

**- NAMMCO-**

**North Atlantic Marine Mammal Commission**

**Report**

**of the**

**Second Meeting of the Council**

**Tromsø, Norway  
19-20 January, 1993**



# **North Atlantic Marine Mammal Commission**

## **Report of the Second Meeting of the Council Tromsø, Norway - 19-20 January, 1993**

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# **North Atlantic Marine Mammal Commission**

## **Report of the Second Meeting of the Council Tromsø, Norway - 19-20 January, 1993**

The meeting was held at Norges Råfisklag and was chaired by Kjartan Hoydal, Chairman of NAMMCO. The agenda is contained in Appendix 1. Present were delegations from the Faroe Islands, Greenland, Iceland and Norway, and observers from the governments of Canada, Denmark, Japan and Russia. Also in attendance were observers from the International Whaling Commission, the International Council for the Exploration of the Sea, the Northwest Atlantic Fisheries Organization and a number of non-governmental organizations. Participants are listed in Appendix 2.

### Opening procedures

#### **1. Address of welcome**

Mr Stein Owe, Director General of the Ministry of Fisheries, Norway, delivered an address of welcome (Appendix 3).

#### **2. Opening statements**

Opening statements were made by the heads of delegations from Iceland (Appendix 4), Greenland (Appendix 5) and the Faroe Islands (Appendix 6).

#### **3. Mr Carl-Erik Schultz, Associate Professor at the University of Tromsø, gave a lecture entitled "Economic Sanctions and Multispecies Management". Amongst other points, Mr Schultz mentioned that one of the best weapons against boycott threats is the General Agreement on Trade and Tariffs (GATT). The lecture (Appendix 7) was followed by a brief discussion.**

#### **4. Appointment of rapporteur**

Ms Sigrun Holst, Norway, was appointed as rapporteur.

#### **5. Adoption of agenda**

Some amendments were made to the provisional agenda and the amended agenda was subsequently adopted (Appendix 1).

#### **6. Admission of observers**

A number of observers from various organizations, listed in Appendix 2, were admitted to the meeting.



Under this agenda item a statement was made by the observer from Japan, Mr Ichiro Nomura, Director for International Negotiations (Counsellor), Oceanic Fisheries Department, Japan (Appendix 8).

#### Administration and finance

##### 7. Engagement of staff to secretariat

It was agreed to advertise for a secretary for NAMMCO in all Member countries as soon as possible. The secretary, in consultation with the Chairman of NAMMCO, would be responsible for the further organization of staff in the secretariat.

##### 8. Budget/finance

The Chairman reported that NAMMCO disposes of an annual budget of 2 million Danish kroner.

It was further reported that no tax concessions were possible for the secretariat from the host government, Norway. However, Norwegian authorities had agreed to provide an additional annual amount of 250,000 Norwegian kroner to the budget of NAMMCO.

#### Scientific work of NAMMCO

##### 9. Rules of procedure for the Scientific Committee

Mr Jóhann Sigurjónsson, convener of the Scientific Committee Working Group, presented the Draft Rules of Procedure for the NAMMCO Scientific Committee.

The Council discussed and amended the Draft Rules of Procedure. The amended Draft was adopted provisionally, pending the incorporation of the relevant amendments.

The Scientific Committee did not have any comments on the amendments proposed by the Council.

The Council adopted the Rules of Procedure of the Scientific Committee (Appendix 9).

The Council was informed that the Scientific Committee had elected Mr Jóhann Sigurjónsson as Chairman, and Mr Tore Haug, Norway, as Vice-chairman of the Scientific Committee.

With reference to voting procedures in the Scientific Committee, it was suggested that the Scientific Committee avoid voting on procedural or organizational matters unless Members are equally represented.

The Council requested that the meeting of the Scientific Committee should be held sufficiently prior to the NAMMCO Council meeting so as to allow Members of NAMMCO time to evaluate the Scientific Committee reports.

10. Report from the Scientific Committee

Mr Jóhann Sigurjónsson presented the preliminary report of the Scientific Committee Working Group on items forwarded to it by the Council of NAMMCO. He underlined the preliminary nature of the report and pointed out that it had not yet been approved by the Scientific Committee. The report is contained in Appendix 10.

11. Cooperation with ICES

Dr Emory Anderson, General Secretary of the International Council for the Exploration of the Sea, explained how ICES has dealt with the requests forwarded to it by NAMMCO. Some of the requests were to be considered by the Advisory Council on the Marine Environment of ICES.

The Council expressed its appreciation of the comprehensive explanation given by Dr Anderson.

The Chairman underlined the necessity of a closer working relationship with ICES. It was, however, agreed that NAMMCO should not present additional requests to ICES for the time being.

Management advice

12. Establishing and coordinating Management Committees

The Council established a general Management Committee in which all Members are represented. The competence of the Management Committee extends to all marine mammal stocks relevant to NAMMCO. Members will seek to reach consensus in the Management Committee. If, however, voting were to take place in the general Management Committee, Greenland suggested that Members in whose fishing territories the stock in question does not occur would refrain from voting. Members agreed to return to this matter.

The Council agreed that the general Management Committee should be regarded as a preliminary arrangement. As knowledge about ecosystems and stock species groups in the North Atlantic increases, it is envisaged that this general Management Committee will branch out into more specific committees to address relevant matters as appropriate.



13. Advice on specific stocks

The Chairman presented the first report of the Management Committee (Appendix 11).

The Council took note of the requests forwarded by the Management Committee and passed them on to the Scientific Committee.

The Council instructed the Chairman to inform the countries which are not members of NAMMCO on the requests from the Management Committees regarding transboundary marine mammal stocks.

Environmental questions

14. Environmental impact on marine mammals

The Chairman referred to NAC/NAMMCO's previous questions to ICES.

Norway distributed information concerning research on levels of radioactivity in the Kara and Barents Seas.

The Council agreed to review this agenda item at the next meeting of NAMMCO.

Other business

15. Report from Working Group on Hunting Methods

Amalie Jessen, convener of the Working Group on Hunting Methods, informed the Council that the Working Group will compile all available data on hunting methods. This will be done intersessionally by correspondence. The Working Group would further compile a list of documents relevant to the Group.

The Working Group will be available and willing to discuss any matters on hunting methods and routines on actual species of marine mammals if the member countries involved so desire. If the group considers that it does not have the relevant expertise in the field, then outside assistance will be sought.

The Working Group is prepared to advise on hunting methods upon request from the Management Committee.

It was agreed that the Working Group on Hunting Methods would meet at the next meeting of NAMMCO.

16. Information strategies

Under this item there was discussion of a proposal outlining possible information functions in the secretariat, which was presented at the first meeting of

NAMMCO by the Faroe Islands (Appendix 10 of the Report of the Inaugural meeting of NAMMCO). Particular reference was made to points 1a and 1b of the proposal as being the priority functions of the secretariat with regard to information.

It was agreed to set up an ad hoc Working Group on Information to be convened by Kate Sanderson, Faroe Islands. The Working Group will present a report to the Council at the next meeting of NAMMCO. The Working Group would make suggestions for the kinds of projects which required extra funding, gather and compare information material from respective NAMMCO member countries, and consider points raised during the meeting by representatives from High North Alliance and the European Bureau for Conservation and Development.

#### Closing arrangements

##### 17. Adoption of report

It was agreed that the Draft Report would be circulated for comments after the meeting. After revision, the final Report will be circulated by the secretariat.

##### 18. Adoption of Press Release

The Council agreed on a Press Release (Appendix 12).

##### 19. Any other business

The Council expressed its appreciation to Sidsel Grønvik of Norway for her work as interim secretary since the last meeting. Kate Sanderson, Faroe Islands, was appointed to continue the work of the interim secretariat until permanent staff have been hired.

It was decided that the next meeting of NAMMCO will be held in Iceland in mid-June, 1993.

