are not harvested in other areas

Melville Bay – Upernavik

The Management Committee noted that the Scientific Committee could give no status for the Melville Bay – Upernavik summering stock.

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Uummannaq

The Management Committee noted that the substantial catches (several hundreds) in some years do cause concern for the status of this aggregation. The Management Committee further noted that the abundance of narwhal in this area should be estimated.

Disko Bay

The Management Committee noted that present catches in this area are probably sustainable.

Catch Statistics

The Management Committee noted that for both narwhal and beluga it is mandatory for future management that more reliable catch statistics (including loss rates) are collected from Canada and Greenland (*NAMMCO Annual Report 1999:86-87*)

The Management Committee accepted that the JCNB would provide management advice for this stock, which is shared by Canada and Greenland. The Management Committee therefore recommended that closer links be developed with the JCNB on this and other issues of mutual concern. (*NAMMCO Annual Report 2000:76*)

North Atlantic fin whales

The Management Committee accepted that for fin whales in the East Greenland – Iceland (EGI) stock area, removals of 200 animals per year would be unlikely to bring the population down below 70% of its pre-exploitation level in the next 10 years, even under the least optimistic scenarios. However, catches at this level should be spread throughout the EGI stock area, roughly in proportion to the abundance of fin whales observed in the NASS surveys. Furthermore, the Management Committee stressed that the utilization of this stock should be followed by regular monitoring of the trend in the stock size.

The Management Committee also noted the conservative nature of the advice from the Scientific Committee on which the conclusion of the Management Committee was based (*NAMMCO Annual Report 1999:87*)

Incorporation of the users' knowledge in the deliberations of the Scientific Committee

The Management Committee endorsed the proposals and viewpoints contained in section 6 in the Scientific Committee report, and suggested that the "Draft Minke Whale Stock Status Report" (NAMMCO/9/7) could usefully serve as a pilot project for co-operation with the hunters.

In order to solve the many practical questions in the pilot project process the Committee agreed that the proposed Assessment Committee should carefully prepare the meeting on the "Draft Minke Whale Stock Status Report", and particular work with the Secretariat with respect to the following questions:

- Define areas and type of information subject to dialogue between scientists and minke whale hunters

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- Should the scientists meet minke whale hunters from all interested countries at the same time, or should there be meetings between scientists and minke whale hunters in each of the interested countries?
 - Time and venue for meetings
 - Papers to be distributed before the meetings
 - Language / interpretation
 - How to select hunters with relevant knowledge
 - Planning of questions to be asked to hunters
- (NAMMCO Annual Report 1999:88)

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**SUMMARY OF REQUESTS BY NAMMCO COUNCIL TO THE
SCIENTIFIC COMMITTEE, AND RESPONSES BY THE
SCIENTIFIC COMMITTEE**

The following provides a summary of all requests by NAMMCO Council to the Scientific Committee (including the 11th meeting), and notes the response of the Scientific Committee (SC) to these requests. Requests forwarded from NAC (North Atlantic Committee for Co-operation on Research on Marine Mammals) to ICES (International Council for the Exploration of the Sea) prior to NAMMCO's establishment, and which were carried over to NAMMCO in 1992, are included. This document will be continually updated to serve as a resource for both the Council and the Scientific Committee.

1. ROLE OF MARINE MAMMALS IN THE ECOSYSTEM

Marine Mammal - Fish Interaction:

Code/Meeting: 1.1/ NAMMCO/1

Request:

To provide an overview of the current state of knowledge of the dependence of marine mammals on the fish and shrimp stocks and the interrelations between these compartments

Response of the Scientific Committee:

See 1.2, 1.4, 1.7, 1.9, 1.10.

Code/Meeting: 1.2/NAMMCO/1

Request:

In the multi-species context ... to address specific questions related to the Davis Strait ecosystem such as:

- the apparent increase in harp seal stocks;
- its influence on the economically important shrimp and cod stocks;
- the impact of the fisheries on marine mammals, particularly harp seals;
- the southward shift of minke whale distribution in recent years, and
- observed changes in oceanographical conditions after the 1970s;
- and to the East Greenland-Iceland-Jan Mayen area interactions between capelin stocks, fishery and marine mammals

Response of the Scientific Committee:

- Questions related to harp and hooded seals were forwarded to the ICES/NAFO Joint Working Group on Harp and Hooded Seals (SC/2)
- Specific questions related to the Davis Strait ecosystem were not addressed.
- See also 1.4, 1.7, 1.9, and 1.10.

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Code/Meeting: 1.3/NAMMCO/2

Request:

To assess the impact of marine mammals on the marine ecosystem, with special emphasis on the availability of economically important fish species

Response of the Scientific Committee:

See 1.2, 1.4, 1.7, 1.9, 1.10

Code/Meeting: 1.4/ NAMMCO/6

Request:

The Scientific Committee was requested to focus its attention on the food consumption of three predators in the North Atlantic: the minke whale, the harp seal and the hooded seal, with a particular emphasis on the study of the potential implications for commercially important fish stocks.

Response of the Scientific Committee:

The Scientific Committee established a Working Group on the Role of Minke Whales, Harp Seals and Hooded Seals in the North Atlantic. The Scientific Committee used the report of this Working Group to provide advice to Council, and to recommend further research. (SC/5) Many of the papers presented will be published in Volume 2 of NAMMCO Scientific Publications. (SC/7)

Code/Meeting: 1.5/NAMMCO/7

Request:

The Council encourages scientific work that leads to a better understanding of interactions between marine mammals and commercially exploited marine resources, and requested the Scientific Committee to periodically review and update available knowledge in this field.

Response of the Scientific Committee:

See 1.9, 1.10

Multi-species approaches to management:

Code/Meeting: 1.6/NAMMCO/1

Request:

To consider whether multi-species models for management purposes can be established for the North Atlantic ecosystems and whether such models could include the marine mammals compartment. If such models and the required data are not available then identify the knowledge lacking for such an enterprise to be beneficial to proper scientific management and suggest scientific projects which would be required for obtaining this knowledge.

Response of the Scientific Committee:

See 1.4, 1.7, 1.9, 1.10

Code/Meeting: 1.7/NAMMCO/5

Request:

In relation to the importance of the further development of multi-species approaches to the management of marine resources, the Scientific Committee was requested to

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monitor stock levels and trends in stocks of all marine mammals in the North Atlantic.

Response of the Scientific Committee:

It was clarified that the purpose of this request was to ensure that data on marine mammals was available for input into multi-species models for management. The Committee agreed that updated information on abundance and indications of trends in abundance of stocks of marine mammals in the North Atlantic should be clearly described in a new document for the internal reference of the Council, to replace the List of Priority Species. This document would be entitled Status of Marine Mammals in the North Atlantic and should include those cetacean and pinniped species already contained in the List of Priority Species, as well as other common cetacean species in the NAMMCO area for which distribution and abundance data is also available (fin, sei, humpback, blue, and sperm whales). (SC/5)

Sealworm infestation:

Code/Meeting: 1.8/NAMMCO/6

Request:

Aware that the population dynamics of the sealworm (*Pseudoterranova decipiens*) may be influenced by sea temperature, bathymetry, invertebrate and fish fauna, the Scientific Committee was requested to review the current state of knowledge with respect to sealworm infestation and to consider the need for comparative studies in the western, central and eastern North Atlantic coastal areas, taking into account the priority topics recommended by the Scientific Committee and its *ad hoc* Working Group on grey seals.

Response of the Scientific Committee:

The Scientific Committee established a Working Group on Sealworm Infection to address this question. The Scientific Committee used their report as the basis for providing advice to Council, and developing recommendations for further research. (SC/5) Many of the papers considered by the Working Group will be published in a future volume of *NAMMCO Scientific Publications*. (SC/7)

Economic aspects of marine mammal-fisheries interactions:

Code/Meeting: 1.9/NAMMCO/7

Request:

The Council requested that special attention be paid to studies related to competition and the economic aspects of marine mammal-fisheries interactions

Response of the Scientific Committee:

The Scientific Committee established a Working Group on Economic Aspects of Marine Mammal-Fisheries Interactions. The Scientific Committee concluded that inclusion of economic considerations is a valuable addition to mullet-species models of interactions between marine mammals and fisheries. The work presented at the Working Group was considered the first step towards more complete analyses of these interactions and it was recommended, in light of the economic impacts, that more complete models should be developed and presented. The Scientific Committee showed a continued interest in the development of the models and it was decided to maintain the Working Group and seek further guidance from the Council on matters of

particular interest. (SC/6)

Code/Meeting: 1.10/NAMMCO/8

Request:

The Scientific Committee is requested to investigate the following economic aspects of marine mammal – fisheries interactions:

- to identify the most important sources of uncertainty and gaps in knowledge with respect to the economic evaluation of harvesting marine mammals in the different areas;
- to advise on research required to fill such gaps both in terms of refinement of ecological and economical models and collection of basic biological and economical data required as input parameters for the models;
- to discuss specific cases where the state of knowledge may allow quantification of the economic aspects of marine mammal – fisheries interactions:
 - a) what could be the economic consequences of a total stop in harp seal exploitation versus different levels of continued sustainable harvest?
 - b) what could be the economic consequences of different levels of sustainable harvest vs. no exploitation of minke whales?

Response of the Scientific Committee:

The Working Group On The Economic Aspects Of Marine Mammal - Fisheries Interactions was reactivated to meet this request. It was agreed to separate the request into two sections. At the first Working Group meeting the first two items in the request were addressed. The Working Group used available information to derive estimates of consumption of cod, herring, capelin and shrimp by harp seals, minke whales and *Lagenorhynchus* spp. and bottlenose dolphins in some areas. Multi-species models presently in use or under development in Norway and Iceland offer a means of assessing the impact of marine mammal predation on fish stocks. The Scientific Committee therefore recommended that the next logical step in addressing the request should be for NAMMCO to lead or assist in the development of a multi-species-economic model for a candidate area. However, the Scientific Committee reiterated that the estimation and model uncertainties are such that definitive quantification of the economic aspects of marine mammal-fisheries interactions in candidate areas cannot be expected in the near term. (SC/8)

Code/Meeting: 1.11/NAMMCO/10

Request:

Noting the requests for advice from the Council at its Eighth meeting in Oslo 1998 (see Annual Report 1998 page 23), the Management Committee recommended that the Scientific Committee continue the assessment of the economic aspects of fishery - marine mammal interactions in the two areas (Barents Sea and Iceland) and with the two species (minke whales and harp seals) that have been identified as feasible for this assessment.