AGENDANORTH ATLANTIC MARINE MAMMAL COMMISSION  
SECOND MEETING OF COUNCIL

TROMSØ, NORWAY, 19 - 20 JANUARY 1993

Opening procedures

- \* 1. Address of welcome by Mr. Stein Owe, Director General, Ministry of Fisheries
- \* 2. Opening statements
- \* 3. Lecture on Whaling Sanctions and Multispecies Management by ass. Professor Carl-Erik Schulz, University of Tromsø
- 4. Appointment of Rapporteur
- 5. Adoption of Agenda
- 6. Admission of Observers

Administration and finance

- 7. Engagement of staff to Secretariat
- 8. Budget / finance

Scientific work of NAMMCO

- 9. Rules of Procedure for the Scientific Committee
- 10. Report from Scientific Committee
- 11. Cooperation with ICES

Management Advice

- 12. Establishing and coordinating Management Committees
  - a) Stocks and areas to be considered
  - b) Rules of Procedure
- 13. Advice on specific stocks

Environmental Questions

- 14. Environmental impact on marine mammals



Other business

15. Report from Working Group on Hunting Methods

16. Information strategies

Closing arrangements

17. Adoption of Report

18. Adoption of Press Release

19. Any Other Business

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\* Public session

## LIST OF PARTICIPANTS

**Second Meeting of the North Atlantic  
Marine Mammal Commission**

19 - 20 January, 1993  
Tromsø, Norway

**FAROE ISLANDS:**

Mr. Kjartan Hoydal  
Ms. Kate Sanderson  
Ms. Dorete Bloch  
Mr. Justines Olsen

**GREENLAND:**

Mr. Einar Lemche  
Mr. Jens Paulsen  
Ms. Amalie Jessen  
Mr. Hansi Kreutzmann  
Mr. Finn Kapel

**ICELAND:**

Mr. Kjartan S. Juliusson  
Mr. Gudmundur Eiriksson  
Mr. Halldor Arnason  
Mr. Johann Sigurjonsson  
Mr. Gisli Vikingsson  
Mr. Arnor Halldorsson  
Mr. Kristjan Loftsson  
Mr. Konrad Eggertsson  
Mr. Sævar Gunnarsson  
Ms. Laura Konradsdottir (interpreter)

**NORWAY:**

Mr. Stein Owe  
Ms. Sigrun Holst  
Mr. Jan Arvesen  
Ms. Inger Lavik Opdahl  
Mr. Hallstein Rasmussen  
Ms. Hild Ynnesdal  
Mr. Lars Walløe  
Mr. Arnoldus Schytte Blix  
Mr. Tore Haug  
Mr. Egil O. Øen  
Mr. Alf Håkon Hoel  
Mr. Steinar Bastesen  
Mr. Jon Lauritzen

OBSERVERS:

<b>CANADA:</b>	Mr. Dan Goodman Mr. Ken Brynaert
<b>JAPAN:</b>	Mr. Ichiro Nomura
<b>RUSSIA:</b>	Mr. Georgij Luka
<b>DENMARK:</b>	Mr. Henrik Fischer
<b>ICES:</b>	Mr. Emory D. Andersson Mr. Chris Hopkins
<b>IWC:</b>	Mr. Henrik Fischer
<b>NAFO:</b>	Mr. Hallstein Rasmussen
<b>EBCD:</b>	Ms. Despina Symons
<b>Inuvialuit Game Council:</b>	Mr. Norman Snow Mr. Richard Binder
<b>Makivik Corporation:</b>	Mr. Neil Greig
<b>IWGIA:</b>	Mr. Mats Ris
<b>Nordland County Fish. Prog.:</b>	Mr. Morten Selnes
<b>High North Alliance:</b>	Mr. Georg Blichfeldt
<u>INVITED LECTURER:</u> <b>University of Tromsø:</b>	Mr. Carl-Erik Schulz
<u>INTERIM SECRETARIAT:</u>	Ms. Sidsel Grønvik Ms. Tove Nilsen

**SECOND MEETING OF THE NORTH ATLANTIC MARINE MAMMAL COMMISSION****19 - 20 JANUARY 1993****TROMSØ, NORWAY****ADRESS OF WELCOME****BY****DIRECTOR GENERAL STEIN OWE, HEAD OF THE NORWEGIAN DELEGATION**

Mr. Chairman, ladies and gentlemen.

It is a pleasure and an honour for me on behalf of the Norwegian government to wish the delegates and observers to the second meeting of the North Atlantic Marine Mammal Commission welcome to Norway and the city of Tromsø.

At the inaugural meeting of NAMMCO in Torshavn last year we started the work of building this new organization for the rational and sustainable management of marine mammals. Our challenge here in Tromsø will be the follow-up of the successful Torshavn meeting.

The objective of NAMMCO is to contribute to the study, conservation and management of marine mammals through regional cooperation.

The scientific achievements over the last years have provided us with information of considerable importance for the future management of the whale and seal stocks. It is important that we keep up the efforts on marine mammal research. Increased competence regarding ecological interaction in the marine ecosystem is a condition for a rational management of both the marine mammals and the fish stocks.

It is also on the basis of well-founded scientific advice that we, as coastal states, can advocate our right to a sustainable utilization of the marine living resources, including whales and seals.

On the basis of the unanimous findings of the IWC Scientific Committee the Norwegian Government decided last year to resume traditional minke whaling in 1993. This decision has led to negative reactions internationally both from officials, organizations and individual citizens. We have been threatened with commercial boycott and even been subject to violent actions. We have also experienced that our whaling for scientific purposes last summer was certified in the US under the Pelly amendment.

We are most concerned about actions against Norway by environmental protection groups and other states. We have noted, however, that the international opposition to whaling as well as to sealing is based more on assumptions and emotions than on well-informed arguments. There is an urgent need for objective information on the harvesting of marine mammals, hopefully to pave the way for a more constructive discussion on the future management of these species. Also in this context NAMMCO has a role to play, both as a forum for joint discussions of these problems and in conducting information activities.

Finally I would express the hope that our deliberations here in Tromsø will be fruitful and constructive, and that this meeting will contribute to furthering international understanding of the principle of rational management of marine mammals.

Thank you for your attention.



NORTH ATLANTIC MARINE MAMMAL COMMISSION  
SECOND MEETING OF COUNCIL

TROMSØ, NORWAY, 19-20 JANUARY

OPENING STATEMENT OF ICELAND

On behalf of the Icelandic delegation I would like to thank the Government of Norway for the excellent arrangements made for this second meeting of NAMMCO. We also thank Director General Stein Owe for his words of welcome.

You can see that we have a large delegation from Iceland, the second largest delegation here. This is a reflection of the importance attached by the Government of Iceland to the work of NAMMCO.

We in Iceland are convinced that NAMMCO can become an effective regional organization which can serve as a model for other regions of the world for the benefit of all responsible people who really care for sound management and sustainable utilization of marine mammal resources.

Iceland will be working in collaboration with the other members of NAMMCO for that purpose and together we shall portray to the international community the true image of scientifically sound management.



January 19'th 1993

NAMMCO, Tromsø

Opening Statement from Greenland

Mr. Chairman,

Following the novelties around our establishment in Tórshavn in September, NAMMCO is now reaching the stage where we are getting into normal routines.

We are to establish the bodies of our Organization: The Scientific Committee, one or more Management Committees and the Secretariat.

We appreciate the work done in the intersessional period by the Host Country, by you, Mr. Chairman and the Secretariat, and by Mr. Sigurjonsson and the Scientific Committee. These efforts will form a good basis for our work to-day and to-morrow.

We for our part want NAMMCO to focus on seals and small cetaceans, and to work toward appropriate management of such stocks where management is needed. This is in perfect harmony with the UN Law of the Sea text (art. 65), as well as with the UNCED principles adopted in Rio last June.

In NAMMCO we should highlight the principle of sustainability in our utilization of marine mammals. Sustainable utilization of marine mammals is in the interest of all of us, and is perfectly legitimate when measured with international principles.

Based upon this, we look forward to see our neighbours, Canada and Russia, joining us. - We also have to consider how we should co-operate with other parties in cases where co-ordinated management of joint stocks is appropriate and requested by such parties.

NAMMCO is still so young, that nobody knows its future. One question of some interest is whether the role of NAMMCO will expand if the IWC continues to move itself further and further away from the 1946 IWC Convention, the aim of which is to manage stocks of whales.

When working in old established international organizations you sometime get the feeling that you are experiencing series of repetitions and boaring déjà-vues. It is certainly a pleasure to work with you, Mr. Chairman, in an Organization where that is not the case.

Thank you, Mr. Chairman.



North Atlantic Marine Mammal Commission  
Second Meeting of the Council  
Tromsø 19-20 Jan, 1993

Opening Statement  
from  
the Delegation of the Faroe Islands

The Faroese Delegation wishes to thank the Government of Norway for hosting the Second Meeting of the Council of NAMMCO. This is especially appropriate, as we are meeting for the first time in the town that will become the home of the NAMMCO Secretariat.

This delegation would like to see swift progress in all areas where work is already underway, and we hope that we can move rapidly on to those parts of our agreement where work remains to be done.

The establishment of the Scientific Committee and the approval of its Rules of Procedure are matters of high priority. It is important to have the Scientific Committee set up so that its important work can begin. In stressing rational management and optimum utilization in our agreement, we have also stressed the importance of the scientific basis of all management decisions. The scientific integrity of NAMMCO will be the most important single factor for the organization's strong international status in the future.

For the Commission to function on a level where it can address all relevant issues, the establishment of the Secretariat is crucial. Only then can NAMMCO be recognized as a well-founded professional regional body.