Response of the Scientific Committee:

The Scientific Committee convened a workshop under the theme "Marine Mammals: From feeding behaviour or stomach contents to annual consumption - what are the main uncertainties ", to further investigate the methodological and analytical problems in estimating consumption by marine mammals. (SC/9)

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Code/Meeting: 1.12/NAMMCO/11

Request:

The Management Committee noted the conclusion of the Scientific Committee that the estimation and model uncertainties are such that the economic aspects of marine mammal-fishery interactions in candidate areas cannot be quantified without further work. The Management Committee therefore recommended that the Scientific Committee should hold a workshop on ecosystem models aiming for a better understanding of the ecological role of minke whales and harp and hooded seals in the North Atlantic, as proposed in the Scientific Committee report.

Response of the Scientific Committee:

Response SC/10.

2. ENVIRONMENTAL ISSUES

Code/Meeting: 2.1/NAMMCO/1

Request:

To describe the possible pathways of radioactive material from blowouts and leakage in existing nuclear power plants, leakage from dumped material and possible accidents in planned recycling plants in the northern part of Scotland into the food web of the North Atlantic and hence into the top predators like marine mammals.

Response of the Scientific Committee:

No response.

Code/Meeting: 2.2/NAMMCO/1

Request:

To review the contaminant burdens (especially organochlorines) in marine mammals in the North Atlantic and evaluate the possible sources of these contaminants.

Response of the Scientific Committee:

No response from the Scientific Committee. In 1995, NAMMCO hosted the International Conference on Marine Mammals and the Marine Environment. The Conference covered the following themes: Marine mammals and the marine environment-impacts and management approaches; Contaminants in marine mammals – sources, levels and effects; Coastal communities and marine pollution – social, economic and health considerations; Addressing the questions – problems and future needs. The proceedings were published as a special issue of *The Science of the Total Environment* (186, 1,2).

3. MANAGEMENT PROCEDURES

Code/Meeting: 3.1/NAMMCO

Request:

To review the basis for, and develop assessments necessary to provide the scientific foundation for conservation and management of the stocks relevant for management under NAMMCO.

Response of the Scientific Committee:

A Working Group on Management Procedures was established to consider this matter.

(SC/2). The Scientific Committee noted that there were many different management needs requiring different management procedures. It was agreed that there was need for more guidance on management objectives before any concrete work can be started on developing appropriate management procedures, and in turn this was likely to be case- (species and/or area) specific. Related to this it was also noted that NAMMCO may prefer to assume an advisory and evaluative role in developing its management. (SC/2)

Code/Meeting: 3.2/NAMMCO/4

Request:

Further development of RMP-like procedures.

Response of the Scientific Committee:

The Scientific Committee decided to develop management procedures on a case-by-case basis: "a more pragmatic approach on an area and species/case-specific basis would be desirable for the development of specific management procedures. It was therefore decided to suggest that requests for advice from the Council be accompanied by specific objectives defined for the case in question". (SC/3)

4. STOCKS/SPECIES

Monitoring marine mammal stock levels and trends in stocks /North Atlantic Sightings Surveys (NASS):

Code/Meeting: 4.1/NAMMCO/3

Request:

To plan joint cetacean sighting surveys in the North Atlantic by co-ordinating national research programmes.

Response of the Scientific Committee:

The Scientific Committee agreed to establish a Working Group to plan the sighting survey for the summer of 1995. (SC/2)

The Scientific Committee was pleased to note the good progress that had been made in planning this important joint research, in which the Faroes (1 vessel), Iceland (3 vessels and 1 aircraft) and Norway (11 vessels) had decided to participate. It was noted that Greenland had decided not to conduct surveys as part of these joint efforts. (SC/3)

The Scientific Committee agreed to recommend that a special fund of NOK 800,000 be established from the NAMMCO budget for use in financing various aspects of NASS-95, where required. (SC/3)

Code/Meeting: 4.2/NAMMCO/5

Request:

The 1995 North Atlantic Sightings Survey (NASS-95) would provide updated abundance estimates for a number of whale species in the North Atlantic, and the Scientific Committee was requested to review results in the light of recent assessments of North Atlantic whale stocks.

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Response of the Scientific Committee:

The Scientific Committee agreed to establish a Working Group on Abundance Estimates. The task of the Working Group on Abundance Estimates would be to review analyses and where relevant also analyse data from NASS-95 to ensure its compatibility, both between NASS-95 survey areas, as well as with data from other sightings surveys, in order to provide a basis for calculating abundance estimates for the relevant cetacean stocks in the North Atlantic. (SC/4)

Code/Meeting: 4.3/NAMMCO/6

Request:

The Management Committee noted the successful completion of the North Atlantic Sightings Survey in 1995, and commended the process initiated by the Scientific Committee to conclude the analysis of NASS-95 data. It was expected that the results on abundance will be dealt with by the newly established Scientific Committee Working Group on Abundance Estimates and will be presented at the next annual meeting. It was noted that the Working Group would at least to some extent address last year's request from the Council regarding monitoring of stock levels and trends in stocks. However, it was also noted that one outstanding matter from last year is the request to the Scientific Committee to review results of NASS-95 in the light of recent assessments of North Atlantic whale stocks.

The Council agreed to the suggestion from the Management Committee that this be drawn to the attention of the Scientific Committee to secure a follow-up to last year's request.