The Faroese delegation will support the creation of Management Committees at this meeting. On the basis of an open discussion the Parties should reach an agreement on how far we can proceed. Questions that should be answered are: Should we stress the ecosystem approach and thus establish area committees, should we pinpoint particular species or groups of species and then establish committees accordingly, or should we have a mixture of both?

The Faroese delegation supports the idea of a permanent Working Group on hunting methods in sealing and whaling. Not because this is necessarily a matter on which NAMMCO should make decisions, but rather to provide a forum in which hunting methods can be discussed in a rational and technical way.

NAMMCO should also be involved in information work. Primarily this should concentrate on promoting the organization itself, its results and the merits of and need for rational attitudes to the utilization of marine mammals. In this respect, NAMMCO can also provide an excellent forum for coordinated efforts in this area.

We hope that most of the outstanding questions of substance concerning the final establishment of NAMMCO will be resolved at this meeting.



## **Economic Sanctions and Multispecies Management**

Carl-Erik Schulz  
Associate Professor of Economics,  
University of Tromsø

Lecture given at the second meeting of NAMMCO,  
Tromsø, January 19, 1993

I shall cover three themes in this presentation:

1. International or national values in the management of marine resources;
2. Multispecies management and sanctions;
3. Effects of sanctions on the Sender and the Target countries.

It is **easy** to observe resistance abroad against the harvesting of marine **mammals**. This resistance is the basis for international **conflicts** concerning management regimes. It is also the basis for two **types** of actions against those nations which are harvesting these **resources**:

- Private actions leading to consumer boycotts;
- Governmental actions leading to diplomatic pressure and trade sanctions - or threats of sanctions.

### **The difference in values**

It is **not** quite clear what consumers are worried about. Sometimes the **argument** is the risk of extinction of a species. Others argue against all whaling and/or sealing. Another argument is based on the **desire** for large stocks, or even unexploited stocks. Asking the **organizations** about this - which I have done - gives no clear **answers**. The final objectives of the organizations are not easy to **specify**. They unite in protest against harvesting at the moment, but **their** final objectives are probably quite different.

It is not even certain that the public knows very much about the difference between the 70 whale species, or that there are several species far from depletion or extinction. The empirical findings from a six-country survey in 1992 on public attitudes to whales indicate, as far as I can see, a correlation between strong opinions and low levels of knowledge. As we know, there are nearly 1 million minke whales. Asking people about this revealed a strange combination in many answers: The nations where most people believe they know much about the stocks, have strong "knowledge" of very small stocks - even when the stocks are large. For instance, in the





USA some 3/4 of people interviewed "knew" that the stock of the minke whales was less than 100,000. It is important to be aware of the lack of knowledge about marine mammals internationally, and the nature of the link between knowledge and opinion.

The existence of marine mammals, as of all species, is one of the international public goods. There are at least three types of public goods connected to whale stocks and their harvesting. Firstly, a value is attached to the existence of the particular species, from which derives a legitimate international concern about the danger of extinction. Secondly, there is the value of diversity in the ecological system, which can also be linked to the concern about the danger of extinction. Thirdly, there is a value attached to how we treat animals when harvesting them, and from this comes a discussion about how they are killed, and how to keep animal suffering at an acceptably low level. Of course, these questions are common to the harvesting of all species, onshore or offshore. I shall not go into this discussion here, but I take it for granted that these questions are open for international regulation.

We observe, however, that international pressure against the harvesting of marine mammals goes far beyond this. As far as I can observe, there is pressure from several nations to stop harvesting, even taking into consideration all the international public goods effects already mentioned. It is of course an internal, national question whether US or German citizens decide not to exploit these resources. And there is no-one from outside who can decide whether people wish to use products from marine mammals. In fact, in the science of economics, the sovereignty of the consumer is a fundamental assumption. If they don't like our tastes or our products, that is their choice. But the special situation as regards marine mammals is that some nations want others to adopt their tastes and values. It is as if the Hindus of India were worried - not about the killing of cows in India - but about the production of hamburgers in the USA.

I think that it is impossible to make economic calculations in this field. Questions like: "What is the USA willing to pay us to be like them?" or "What are we willing to pay to keep our national values?" have to be discussed within a framework of ethics and not economics. In some ways this is related to the question of why there are different nationalities, and not only particular states in the USA.

To summarize so far:

- We observe different opinions on whaling and sealing, and must take them as facts
- We may want to provide more knowledge about the scientific status of marine mammals
- It is necessary to accept the values of other nations, and the differences between nations

- The discussion of our national priorities is in principle not a discussion of costs

### **Multispecies management**

Marine mammals are at the top of the marine ecological system, and they are part of it. However, the management of marine mammals, as within the IWC, is single-species management. For instance, the IWC is aiming for a long-term bench mark stock of minke whales of 72% of the unexploited stock. This is at the expense of an examination of the ecological system as a whole.

There are interactions between fish and marine mammals, and even between marine mammals. We do not fully understand these interactions, but we have some knowledge. We may very well ask questions such as:

- How will multispecies management influence the harvesting of the various species?
- How will pressure from outside, such as sanctions, influence the management of the whole ecological system?

My research is on the latter, and may give some ideas as to how such situations can be analyzed systematically.

Legislation in the United States links the import of fish products to other nations' management of marine mammals. The Pelly Amendment specifies that sanctions on fish imports are measures the USA can take against other nations when the US decides that the actions of other countries are not in accordance with US marine mammal legislation. This links US sanctions to the other species within the same ecological system.

Several marine mammals species are threatened with extinction, and it is necessary to take this into consideration. But it is also a fact that marine mammals are both predators and in competition with other species. Empirical findings suggest that marine mammals cause heavy predation pressure on the ecological system. Keeping this out of the discussion is akin to making laws for the conservation of the fox while disregarding its predation on sheep. Arguing for high stocks of marine mammals to save food resources for future generations is like keeping many predators onshore for future food supply. From an economic perspective, the choice between single-species or multispecies management is probably the main decision in whaling.

I am not arguing for a bounty on whales or seals. I think there is too little knowledge of the whole ecological system and the effects of different forms of management. But perhaps one day it will be possible to introduce multispecies management which also includes predators.

Knowledge of the ecological system gives another angle to these arguments. When whaling nations accept single-species management,

they implicitly make a deal whereby predation pressure on (or competition with) other species is not valued at all. Every compromise attaching value to other species will result in a smaller stock of whales. This is even a problem with regard to the competition between whale species.

The IWC compromise gives exactly the same result for the minke whale stock as the USA would have achieved by imposing full sanctions on fish imports, causing the whaling nations to leave the IWC and establishing a multispecies management regime. In some ways the USA has exhausted its full strength in the conservation of whale stocks through the IWC regime. They may take punitive action against whaling nations, but they cannot achieve larger whale stocks unless they can make the whaling nations submit to US legislation. This makes any other management procedure outside the IWC a real threat to the effects of US trade policy. Sanctions would then be purely punishment of the whaling nations - with no direct influence on management policy.

I shall not go into the long-term models of interacting species and how sanctions work in this context. But I will offer some more intuitive suggestions for how they work.

First - we assume that whales and a stock of large fish, eg. cod, are in competition because they are eating the same food. Sanctions on fish exports will make the fisheries less profitable, and this will usually give lower catches and higher long-term stocks of cod. Increased stocks mean stronger competition and lower long-term equilibrium stocks of whales. As long as the whaling nation does not desist, the long-term effect of sanctions is a decreased stock of whales - quite the opposite of its purpose.

If we assume that the whales are mainly predators, and the fish stocks are the prey, the effects are different. Sanctions make less profitable fisheries, larger fish stocks, and then more food for the predator - and increased long-term equilibrium stocks. But the increased stocks make whaling more profitable, giving an incentive for increased whaling.

My examples simply indicate one thing:

Embarking on the threat of sanctions against fish exports does not have an unambiguous effect on the whale stocks. Even for the Sender of the sanctions it is a dirty game in the long run.

### **Effects of sanctions**

This leads to the third, and perhaps most important part of this paper:

How do sanctions work?

I begin with some major empirical conclusions, compiled by American researchers, based on sanctions which have been in effect this century.

### Factors supporting the effectiveness of sanctions:

- Sanctions against allied countries
- Sanctions against countries in internal conflict, or with serious economic difficulties
- Sanctions must be strong, but not too strong compared with their aims

Factors supporting ineffectiveness:

- Effective sanctions make costs to the Sender
- Sanctions have limited effect in solving large conflicts
- There are difficulties involved in entering a long-term conflict

This experience derives from all types of sanctions. If we are looking at sanctions against specified products, then there are some factors which are decisive for the effects. First of all there are differences between bilateral and multilateral sanctions. Effective multilateral sanctions try to press the Target country into a situation of complete trading isolation (autarchy). Bilateral sanctions leave all other markets open for substitution. For instance, if the US market is closed for fish from whaling nations, this will allow extra profits for other nations through export to the USA, and of course better conditions for selling fish in alternative markets. If the products are homogenous and sold in competitive markets, this will simply lead to a new geographical distribution of exports, and only short-term additional costs.

If the products are nation-specific there may be greater costs involved - both for the Sender and the Target country. If the products have close substitutes, the effects for both countries are small. If no close substitute products exist, then the effects are rather high for both of them. As concerns exports of fishery products, this will vary. Frozen blocks are probably quite homogenous, and salmon has substitutes both from other countries, and in the form of meat. Only if the export country's product has an economic rent which is particular to the sanctioning country may there be a noticeable loss - for both countries. The short-term loss will be greater than the long-term, because the markets reallocate according to the new situation. The costs of reallocation will usually be greater if the trade links are close. It is an important and common misunderstanding that the total decrease in export value is a relevant estimate of loss due to sanctions. But this is only a fraction of this value; the profit loss represents the real loss to the Target country.

The conclusion based on an analysis of sanctions against selected products is that their economic effects are limited, but that there may be important political effects.

A trade sanction is a part of the trade policy of a nation. The consumer boycott is another way of using economic measures to influence other countries. A consumer boycott is organized

privately. It will usually have a broader scope of products, but less strength. The reason is the difficulty in organizing every single consumer to take individual action everytime he/she is confronted with the choice between products which should be boycotted and other ones. In the very short-term there may be some effect, but in the long-term there are enormous organizational costs connected with consumer boycotts. A boycott needs a strong case, and a strong organization. A boycott is more effective if the distribution of the products is concentrated, in which case actions may be concentrated against a few companies. In some countries, like the USA, the effects of boycotts are influenced by the fact that there are many such actions being promoted at any given time, which in many ways are in competition with each other for public attention.

We may summarize the situation for the country which is the target of sanctions in a trade-off matrice:

	Loss	Gain
FISH	*EXPORTS TO US	*EXPORTS TO OTHER MARKETS
WHALE	*US ACTIONS *WHALE WATCHING	*VALUE OF WHALE MEAT
OTHER EFFECTS	*INTER- NATIONAL REPUTATION	*INCREASED STOCKS OF FISH *INCREASED FISHING *VALUE OF NATIONAL MANAGEMENT

**Figure 1. A Trade-off of Sanction Resistance**

The loss incurred by whale watching enterprises in whaling nations indicates that it is difficult to harvest whales and set up whale watching in the same area. Some whale species, like the minke whale, are of no commercial interest to whale watching. The loss from US-actions indicates increased costs in harvesting when disturbed by such actions.

The gain from "value of national management" is difficult to calculate. This value is most important for nations with economies closely related on the extraction of natural resources.

Usually the evaluation of the effects of sanctions only takes into consideration the value of whale meat and the loss of export value in the market of the sanctioning country. The trade-off matrix illustrates that this is just a small fraction of the total effects. It is important to consider all effects, and not only the gross loss.

## Statement by the Representative of Japan

North Atlantic Marine Mammal Commission  
Second meeting of Council, Tromso January 19, 1993

Ichiro Nomura  
Director for International Negotiations ( Counsellor)  
Oceanic Fisheries Department

Fisheries Agency  
Government of Japan

1. My name is Ichiro NOMURA. I am Director for International Negotiations, Oceanic Fisheries Department, Fisheries Agency of the Government of Japan. I am honored to be given the opportunity to attend this meeting of the North Atlantic Marine Mammal Commission (NAMMCO) as an observer representing Japan.

2. Japan appreciates the efforts which the Government of Norway, the Government of Iceland, the Home Government of the Feroe Islands, and the Home Rule Government of Greenland have hitherto expended to establish this Commission.

3. Japan feels honored that before you established this Commission, Japan could have a series of candid consultations with the representatives present here as regards the conservation and sustainable utilization of marine mammals. Japan of course fully supports the establishment of this Commission. We note that the objective of the Commission is, as stipulated in article 2, "to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic". When we consider needs for sustainable utilization of marine mammals as regards both their regional biological characteristics and regional modes of harvesting, regional management organizations -- such as this Commission -- will be increasingly relevant and important for our future. Establishing such regional organizations could contribute substantially to a normalization of the International Whaling Commission (IWC) as well.

4. In the view of Japan, the establishment of a regional management organization, such as this Commission, is desirable in other regions than the North Atlantic as well to conserve and to manage cetaceans and marine mammals -- particularly small cetaceans which have regional patterns of biological characteristics and harvesting modes. Therefore, Japan wishes this Commission to initiate the substantive works as soon as practicable, because the establishment of this Commission and the works it will be doing will be an excellent precedent for the





regional management of cetaceans and marine mammals in other parts of the world.

5. The Government of Japan is confident that this Commission will be operated in a constructive manner, based on the principle of sustainable utilization of marine mammals. Although the geographical parameter of this Commission has no direct relevance to Japan's activities, we would like to maintain close cooperation with this Commission because Japan fully associates itself with you to achieve the goal of sustainable utilization of marine mammals. Japan wishes to continue sending, on your invitation, observers to this Commission's meeting in the future. We would like actively to cooperate with you, to advise you in any way which would be helpful, and to exchange regularly relevant information.

6. Certain environmental groups argue repetitiously for full protection to marine mammals, irrespective of the status of any these resources, labelling these animals as sacred. Let us stand steadfast against all their allegations. Let us confirm our mutual principle that to achieve responsible conservation and sustainable utilization of marine ecosystems, including cetaceans, we must utilize appropriately each element in the ecosystems.

From this point of view, the French proposal to make the Antarctic a sanctuary area not only lacks any scientific justification, but is also harmful to the recovery of the Antarctic ecosystem and to balanced conservation of whale resources in the Antarctic. Japan requests your Commission's unconditional opposition to this proposal.

Japan has always supported strongly the subsistence whaling by the people of Greenland, Alaska, Russia and St. Vincent and The Grenada, as well as the utilization of small cetaceans by the people of Feroe Islands and Canada, because Japan thinks that the traditional culture of other countries should be respected and that the rights of minorities should be protected. As you are well aware, Japan has its own regional communities which depend on small-type whaling with a history as long and culturally significant as your indigenous whaling communities' histories. Japan has, at the last several meetings of the IWC, requested in vain an interim relief allocation of 50 North Pacific minke whales until IWC sets a catch limit (which IWC will calculate from this year by applying the catch limit algorithm IWC agreed to last year to the North Pacific minke whales), and completes the Revised Management System (RMS). We would appreciate your support for our request.

7. The IWC's annual meeting will be in Kyoto this year. If and when, at this meeting, IWC endorses, catch limits for the Antarctic minke whales and North Atlantic minke whales based on

the Revised Management Procedure(RMP), and completes other requirements (e.g., a fully effective inspection and observation scheme; minimum data standards ; guideline for conducting surveys and analyzing the results) , then rational utilization of the minke whales by a new type of whaling should be commenced in strict accordance with scientific justification and the IWC Convention. Japan thinks whaling in the Antarctic should be transparent, conducted for the common benefit for the international community. The RMP defeats the fallacy embraced by the anti-whaling forces under the pretext of scientific uncertainties. Science rests with our side. In this sense, it is no exaggeration to categorize the Kyoto meeting as critical in setting a course of the IWC's future. The Government of Japan is fully cognizant of political significance of having such a critical event in Japan. We will spare no efforts to attain significant results from the coming IWC meeting. To this end, Japan wishes, more than ever, to strengthen cooperative and steadfast relations with the members of this Commission.

8. In conclusion, I wish to sincerely convey from Mr. Shima, the Japanese IWC Commissioner, his full respect for and warm friendship with all of you.

Thank you very much.

## RULES OF PROCEDURE FOR THE NAMMCO SCIENTIFIC COMMITTEE

### I. Terms of Reference

1. The Scientific Committee shall provide scientific advice to the Council on such matters that are referred to it, and ensure that this advice is based on the best available scientific findings at any given time. This includes review and evaluation of data on stock identity, biological parameters, stock size, catch history and other information necessary for conducting an assessment of the species or stock in question and for providing advice on catch limits and conservation.
2. The Committee may make proposals to the Council concerning any scientific tasks to be included in its future work.