Response of the Scientific Committee:

To address this request, a Working Group on Abundance Estimates had been established with the task of reviewing the analyses, and where relevant, also to analyse data from NASS-95 to provide a basis for calculating abundance estimates for the relevant cetacean stocks in the North Atlantic. The Working Group had focused on describing synoptic distributions of the cetacean species encountered during NASS-95, and abundance estimates for minke, fin, sei and pilot whales, which were the target species of the survey. The Scientific Committee concluded that the updated abundance estimates for the target species as reviewed by the Working Group on Abundance Estimates represented the best available estimates for the stocks concerned, and used them as a basis to provide advice to Council. The Scientific Committee also recommended that the results of NASS-95 be compiled to a future volume of *NAMMCO Scientific Publications*. (SC/5)

Code/Meeting: 4.4/NAMMCO/7

Request:

The Scientific Committee was requested to continue its work to monitor stock levels and trends in all stocks of marine mammals in the North Atlantic in accordance with previous recommendations (see *NAMMCO Annual Report 1996*:131-132). In this context the Scientific Committee was encouraged to prioritise calculation of the abundance of species covered by NASS-95, in particular those species presently harvested and species considered to be important with respect to interactions with fisheries.

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Response of the Scientific Committee:

See 4.3.

Code/Meeting: 4.5/NAMMCO/9

Request:

NASS-95: The Management Committee noted particularly that abundance estimates from NASS-95 have not been completed for some species. The Management Committee therefore recommended that the Scientific Committee complete abundance estimates for all species, as part of its efforts to monitor the abundance of all species in the North Atlantic.

Response of the Scientific Committee:

The Scientific Committee noted that abundance estimates for the main target species of NASS-95 (minke whale, fin whale, sei whale, pilot whale) had been completed and accepted by them, however most had not yet been published in the primary scientific literature. The Scientific Committee agreed that further analyses of the abundance of non-target species from the NASS-95 survey should be conducted if they are warranted. However, as the survey was not optimised for these species, it was recognised that the design and conduct of the survey would make this possible to a varying degree, depending on both the species and area in question. In some cases, a general description of the spatial distribution of sightings may be the only analysis warranted. The Scientific Committee agreed to pursue these analyses in the coming year. (SC/8)

The Scientific Committee considered new information on the NASS-95 Icelandic aerial and shipboard surveys for minke whales, and a new abundance estimate for humpback whales from the NASS-95 Icelandic shipboard survey. (SC/9)

Code/Meeting: 4.6/NAMMCO/9

Request:

The Management Committee recommended that the Scientific Committee continue its efforts to co-ordinate future sighting surveys and analyses of the results from such surveys in the North Atlantic. Priority species should be minke whales and fin whales, and the Management Committee recommended that the survey design be optimised for these species. The survey should also be optimised to cover those areas where abundance estimates are most urgently required.

Response of the Scientific Committee:

The Working Group on Abundance Estimates met in November 2000 to plan for NASS-2001. The survey was conducted in June/July 2001. (SC/9)

Code/Meeting: 4.7/NAMMCO/11

Request:

The Management Committee recommended that remaining abundance estimates from the NASS-95 and new estimates from the NASS-2001 surveys should be developed as soon as feasible, with the target species of the surveys being of highest priority. The Management Committee emphasised that this work should be published in a timely manner.

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Response of the Scientific Committee:

Response ongoing.

Central North Atlantic minke whales:

Code/Meeting: 4.8/March 1997

Request:

In the light of the new survey abundance results the Scientific Committee is requested to undertake an assessment of the status of the Central North Atlantic minke whale stock, including to evaluate the long-term effects of past and present removal levels on the stock.

Response of the Scientific Committee:

The Scientific Committee agreed to assign the task of assessing the status of the stock to the Working Group on Management Procedures. The Council had requested the Scientific Committee to provide its advice on this matter prior to the next meeting of the Council, however it was the general view of the Committee that it was unlikely that this work could be completed within this time frame. (SC/5)

The Scientific Committee used the report of the Working Group on Management Procedures as the basis for providing advice and research recommendations to Council. The Committee agreed that catches of 292 per year (the mean of the catch between 1980-84) are sustainable for the Central stock, and that catches of 185 whales per year are sustainable for the costal (SC/6)

Code/Meeting: 4.9/NAMMCO/8

Request:

In order to ascertain the stock structure of minke whales in the North Atlantic, the Scientific Committee is requested to investigate the possibility of supplementing present sampling with existing older material from NAMMCO countries and other countries in joint genetic analyses. If possible, such analyses should be undertaken.

Response of the Scientific Committee:

It was noted that such exchanges of samples are ongoing between Norway and Greenland. Samples collected in the past from Iceland and Norway have already been analysed concurrently, and there are no recent samples from Iceland. The Scientific Committee concluded that available samples are being utilised effectively. (SC/7)

Code/Meeting: 4.10/NAMMCO/11

Request:

The Management Committee recommended that the Scientific Committee should complete an assessment of Central Atlantic minke whales once new abundance estimates from NASS-2001 become available.

Response of the Scientific Committee:

Response pending.

Northern bottlenose whales:

Code/Meeting: 4.11/NAMMCO/2

Request:

To undertake an assessment of the status of the northern bottlenose whale (*Hyperoodon ampullatus*) stock in the North Atlantic.