### II. Membership

1. Each Contracting Party shall nominate up to three scientists as members of the Scientific Committee. The appointment is permanent or until the Contracting Party nominates new member(s) to the Committee. Each member of the Committee shall have one vote when procedural or organizational matters are being dealt with.
2. The Scientific Committee shall elect by majority vote from amongst its members a Chairman and a Vice-Chairman. The Chairman and Vice-Chairman shall serve for two years, after which they may be re-elected.
3. If for any reason the Chairman is unable to complete his term of office, the Committee shall elect a new Chairman at its next regular meeting. If needed, the Chairman of the Council may call for postal elections of the Chairman and Vice-Chairman of the Scientific Committee.
4. The Secretary of NAMMCO and the Data Manager of the NAMMCO Secretariat shall be ex officio non-voting members of the Scientific Committee.
5. The Scientific Committee may, on an ad hoc basis and subject to the approval of the Council, nominate experts to participate in meetings of the Committee as ex officio non-voting members. Any such nomination of experts must reach the Secretary of NAMMCO no later than 30 days before the start of the meeting in question.

### III. Observers

1. Attendance of observers shall not be permitted at the meetings of the Scientific Committee unless otherwise decided by the majority of the Committee and approved by the Council.

### IV. Organisation

1. The Scientific Committee is responsible for collecting and compiling the necessary information for providing scientific advice. While avoiding duplication of work being carried out elsewhere, the Committee decides where and how this information is to be obtained. If the Committee considers it necessary to consult information not available in the published literature or in the possession of any of the Parties, any



cooperation in this field with external authorities shall be undertaken by the Scientific Committee Chairman through the Secretary of NAMMCO.

2. The Scientific Committee may establish designated Working Groups on clearly defined subjects related to the work needed to be carried out for dissemination of the required scientific advice.

3. The Scientific Committee decides the terms of reference of the Working Groups, their provisional agenda, membership, Chairmen and dates of meetings, and makes proposals to the Council on invitation of external experts or observers.

4. The Working Groups report their findings in writing to the Scientific Committee according to their terms of reference.

5. The Scientific Committee reports its findings in writing to the Council within two weeks after the conclusion of its deliberations. The contents of the report shall be considered strictly confidential prior to that. The Chairman seeks to have all views expressed on substantive matters during the deliberations in the Committee made clear in its report and the wording approved by the Committee before the end of its meeting, or by correspondence if agreed by the Committee. Approval of the report requires consensus among the Committee members.

## **V. Meetings**

1. The Scientific Committee shall meet at least annually, preferably prior to the regular meetings of the Council, unless otherwise decided by the Council. Intersessional meetings may be held when judged necessary by the majority of the Scientific Committee and the Council so decides.

2. A provisional agenda for all Scientific Committee meetings shall be developed by the Chairman and distributed to the members of the Committee no later than 30 days prior to the meeting in question. Comments or suggestions for revision of the provisional agenda shall reach the Chairman no less than 10 days prior to that meeting.

3. The Chairman shall, in consultation with other members of the Committee and the Secretary of NAMMCO, seek to ensure that key documentation of relevance to the provisional agenda is available at the start of each meeting. This may involve compilation of published information and invitation to members, Parties, Working Group Chairmen or external experts to submit and present scientific papers at the meetings. Any scientist may submit scientific paper(s) for consideration by the Committee and Working Groups, as appropriate.

4. Each Party having information on the biology of marine mammals relevant for NAMMCO management objectives, including research and statistical material on catches of relevant species or stocks, shall briefly report on such information at the relevant meetings of the Scientific Committee or its Working Groups.

5. The Scientific Committee, in consultation with the Secretary of NAMMCO, shall make proposals of Contract Studies to be conducted on specific agenda items to be dealt with at meetings of the Scientific Committee or its Working Groups.

6. The Secretary of NAMMCO may, with the concurrence of the Committee, set technical guidelines for the preparation, format and presentation of all meeting documents, including type and format of data on catches that each Party reports with respect to any relevant catch operation.

7. Titles of meeting documents outlined in V.3.-5. above shall, if possible, reach the Secretariat of NAMMCO no less than 10 days in advance of the meeting in question and be distributed to the members of the Committee/Working Group prior to the meeting. All documents registered before the end of the first day of the meeting shall be considered Primary Documents for consideration at the meeting.

8. English shall be the official language of the Scientific Committee and all primary documents shall be written in English. The Chairman can give exemptions from this general rule after consultation with other Committee members and the Secretary of NAMMCO.

## **VI. Data Availability**

1. The report of the Scientific Committee, the reports of the Committee's Working Groups and other scientific papers presented to the Scientific Committee shall be made available by the Secretariat to anyone that so wishes, according to guidelines set by the Scientific Committee and subject to approval by the Council. The Scientific Committee shall aim to have all key scientific papers relevant to its work published in a recognized international scientific journal.

2. The Secretary of NAMMCO may, with the concurrence of the Scientific Committee and the Council, require that statistical material and computing programs for use in evaluation of the status of stocks or for calculations of catch limits, such as detailed catch and abundance data, be submitted in advance to the Secretariat in an electronic data storage medium, for validation and preparation prior to the meeting. Submitted statistical material or other raw data shall only be released from the Secretariat subject to approval of the scientist or Party submitting the data.

## **VII. Amendment of Rules**

1. Proposals for amendment of these rules of procedure shall reach the Secretariat not less than 60 days prior to the Council meeting at which the matter is to be discussed. The Secretariat shall inform the Contracting Parties about these proposals not less than 30 days prior to that meeting.

This working document is not to be cited without  
prior reference to the NAMMCO Secretariat

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**NAMMCO Scientific Committee**

**PRELIMINARY REPORT OF THE SCIENTIFIC COMMITTEE ON  
ITEMS FORWARDED TO IT BY THE NAMMCO COUNCIL**

**Prepared for the 2nd meeting of the NAMMCO Council**

**Tromsø, Norway, 19-20 January 1993**

## PRELIMINARY REPORT OF THE SCIENTIFIC COMMITTEE ON ITEMS FORWARDED TO IT BY THE NAMMCO COUNCIL

**Members:** Blix (N), Bloch (F), Desportes (F), Gunnlaugsson (I), Hansen (F), Haug (N), Heide-Jørgensen (G), Kapel (G), Larsen (G), Sigurjónsson (I), Víkingsson (I) and Öien (N).

### 1. TERMS OF REFERENCE

In November 1992 the Chairman of NAMMCO requested members of the Scientific Committee to respond to instructions forwarded to it by the NAMMCO Council at the inaugural meeting in Tórshavn last September. The Council "instructed the Scientific Committee to:

- 1) review the "List of Marine Mammal Stocks in the North Atlantic Ocean for Management under NAMMCO" (Appendix 8) and update profiles for each species/stock;

- 2) 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;

- 3) review the data needs of the Scientific Committee."

The Chairman requested J. Sigurjónsson (I) to coordinate/convene this work by correspondence. All Committee members were formally contacted and responded as far as the limited time available allowed. The following report is a compilation of collective work of five *ad hoc* sub-groups composed of members of the Scientific Committee. Due to time constraints, however, the report as it now appears has not been discussed or formally adopted by the full Committee.

### 2. LIST OF PRIORITY SPECIES

The Chairman of NAMMCO indicated that first priority was to be given to item 1) above, i.e. review and update of the lists previously prepared at the NAMMCO and NAC meetings. Appendix 1 and 2 of this report cover this item.

In principle, the NAMMCO agreement covers all marine mammal stocks occurring within the jurisdiction of two or more member countries. Therefore, all species listed in Tables 1 and 2 in "A list of marine mammals in the North Atlantic Ocean relevant for management under the new NAMMCO agreement" (originally drafted at the preparatory meeting in Copenhagen in January 1992 and revised before the June 1992 meeting in Glasgow) may be of concern for NAMMCO in the long run.

The list in Table 1 included seven species of pinnipeds of joint interest to two or more of the NAMMCO countries, Canada or the Russian Federation, i.e.:

ringed, harbour, harp, hooded, grey and bearded seals, in addition to Atlantic walrus.

Seventeen species of cetaceans were listed in Table 1, i.e.:

North Atlantic right whale, bowhead, blue, fin, sei, minke, humpback, sperm, northern bottlenose, killer and long-finned pilot whales, white-beaked, Atlantic white sided, and bottlenose dolphins, narwhal, beluga and harbour porpoise.



In addition, several species of small cetaceans were listed in Table 2 of the same document, that rarely occur within the NAMMCO region and are thus of only minor interest in this context.

The Committee decided to concentrate its work around species of marine mammals that might require some management action or scientific advice by NAMMCO in the very near future, notwithstanding the possibility that the Council might want to add some of the remaining species on the original lists on the agenda of the Scientific Committee at some later stage. The Committee agreed to use as a basis for its work the supplementary lists prepared by scientists from Greenland and Iceland for the inaugural meeting in Tórshavn, and prepare a review with a list of priority species, that would be somewhat more informative than the earlier ones. The lists of species given in Appendix 1 and 2 should, however, be regarded as a brief summary of information on the state of knowledge of each species based on published information, rather than a scientific review outlining the complete set of information available. The main aim was to prepare a document that could facilitate some further work of the Council at its second formal meeting. A more thorough review, with appropriate citations to original sources, needs to be made in the future for each species along with proper assessments. Although some attempts were made to reflect some immediate research needs, any recommendations regarding future research must await a more careful analyses of existing material.

### **3. OTHER ITEMS**

Due to time constraints and other reasons, items 2) and 3) forwarded by the Council are not dealt with to any extent in this report, while some comments on the issues to be addressed in the future in this relation are given below.

#### **3.1. "Review the basis for, and develop assessments necessary to provide the scientific foundation for ....."**

This request from the Council is in its nature a major task, that the Committee was unable to deal with at this stage. However, it should be pointed out that until available information on the relevant species/stocks has been reviewed and analysed in more detail than was possible at present, the entire question of the scientific foundation of management cannot be addressed properly. Such an in-depth analysis of selected species/stocks would probably be best conducted by designated Working groups of the Scientific Committee, either by compilation and analyses of existing published material or by processing of new data.

Also it has been suggested, that the science behind the advice for each species and stock can best be solved parallel at two levels; on the one hand by a designated species/stock(s) Working Group of the Scientific Committee; on the other hand by a separate Working Group dealing solely with development of management procedures. The latter Working Group should be composed of at least some specialists in population dynamics and management models and some biologists with relevant knowledge on the species in question. At some stage in the process, some interactions between the scientists involved and some administrative representatives (e.g. members of management sub-committees or the Council) will be required for determining the specific management objectives for the species/stock(s) under consideration.

#### **3.2. "Review the data needs of the Scientific Committee"**

This item is to some extent covered in Appendix 1 and 2. But when time comes, the Working Group Chairmen and the Scientific Committee (i.e. by defining the terms of reference for the different Working Groups) will decide and make requests for data submission as necessary and in accordance with the Rules of Procedures. This may vary considerably between species, stocks and areas under consideration.

## APPENDIX 1. LIST OF PRIORITY SPECIES: PINNIPEDS

### 1. RINGED SEAL (*Phoca hispida*)

#### General distribution

Ubiquitous in ice-covered seas of the entire Northern Hemisphere wherever there is fast ice or dense drift ice, even as far as the North Pole, and in fjords and bays, but rarely in the open sea. Arctic coasts of North America, Greenland, Northern Europe and Russia; Bering Sea, Sea of Okhotsk, Baltic Sea and the lakes of Saimaa and Ladoga (post-glacial relicts).

#### National interests

- *Jurisdictions (EEZs)*: West Atlantic: Canada (C) and Greenland (G); East Atlantic: Norway (N) and Russia (R); Bering and Okhotsk Seas: R (USA and Japan); Baltic Sea/Saima/Ladoga: R (Sweden and Finland).

- *Exploitation*: Local subsistence use for centuries in C, G, N and R. No large-scale commercial exploitation.

- *Interactions*: Direct conflicts with fisheries not documented; predatory role hardly significant in relation to commercial fisheries (feeds largely on pelagic crustaceans and small fish such as polar cod, *Boreogadus saida*).

#### Stock identity

Geographically separated populations are usually given subspecies status: *P. h. saimensis* and *ladogensis* in the Lakes Saimaa and Ladoga, *P. h. botnica* and *ochotensis* in the Baltic and Okhotsk Seas, respectively; *P. h. hispida* forms a circumpolar continuum in the Arctic basin and adjacent regions of the North Atlantic and the Bering Sea. Seasonal variation in distribution with movements between stable ice, and the flaw zone and the moving pack ice is obvious. The degree of interchange between potential sub-populations of the circumarctic subspecies is of considerable interest, but so far little documented. Tagging has shown that subadults may travel long distances.

#### Population trends and actual status

*P. hispida hispida* is the numerically dominant marine mammal species in the Arctic. Estimate of the world population is difficult to obtain due to the vast unsurveyed areas; a crude estimate of 2.5 million has been suggested as a realistic minimum. No information is available on population trends, and catch figures are rather fragmentary or incomplete. Average kill of an order of 100,000 ringed seals per year is suggested for Arctic Canada as well as for Greenland. Problems in marketing of seal skins may have affected the catch levels in recent years. Norwegian catches in Svalbard and North Norway are of very small dimensions (probably a few hundred animals per year). Russian catches in the White, Barents and Kara Seas are poorly documented but were (in 1962) at about 17,000 animals.

#### Management regimes

No international protection measures exist. The catch by local peoples in Arctic Canada and Greenland is not subject to regulations. Except for protection during breeding in the Svalbard nature reserves, no regulation measures are imposed upon ringed seals in Norwegian and adjacent waters. Russian regulations are not known.

## 2. HARBOUR SEAL (*Phoca vitulina vitulina* and *Phoca vitulina concolor*)

### General distribution

Widely distributed at coasts of Europe and North America in boreal and temperate waters.

### -National interests

- *Jurisdictions (EEZs)*: West Atlantic: Canada (C) (USA); East Atlantic: Iceland (I), Greenland (G), Great Britain (GB), Denmark (D), Sweden (S), Norway (N).
- *Exploitation*: No commercial exploitation, but bounty catches and catches for research purposes by I.
- *Interactions*: Feeding habits may conflict with local fisheries; Terminal host of the nematode *Terranova decipiens* which infests the musculature of many species of fish (C, I, N).

### Stock identity

Non-migratory, stationary species. Two sub-species occur in the North Atlantic, *Phoca vitulina vitulina* and *Phoca vitulina concolor*.

### Population status and trends

- *East Atlantic, P. vitulina vitulina*: Iceland: decreasing population trend in the period 1980 to 1990 from 45,000 to 30,000 animals, respectively. Preliminary data suggest a further decline to 25,000 in 1992 (95% confidence limits of these numbers is 4-10%, mean decline 7% p.a.). Great Britain: estimated to be at least 25,000 animals in 1991. Status unknown except for the east coast of England where there was an annual increase of 3.5% p.a. between 1969 and 1988. Following the 1988 phocid distemper epidemic, population in this region was reduced about 50% with no subsequent recovery in numbers. Britain may hold 40% of the East Atlantic population. Norway including Svalbard: based on actual counts between 1977 and 1989 population consists of a minimum of 4,100 animals, of these 500-600 are located on Svalbard. Population appears to be stable since 1964. Local reductions in numbers due to the 1988 epizootic. Sweden-Netherlands; reduced after 1988 epizootic.

- *West Atlantic, P. vitulina concolor*: Canada, south of Labrador ca. 13,000 (1979). Rare north of Labrador. Local increase at Sable Islands, otherwise decline in numbers. Greenland, unknown, probably rare.

### Management regimes

The harbour seal stocks are rather stationary within the jurisdictions, although some exchange of animals occurs within the main populations. No international management agreements have been in force in the North Atlantic, but national legislations in the countries involved have imposed some management measures for the different areas. Protected over most of its range, but small numbers taken by some countries in relation to fish farms, salmon nets, etc. Bounty catches for culling purposes in Iceland in recent years (average 1982-1991: 2,613), but in 1991 the catch was down to 358 animals (no bounties paid). Catches were taken for research purposes by Iceland in 1992. In a culling program in Norway during the period 1981-1986 1,006 harbour seals were taken. Proposal has been put forward for a general legislative protection of the Norwegian stock.

## 3. HARP SEAL (*Phoca groenlandica*)

### General distribution

Arctic and northern boreal waters of the entire North Atlantic north of Newfoundland-Iceland-North Norway-Kap Tjeljuskin (with occasional occurrence of varying intensity further south). Three well-defined whelping areas: Newfoundland (GULF/FRONT), Jan

Mayen ("Vestis") and the White Sea.

#### National interests

- *Jurisdictions (EEZs)*: West Atlantic: Canada (C), Greenland (G) (&USA); Central Atlantic: Greenland (G), Iceland (I), Norway (N); East Atlantic: Norway (N), Russia (R).
- *Exploitation*: Local, subsistence use for thousands of years in C, G, and R; large-scale, commercial exploitation at the whelping patches by C, N (for centuries) and R (decades).
- *Interactions*: Possible conflicts perceived by fishermen in many areas. Direct interaction with fishing gear and loss of catches documented in C and N; transfer of nematodes to fish with alleged economical damage to the industry, but other seal species (grey, harbour) are apparently of greater importance in this relation. The ecological role of the harp seal populations as predators or competitors to commercial fisheries is complex and not well documented.