Response of the Scientific Committee:

A Working Group on Northern Bottlenose and Killer Whales established, and provided a preliminary assessment which was used as the basis of advice and recommendations for further research given by the Scientific Committee. (SC/2)

Code/Meeting: 4.12/NAMMCO/4

Request:

To undertake the necessary modelling of the species as suggested under ... items 9.2. and 10.2.2 of ...[the Report of the Third Meeting of the Scientific Committee, 1993]. (SC/3)

Response of the Scientific Committee:

A joint session was held of the Working Group on Northern Bottlenose Whales and the Working Group on Management Procedures in order to consider the request from the Council to undertake the necessary modelling of the population using catch series and abundance estimates. Their report was used as the basis for advice and research recommendations conveyed by the Scientific Committee. (SC/3)

Killer whales:

Code/Meeting: 4.13/NAMMCO/2

Request:

To advise on stock identity for management purposes; to assess abundance in each stock area; to assess effects of recent environmental changes, changes in the food supply and interactions with other marine living resources in each stock area.

Response of the Scientific Committee:

A Working Group on Northern Bottlenose and Killer Whales established by the Scientific Committee, and provided a preliminary assessment. This provided the basis for advice and research recommendations given by the Scientific Committee. (SC/2)
The Chair noted that it had not yet been possible to complete a full assessment of the killer whale as requested by the Council. Few new data were available, other than recent sightings data from NASS-95 which had not been analysed. (SC/5)

Long-finned pilot whales:

Code/Meeting: 4.14/NAMMCO/1

Request:

To provide an assessment of the state of the pilot whale stock in the north eastern Atlantic, based on the information sampled from the Faroese drive fishery and the NASS sighting surveys.

Response of the Scientific Committee:

The Scientific Committee decided to base its advice on the report of the ICES Study

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Group on Long-Finned Pilot whales. They concluded that an evaluation of status could not be provided without further work.(SC/2)

Code/Meeting: 4.15/NAMMCO/2

Request:

To analyse the effects of the pilot whale drive hunt in the Faroe Islands on North Atlantic pilot whales (*Globicephala melas*), especially whether the numbers taken are consistent with sustainable utilisation.

Response of the Scientific Committee:

This matter was addressed by the Scientific Committee, based on the findings of the ICES Study Group and the review of the results of NASS-95. The Scientific Committee agreed to endorse the list of future research requirements listed by the ICES Study Group in its report, and provided advice on the sustainability of the Faroese catch. (SC/5)

Narwhal and beluga:

Code/Meeting: 4.16/NAMMCO/7

Request:

The Scientific Committee was requested to examine the population status of narwhal and beluga (white whales) throughout the North Atlantic.

Response of the Scientific Committee:

The Scientific Committee established a Working Group on the Population Status of Narwhal and Beluga in the North Atlantic, which met in March 1999. The Scientific Committee used the report of the Working Group to evaluate the stock status of the various narwhal and beluga aggregations, and provided recommendations to Council. (SC/7)

Code/Meeting: 4.17/NAMMCO/8

Request:

The Management Committee requested advice from the Scientific Committee on the level of sustainable utilisation of West Greenland beluga in different areas and under different management objectives. For narwhal, the Management Committee requested that the Scientific Committee identify the information which is lacking in order to answer the same question proposed with respect to beluga.

Response of the Scientific Committee:

The Scientific Committee reactivated the Working Group on the Population Status of Narwhal and Beluga and used its report as the basis of its recommendations to the Council. The Scientific Committee concluded that the stock is substantially depleted and that present harvests are several times the sustainable yield, and, if continued, will likely lead to stock extinction within 20 years. The Committee assessed a range of harvest options with the overall objective of arresting the decline of West Greenland Beluga, and provided prioritised research recommendations. (SC/8)

The Scientific Committee noted that developing recommendations on the sustainable harvest of narwhal in Greenland will require significant additional research and cannot be done at present. To this end, the Scientific Committee provided research

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recommendations to answer questions about catch statistics, stock identity and abundance. (SC/8).

Code/Meeting: 4.18/NAMMCO/10

Request:

The Management Committee recommended that the Scientific Committee continue its assessment of West Greenland beluga with reference to the short-term research goals identified. It is anticipated that a joint meeting of the Scientific Working Group of the JCNB and the NAMMCO Scientific Working Group on the Population Status of Narwhal and Beluga in the North Atlantic can be held in spring 2001.

Response of the Scientific Committee:

The Scientific Committee Working Group on the Population Status of Narwhal and Beluga in the North Atlantic met jointly with the Scientific Working Group of the Joint Commission on the Conservation and Management of Narwhal and Beluga (JCNB) to deal with these requests. The Scientific Committee used their report to provide catch options for West Greenland Beluga and research recommendations for West Greenland beluga and narwhal. (SC/9)

Code/Meeting: 4.19/NAMMCO/10

Request:

The Management Committee recommended that the Scientific Committee complete an assessment of narwhal in West Greenland when the necessary data are available. Specifically, the Scientific Committee is requested to evaluate the extent of movements of narwhal between Canada and Greenland.

Response of the Scientific Committee:

See 4.16. The Scientific Committee used evidence from genetic and contaminant analysis, satellite tagging and hunter knowledge to evaluate the extent of movement between Greenland and Canada. (SC/9).

Code/Meeting: 4.20/NAMMCO/11

Request:

The Management Committee recommended that the Scientific Committee should concentrate its assessment efforts on the West Greenland narwhal in the near term.

Response of the Scientific Committee:

Response pending.