#### Stock identity

Regular seasonal movements ("migrations") between whelping areas and (feeding) regions in Arctic waters are well documented, and extensive tagging has demonstrated that young animals cross "stock boundaries". However, the degree of exchange of adult seals from one whelping area to another is considered low, and for practical purpose the three whelping concentrations are considered separate management units.

#### Population trends and actual status

- *Northwest Atlantic*: The stock was declining during the 1950s and 1960s when the commercial catch was of the order of 250,000 p.a. After the introduction of catch quotas in 1971 (TACs around 150,000 p.a.) this decline was halted, and the stock was believed to recover during the following decade. In 1983 the annual pup production was estimated to be around 0.5 million, corresponding to a total stock size of about 2.5 million. After 1983 the annual catch in the Newfoundland area has been low (average about 50,000 p.a.), and there is circumstantial evidence that the stock is increasing, although unequivocal scientific data to demonstrate this have neither been published nor generally agreed upon.
- *Central Atlantic*: Previous periods' extensive hunt at the whelping patches around Jan Mayen has probably reduced the stock size considerably from an original high level. The annual pup production in the early 1950s has been estimated at 50,000 or more. During the 1950s and 1960s the annual take in this area (predominantly pups) was about 30,000, and there is evidence that the stock declined under this regime. Since 1971 the catch has been under quota regulation (TACs 15,000-18,000 in 1971-79), and the actual take was below that level. Although the TAC was adjusted upwards in 1980 (25,000), the catch did not increase (was very low in 1983-86), and recent catches average 6,800 p.a. (1989-92). Recent estimates of pup production are about 50,000 (range 34,000-75,000), corresponding to a stock size of 170,000-375,000, i.e. much lower than the western stock. Any trend in actual population size is **unsufficiently** documented.
- *East Atlantic*: Evidence of a stock decline under a catch regime of about 150,000 p.a. led to a limitation of the Soviet take in the mid-1950s. A bilateral Norwegian-Soviet agreement in 1958 led to a gradual reduction of the catch to a level of less than 80,000 in 1964. For 1963-69 a total quota of 34,000 p.a. was agreed, gradually increased during the following decade to 50,000 p.a. in 1977-80. Analyses by Norwegian and Soviet scientists indicated that the population was increasing at a rate of about 5-6% during this period, reaching a total stock size of 0.8-0.9 million with a pup production of about 172,000 in 1978. On this basis the total quota was gradually raised to 80,000 p.a. in 1984-87. Later, however, Soviet surveys indicated that the population increase stopped, that pup production remained stable

in the early 1980s, and dropped drastically thereafter. For this reason the total quota was reduced again to 40,000 p.a. for the years 1989 to 1992. The basic data and the scientific analyses behind the above-mentioned evaluation of the population trends and the actual status of this stock are, however, insufficiently documented, and the situation is therefore unclear.

#### Management regimes

- *Northwest Atlantic*: Regulatory measures for the hunt at the whelping patches were introduced in the early 1960s. Since 1966 assessments were done and recommendations put forward by a special working group within ICNAF, after 1979 by NAFO. Quota regulation was introduced in 1971. The last NAFO seal assessment meeting was held in January 1985. In 1986 a Royal Commission on Seal and Sealing in Canada published a comprehensive review of all aspects of exploiting harp seals in this region. This commission suggested a number of recommendations, many of which have been implemented during the following years.

- *Central and East Atlantic*: The first attempt to regulate the seal hunt around Jan Mayen was done already in the 1870s by agreements between Scottish and Norwegian sealers. Later on national rules and regulations were introduced both here and in the White Sea-Barents Sea area. Since 1958 regulatory measures were debated and proposed by a bilateral Norwegian-Soviet commission, including setting total quotas and national allocations. In 1984 an ICES working group was established to assess the stock status and give advice on the management of the Jan Mayen stock; since 1987 also for the White Sea stock.

In 1989 a Joint ICES/NAFO Working Group was established to review the state of all stocks of harp (and hooded) seals, and give advice on regulatory measures for those stocks for which requests for such advice have been forwarded.

#### 4. HOODED SEAL (*Cystophora cristata*)

##### General distribution

Arctic and northern boreal waters of the North Atlantic north of Newfoundland-Iceland-Bear Island-Spitsbergen (with occasional occurrence further south and east). Three whelping areas: Newfoundland (GULF/FRONT), southern Davis Strait and Jan Mayen ("Vestis"). Two areas of moulting concentrations known: the Denmark Strait and north of Jan Mayen, but moulting may occur in other areas of heavy pack ice in June-July.

##### National interests

- *Jurisdictions (EEZs)*: West Atlantic: Canada (C) and Greenland (G); Central and East Atlantic: Greenland (G), Iceland (I) and Norway (N).

- *Exploitation*: Local, subsistence use for thousands of years in C and G; large-scale, commercial exploitation at the whelping and moulting patches by C, N (for centuries) and Russia (R) (decades).

- *Interactions*: Possible conflicts with fisheries: Direct interaction with fishing gear and their catch not well documented. The ecological role of the hooded seal populations as predators or competitors to commercial fisheries is complex and not well documented.

##### Stock identity

Regular seasonal movements ("migrations") between whelping areas, moulting areas and Arctic waters (feeding regions) are fairly well documented; tagging has demonstrated close connection between the western whelping areas (Newfoundland and Davis Strait), the

Denmark Strait moulting area, and hunting areas in West Greenland and Southeast Greenland, whereas animals tagged at Jan Mayen have not (as yet) been reported in catches at Greenland. The degree of exchange between the western and central/eastern whelping patches is therefore considered low, and for practical purposes the two regions are considered separate management units.

#### Population trends and actual status

- *Northwest Atlantic*: There is circumstantial evidence for a population decline in this region during the early part of the 20th century. The reasons for this are not clear, but combined high catches in the Newfoundland area and in the Denmark Strait around the turn of the century may be part of the explanation. Changing climatic conditions have also been suggested as an explanation. From the mid-1960s (after the termination of the hunt in the Denmark Strait) and during the 1970s the population has apparently increased again. In 1984/85 the pup production in the Newfoundland and Davis Strait patches was estimated at about 61,000 and 19,000, respectively, corresponding to a total population of about 325,000 hooded seals. A more recent estimate of pup production, population size or trend is not available. The annual catches in the Newfoundland areas have, however, been much lower since 1983 (a few hundreds) compared to the preceding period (average 12,600 in 1966-1982; range 1,900-26,000).

- *Central/Eastern Atlantic*: Increasing catches in the Jan Mayen area during the early part of the 20th century has been interpreted as evidence of a growth in the population, perhaps even due to a partial immigration of animals from the western population. This hypothesis has not been substantiated by scientific evidence. For the following period there is evidence for a decline in the population, resulting in a reduction of a pup production from about 100,000 in the early 1950s to about 56,000 in the late 1960s. One age-structured population model using this information describes a continued decline to a low of 46,000 pups produced in 1974, followed by an increase to about 58,000 in 1985. This forward projection is, however, very much dependent on the value chosen for natural mortality rate, and that parameter is not well defined for hooded seal. Further, for this region there is a lack of a fixpoint, a point estimate of pup production or population size for at least one year, and for that reason the actual status of the stock remains uncertain. Recent catches have, however, been much lower than before 1983 (average 5,058 p.a. in 1985-92).

#### Management regimes

- *Northwest Atlantic*: Regulatory measures for the hunt at the whelping patches around Newfoundland were introduced in the early 1960s; there has never been hunting at the Davis Strait patch. Since 1966 assessments were done and recommendations put forward by a special working group within ICNAF, after 1979 within NAFO. Quota regulation was introduced in the mid-1970s. The last NAFO seal assessment meeting was held in January 1985. In 1986 a Royal Commission on Seals and Sealing in Canada published a comprehensive review of all aspects of exploiting hooded (and harp) seals in this region. This commission suggested a number of recommendations many of which have been implemented during the following years.

- *Central/East Atlantic*: The first attempt to regulate sealing around Jan Mayen was done already in the 1870s by agreements between Scottish and Norwegian sealers. Later on national rules and regulations were introduced. Since 1958 regulatory measures were debated and proposed by a bilateral Norwegian-Soviet commission, including setting total quotas and national allocations. In 1984 an ICES working group was established to assess the stock status and give an advice on the management for the Jan Mayen stock.

In 1989 a Joint ICES/NAFO Working Group was established to review the state of all stocks of hooded (and harp) seals, and give advice on regulatory measures for those stocks for which requests for such advice have been forwarded.

## 5. GREY SEAL (*Halichoerus grypus*)

### General distribution

Three distinct populations centered in the Baltic Sea, the eastern North Atlantic (British Isles, Ireland, France, coast of Norway and Kola, Russia, Faroe Islands, Iceland) and the western North Atlantic (eastern coast of Canada, USA, coast of Greenland).