Harbour porpoises:

Code/Meeting: 4.21/NAMMCO/7

Request:

The Council noted that the harbour porpoise is common to all NAMMCO member countries, and that the extent of current research activities and expertise in member countries and elsewhere across the North Atlantic would provide an excellent basis for undertaking a comprehensive assessment of the species throughout its range. The Council therefore requested the Scientific Committee to perform such an assessment, which might include distribution and abundance, stock identity, biological parameters,

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ecological interaction, pollutants, removals and sustainability of removals.

Response of the Scientific Committee:

The Scientific Committee decided that the matter could best be dealt with by convening an international workshop/symposium on harbour porpoises, which would involve experts working on this species throughout its North Atlantic range. The agenda would include the following themes: distribution, abundance and stock identity; biological parameters; ecological interactions; pollutants; removals and sustainability of removals. (SC/6)

The Scientific Committee utilised the report of the Symposium to develop its own assessment advice to the Council. Recent abundance estimates are available for only a few places in the North Atlantic. Directed harvesting occurs in some areas, but most removals are through by-catch. In some areas, present removals are not sustainable. The Scientific Committee developed research recommendations to address some of the information needs for management of this species. (SC/8)

Atlantic walrus:

Code/Meeting: 4.22/NAMMCO/2

Request:

To advise on stock identity for management purposes; to assess abundance in each stock area; to assess long-term effects on stocks by present removals in each stock area; to assess effects of recent environmental changes (i.e. disturbance, pollution) and changes in the food supply.

Response of the Scientific Committee:

The assessment was postponed pending report of Walrus International Technical and Scientific Committee (WITS). (SC/2) It was decided in late 1994 to request Erik Born of the Greenland Fisheries Research Institute in Copenhagen to co-ordinate the compilation of a status report on the Atlantic walrus in time for the present Scientific Committee meeting. The result of this collaboration was the report, E.W. Born, I. Gjertz and R.R. Reeves, "Population assessment of Atlantic walrus (*Odobenus rosmarus rosmarus*)" This report was used by the Scientific Committee as the basis of its management and research recommendations to Council. (SC/3)

Harp and hooded seals:

Code/Meeting: 4.23/NAMMCO/2

Request:

- to assess the stock size, distribution and pup production of harp seals in the Barents Sea and White Sea, and of harp and hooded seals in the Greenland Sea and the Northwest Atlantic;
- to assess sustainable yields at present stock sizes and in the long term under varying options of age composition in the catch;
- to provide advice on catch options in the White Sea/Barents Sea/Greenland Sea and NAFO areas;
- to assess effects of recent environmental changes or changes in the food supply

and possible interaction with other living marine resources in the areas.

Response of the Scientific Committee:

- These requests forwarded to Joint ICES/NAFO Working Group on Harp and Hooded Seals. A partial assessment was completed, but more work was required. (SC/2)
- The Scientific Committee considered the report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals which had met in Dartmouth, Canada, 5-9 June 1995. The Scientific Committee endorsed the recommendations in the report and identified further research needs. However the required assessments had not yet been completed. (SC/4).
- The Scientific Committee considered the report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals which had met in Copenhagen in 1997. The Scientific Committee used this report as the basis for its advice to Council, while noting that catch options had not been completed for Greenland Sea harp and hooded seals, and White Sea and Barents Sea harp seals. (SC/6)
- The Joint ICES/NAFO Working Group on Harp and Hooded Seals met in 1998 to complete the assessments for Greenland Sea harp and hooded seals, and White Sea and Barents Sea harp seals. The Scientific Committee used their report as the basis of its advice to Council, and noted that the required assessments had now been completed. Assessment of the effects of recent environmental changes or changes in the food supply and possible interaction with other living marine resources in the areas is ongoing. (SC/7)

Code/Meeting: 4.24/NAMMCO/8

Request:

The Scientific Committee is requested to co-ordinate joint feeding studies of harp and hooded seals in the Nordic Seas (Iceland, Greenland and Norwegian Seas) and off West Greenland.

Response of the Scientific Committee:

The Scientific Committee noted that preparations to co-ordinate such studies between member countries were already under way, outside of the NAMMCO Scientific Committee. The Scientific Committee therefore emphasised its support for such joint studies and urged member countries to participate. (SC/7)

Code/Meeting: 4.25/NAMMCO/11

Request:

The Management Committee recommended that the Scientific Committee regularly update the stock status of North Atlantic harp and hooded seal stock as new information becomes available.

Response of the Scientific Committee:

Ongoing as new information becomes available.

Ringed seals:

Code/Meeting: 4.26/NAMMCO/5

Request:

To advise on stock identity of ringed seals (*Phoca hispida*) for management purposes and to assess abundance in each stock area, long-term effects on stocks by present

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removals in each stock area, effects of recent environmental changes (i.e. disturbance, pollution) and changes in the food supply, and interactions with other marine living resources.

Response of the Scientific Committee:

The Scientific Committee established a Working Group on Ringed Seals. The Scientific Committee considered the report of the Working Group and provided advice to Council. They also provided recommendations for future research. (SC/5) Papers considered by the Working Group as well as other papers were published in the first volume of NAMMCO Scientific Publications, *Ringed Seals in the North Atlantic*.

Code/Meeting: 4.27/NAMMCO/7

Request:

The Scientific Committee was requested to advise on what scientific studies need to be completed to evaluate the effects of changed levels of removals of ringed seals in West and East Greenland.

Response of the Scientific Committee:

It was noted that the exploitation level of ringed seals in Greenland has shown considerable variability over decades in this century. The Scientific Committee chose to focus on scenarios where exploitation is raised by more than twice the level reported in recent years. The Scientific Committee then identified the main gaps in knowledge, and recommended research required to address them. (SC/6)

Grey seals:

Code/Meeting: 4.28/NAMMCO/5

Request:

To review and assess abundance and stock levels of grey seals (*Halichoerus grypus*) in the North Atlantic, with an emphasis on their role in the marine ecosystem in general, and their significance as a source of nematodal infestations in fish in particular.

Response of the Scientific Committee:

The Scientific Committee established a Working Group on Grey Seals. The Scientific Committee considered the report of the Working Group and provided advice to Council, including recommendations for further research. (SC/4)

Code/Meeting: 4.29/NAMMCO/11

Request:

The Management Committee noted that there has been a decline in the numbers of grey seals around Iceland, possibly due to harvesting at rates that are not sustainable. The Scientific Committee had previously provided advice in response to a request to review and assess abundance and stock levels of grey seals in the North Atlantic, with an emphasis on their role in the marine ecosystem in general, and their significance as a source of nematodal infestations in fish in particular (NAMMCO 1995). Given the apparent stock decline in Iceland, an apparent increase in Southwest Norway and in the United Kingdom, and the fact that this species interact with fisheries in three NAMMCO member countries, the Management Committee recommended that the Scientific Committee provide a new assessment of grey seal stocks throughout the

North Atlantic.

Response of the Scientific Committee:

Response pending.

Dolphin species (*Tursiops* and *Lagenorhynchus* spp.):

Code/Meeting: 4.30/NAMMCO/7

Request:

The Council recommended that NAMMCO member countries study the ecological interaction between dolphin species (e.g., *Lagenorhynchus* spp.) and fisheries, with the view to future assessments of such interactions.

Response of the Scientific Committee:

Not addressed.

Code/Meeting: 4.31/NAMMCO/8

Request:

Noting that ecological interactions between dolphin species of the *Lagenorhynchus* genus and fisheries have caused concern in NAMMCO countries, the Scientific Committee is requested to perform an assessment of distribution, stock identity, abundance and ecological interactions of white-beaked and white-sided dolphins in the North Atlantic area.

Response of the Scientific Committee:

The Scientific Committee noted that the IWC Scientific Committee had dealt with these species in 1996. Generally, it was considered that there is insufficient information on stock structure, abundance and feeding ecology to carry out a meaningful assessment of these species at this time. Some new information on abundance may become available from the NASS-95 survey, but these data have not yet been analysed. The Scientific Committee agreed to begin compiling available information on these species in member countries, with the objective of identifying knowledge gaps and creating a basis for assessment in the longer term. (SC/7)

Code/Meeting: 4.32/NAMMCO/9

Request:

At its Eighth Meeting in 1998, the Council agreed to the recommendation of the Management Committee to request the Scientific Committee to perform an assessment of distribution, stock identity, abundance and ecological interactions of white-beaked and white-sided dolphins in the North Atlantic area. The Management Committee noted the conclusion of the Scientific Committee that there is insufficient information on stock structure, abundance and feeding ecology to carry out a meaningful assessment of these species at this time. The Management Committee further noted that, in addition to the focus of the Management Committee's former request for advice on these species in relation to their ecological interactions with fisheries, these dolphin species are harvested in significant numbers in the Faroe Islands. The Management Committee therefore agreed to recommend that the Scientific Committee be requested to facilitate the requested assessment of these species, with an emphasis on the following: to analyse results from NASS 95 and other sightings surveys as a basis for establishing abundance estimates for the stocks; to co-ordinate the efforts of

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member countries to conduct research to fill the noted information gaps, taking advantage in particular of the sampling opportunities provided by the Faroese catch, as well as dedicated samples in other areas.

Response of the Scientific Committee:

The Scientific Committee noted that the NASS surveys were optimised for species other than dolphins, and that in some cases, it was not possible to identify dolphins to species. In these cases, mapping of sightings may be the only analysis warranted. Further analyses may be feasible from the Faroese and Icelandic survey areas, and the Scientific Committee made preparations to begin these analyses.

These species are harvested sporadically in drive hunts in the Faroe Islands, and there is some by-catch in Iceland. They are rarely taken in Norway or Greenland. Scientific papers on feeding ecology and life history in Icelandic waters are expected to be published soon. The Scientific Committee recommended that a sampling program be initiated in the Faroe Islands for white-sided, white-beaked and bottlenose dolphins, primarily to collect information on feeding ecology, life history and stock delineation. They also recommended that sampling should continue in Iceland and Norway on an opportunistic basis.

Code/Meeting: 4.33/NAMMCO/9

Request:

The Management Committee noted that bottlenosed dolphins, like white-sided and white-beaked dolphins, are also harvested in the coastal drive fishery in the Faroe Islands. The Management Committee agreed to recommend that, in connection with the updated request for advice from the Scientific Committee on white-sided and white-beaked dolphins, that bottlenosed dolphins also be included in this assessment

Response of the Scientific Committee:

See 4.25.

Code/Meeting: 4.34/NAMMCO/10

Request:

The Management Committee noted that the requested assessments for these species could not at present be completed because of a lack of information on stock identity, distribution, abundance and biology. The Management Committee therefore recommended that the Scientific Committee monitors developments in this area and continues its assessments, as new data become available.

Response of the Scientific Committee:

To be completed as new information becomes available.

Fin whale:

Code/Meeting: 4.35/NAMMCO/8

Request:

The Scientific Committee is requested to undertake an assessment of the status of fin whales in the North Atlantic based on all available data. (This request was later elaborated as follows: "Acknowledging the large amount of work involved in such a comprehensive assessment of all possible fin whale stocks in the North Atlantic, the

Council requests the Scientific Committee, when conducting such comprehensive assessment, particularly to:

- assess the stock structure of fin whales in the whole North Atlantic.
- assess the long-term effects of annual removal of 50, 100 and 200 fin whales in the stock area traditionally assumed to have a main concentration off East Greenland and Iceland (EGI stock area),
- identify MSY exploitation levels for that stock area.”)

Response of the Scientific Committee:

The Scientific Committee established a Working Group on Fin Whales to deal with this request. The Working Group met in April 1999. Their report dealt with the stock structure of fin whales throughout the North Atlantic, and with assessment of the EGI stock. The Scientific Committee used the report of the Working Group to formulate advice and research recommendations to NAMMCO Council. Detailed assessment of other fin whale stocks was not carried out, but will be if further requests from Council are forthcoming.

Code/Meeting: 4.36/NAMMCO/9

Request:

The Management Committee noted that the Scientific Committee has completed its assessment of the stock structure of fin whales in North Atlantic, and that more research on stock structure is required before firm conclusions can be drawn. The Management Committee therefore recommended that member countries initiate the research required to elucidate the stock structure of fin whales.

The Management Committee recommended that the Scientific Committee continue its assessment of fin whale stocks in the North Atlantic, focussing in the near term on the status of fin whales in Faroese territorial waters. The Scientific Committee should focus particularly on the following issues:

- Assess the long-term effects of annual removals of 5, 10 and 20 fin whales in Faroese waters;
- Information gaps that may need to be filled in order to complete a full assessment in this area.

Response of the Scientific Committee:

The Scientific Committee reactivated the Working Group on North Atlantic Fin Whales and used their report as the basis for their advice to the Council. The results of the assessments indicated that fin whales in the area have likely been substantially depleted by past harvests, but there was great uncertainty in the results. The Scientific Committee noted that in attempting to respond to the Council's request for advice on the long-term effect of various catch levels in the Faroese area, it had immediately become apparent that there is insufficient information on stock identity to carry out a reliable assessment of the status of fin whales in Faroese waters, and thus provide reliable advice on the effects of various catches. The Scientific Committee therefore recommended a research program primarily geared to understanding the stock relationships of fin whales around the Faroes.

Code/Meeting: 4.37/NAMMCO/10

Request:

The Management Committee noted that the requested assessment (4.2X) had not been

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fully completed and awaited in particular the provision of more information on stock delineation. The Management Committee therefore recommended that the Scientific Committee continue its assessment, as new data become available.

Response of the Scientific Committee:

To be addressed as new information becomes available.

Code/Meeting: 4.38/NAMMCO/11

Request:

The Management Committee clarified its previous request for advice on fin whales, asking that the Scientific Committee continue with its assessments of fin whale stocks in the areas of interest to NAMMCO countries with existing and new information on abundance and stock delineation as it becomes available.

Response of the Scientific Committee:

Response ongoing as information becomes available.

Humpback whale:

Code/Meeting: 4.39/NAMMCO/11

Request:

The Management Committee noted the conclusions of the Scientific Committee that there was evidence of a rapidly increasing abundance of humpback whales around Iceland, and recommended that the Scientific Committee complete abundance estimates for this species as a high priority. The Scientific Committee should also consider the results of the "Years of the North Atlantic Humpback" (YoNAH) project as it pertains to member countries in providing advice for this species.

Response of the Scientific Committee:

Response pending.

5. OTHER

Code/Meeting: 5.1/NAMMCO/8

Request:

Greenland noted the need for greater input from hunters and users in the work of the Scientific Committee. While noting the need for scientists to be able to conduct their work on their own scientific terms in the context of their Committee meetings, it was suggested that scientists and users of marine mammal resources which are the subject of examination by the Scientific Committee could, for example, meet prior to meetings of the Scientific Committee in order to exchange information relevant to the work planned by the Scientific Committee. With these ideas in mind, Greenland recommended that concrete steps should be taken to provide for a more active dialogue between scientists and resource users. This recommendation was endorsed by Council.

Response of the Scientific Committee:

The Scientific Committee agreed to consider a proposal put forward by the Secretariat, to use the "Status of Marine Mammals in the North Atlantic" stock status reports as a means of incorporating the knowledge of marine mammal users. This proposal will be

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presented to NAMMCO Council for approval. (SC/7)

The Scientific Committee Working Group on the Population Status of Narwhal and Beluga in the North Atlantic met jointly with the Scientific Working Group of the Joint Commission on the Conservation and Management of Narwhal and Beluga (JCNB) in May 2001. Prior to the main meeting, the Joint Working Group met with hunters from Greenland and Canada, and Canadian hunters participated throughout the meeting. (SC/9)

Code/Meeting: 5.2/NAMMCO/9

Request:

With respect to the language used in the Report of the Scientific Committee, Greenland suggested that it must be kept precise and simple. The Management Committee agreed to convey this as a suggestion to the Scientific Committee.

Response of the Scientific Committee:

No response.