### National interests

- *Jurisdictions (EEZs)*: West Atlantic: Canada (C); Central and East Atlantic: Norway (N), Iceland (I), Russia (R), Denmark (D), Sweden (S) and Great Britain (GB).
- *Exploitation*: No commercial exploitation, but local subsistence use over most of its range for thousands of years.
- *Interactions*: Some conflicts with fisheries in form of direct consumption of economically valuable fish species, interactions with fish farms and fishing gear damage (N,I,GB,F). Major cause of concern for the fishing industry due to dispersal of the seal worm to commercial fish species.

### Stock identity

Young seals occasionally move widely, adults considered stationary. West and East Atlantic populations considered distinct, exchange between geographic areas in East Atlantic may occur.

### Population trends and actual status

- *Northwest Atlantic*: Steady increase in the Canadian population size between 1966 and 1977. Further increase from about 25,000 in 1977 to 80,000-110,000 animals in 1987. Exponential increase in pup production at Sable Island between 1977 and 1989 (2,181-9,712; 12.6% increase p.a.).
- *East Atlantic*: About 40-45% of the world population breeds in British waters. The British population was estimated to be 85,100 animals at the start of the 1990 pupping season. Pup production was 25,000. This population showed an increasing trend of about 7.3% p.a. from 1989 to 1990. The Icelandic population numbered around 9,000 animals (7,500-10,000) in 1990 with an increasing pup production between 1982 and 1990, thereafter a decline. The Faroe Island population is suggested to be stable at 3-5,000 animals. In 1986 the Norwegian population was suggested to count a minimum of 3,100 animals. Including recent counts from Northern Norway, the population estimate has been adjusted to a minimum of 3,450. A minimum of 3,400 grey seals have been counted along the Murman coast of Russia (1986-1992). There was a general trend of increasing population size in northern Norway and on the Murman coast for the last 20-30 years. The Baltic population has shown a decreasing trend from less than 5,000 in 1972.

### Management regimes

The grey seal stocks are rather stationary within the jurisdictions, although some exchange of animals occurs within the three main populations. No international management agreements have been in force in the North Atlantic, but national legislations in the countries involved have invoked management measures for the different areas. In the West Atlantic, the species is protected throughout most of its range, and no systematic hunting is

permitted. Few individuals are taken by local fishermen and fish farmers in GB, F and I. In N protected, except from December to April from north of Møre. Some measures have been taken to control population size locally in N in the past years ( 784 grey seals taken in a culling programme 1980-1984) and in I an average of 1915 grey seals p.a. were taken during the period 1982-91 (partly as part of an organized bounty catch scheme). An ongoing research programme involving take of animals has been organized by I. The species is protected in R since 1958.

## 6. BEARDED SEAL (*Erignathus barbatus*)

### General distribution

Arctic waters in the entire North Atlantic north of northern Newfoundland/Labrador-South Greenland-North Iceland-Spitsbergen-Barents Sea; also found farther east in the waters north of Siberia, in the Bering, Chukchi and Okhotsk Seas, and along the north shores of Alaska and Canada. Most often found in regions with loose pack ice.

### National interests

- *Jurisdictions (EEZs)*: Canada (C), Greenland (G), Iceland (I), Norway (N), Russia (R) (- and Alaska, USA).
- *Exploitation*: Local, subsistence use in C, G and R; previous commercial exploitation in the southern and northeastern parts of the Barents Sea region by N and R was terminated in the late 1960s.
- *Interactions*: Direct conflicts with fisheries have not been documented, and the predatory role of bearded seal populations is not considered significant in relation to commercial fishery.

### Stock identity

Little is known about the existence of discrete stocks. Bearded seals do not form dense congregations during whelping which normally takes place on loose pack ice. Regular seasonal movements ("migrations") from one region to another are not undertaken, but the animals may drift or move actively over long distances. The fact that bearded seals are most often feeding in shallow water may, however, favour the formation of local herds.

### Population trends and actual status

Due to the scattered and wide distribution, bearded seals are extremely difficult to assess, and a scientifically based estimate of population size for the entire North Atlantic does not exist. For some areas crude estimates have been published, indicating that bearded seals should be counted in 100,000s. Catch figures from Canada are fragmentary. In Greenland the reported catch of bearded seals varied between 500 and 1,000 in the period 1954-83 with no obvious trend. In the Barents Sea region, fairly high catches (2,000-12,000 p.a.) were taken by Norwegian vessels in the first decades of the 20th century (in addition to Soviet catches of unknown dimensions). These catches declined during the following decades (average 210 p.a. 1966-75, and insignificant in later years). Whether this reflects a declining stock or not is unknown.

### Management regimes

Since 1970 catching of bearded seals by vessels in the White Sea and the southern and northeastern parts of the Barents Sea has been prohibited by bilateral agreement between Norway and the former Soviet Union. In the Spitsbergen area, a limited catch may be allowed, but the species is protected during breeding, and in the Svalbard nature reserves. The catch by local peoples in Arctic Canada and Greenland (also Russia ?) is not subject to



regulation.

## 7. ATLANTIC WALRUS (*Odobenus rosmarus rosmarus*)

### General distribution

Arctic between approximately 55°N and approximately 81°N, and between Bathurst Island (Canada) and the Kara Sea (Russia). Confined to coastal waters with water depths less than about 100 m.

### National interests

- *Jurisdictions (EEZs)*: Western Atlantic Arctic: Canada (C) and Greenland (G); eastern Atlantic Arctic: G, Norway (N) and Russia (R).

- *Exploitation*: Local, low-scale subsistence use has taken place for millennia in C, G, and R. Prior to the middle of the 20th Century, large scale commercial exploitation by N, R and other European countries, and to some extent by G.

- *Interactions*: Potentially, human industrial and technical (e.g. fishing) activities do or will disturb walruses and thereby have adverse impact on the populations.

### Stock identity

There are indications of existence of some sub-populations. Based on morphometrical differences, the Foxe Basin, Hudson Bay (C) and northern Baffin Bay (G) populations are believed to be separate sub-populations. Studies of mitochondrial DNA indicate that walruses in northern Baffin Bay are isolated from walruses in eastern Greenland, and perhaps also from those occurring further south in the Davis Strait - Hudson Strait region. Walruses make large scale seasonal migrations between C and G in the Baffin Bay and Davis Strait regions. Although walruses can occur all year round in NE Greenland, a connection between walruses in eastern Greenland and in Svalbard has been demonstrated. Movements of walruses with satellite transmitters indicate a close connection between walruses at Svalbard and Franz Joseph Land, respectively. Delineation of groups of Atlantic walruses occurring in the White and Barents Sea areas, and further east, is not clear.

### Stock sizes

Generally numbers in all sub-populations are poorly known. However, in many areas of the range there are indications that population size is still much below numbers prior to the large-scale commercial exploitation. Based on various surveys conducted in the 1970s and 1980s, a crude (combined) population estimate of at least 10,000 has been given for the eastern Canadian Arctic, excluding the Baffin Bay and Davis Strait regions. In Canada, Foxe Basin and northern Hudson Bay seem to have the largest concentration of walruses. Numbers of walruses in the Baffin Bay and Davis Strait region (C and G) are not known. Aerial surveys conducted in Central West Greenland in the early 1980s and 1990s, respectively, resulted in a minimum estimate of 500 animals for the group wintering in this area. A crude estimate of "some few thousand" for the number of walruses occurring in East Greenland was given in the early 1990s. In the eastern Svalbard region, a concentration of about 500 walruses was seen in 1987, and a crude estimate for the entire Svalbard area of about 1,000 walruses was presented in 1990. Very little is known about numbers of walruses in the Novaya Semlya, White Sea, Barents Sea and the Kara Sea regions. A crude estimate of a total of a few thousand animals for these areas has been given. There are indications that during the last decade or so walruses are in the process of extending their range westward in the White Sea and Barents Sea regions. During the same period,

observations of walrus along the coasts of Norway has also increased. The reason for this apparent change in distribution is obscure.

#### **Management**

- *Canada*: Walrus hunting regulations have existed since 1928. Walrus are only taken by Inuit and is regulated by a quota system (combination of individual bag limits and settlement quotas). In Canada, an annual average catch of walrus of 553 was reported between 1972 and 1985. Hunting losses are not included.

- *Greenland*: There are no quotas. The catch regulations that have existed since the early 1950s aim at reducing hunting periods in western Greenland. Catch of walrus north of Scoresby Sound (E Greenland) is prohibited. Hunting statistics are far from sufficient, but an estimate of the catch in total West Greenland of about 350 walrus (loss not included) for the last decades has been given. About 10 walrus are taken annually in East Greenland.

- *Norway*: Since 1952 the take of walrus within Norwegian territory, and by Norwegians in any territory what so ever has been prohibited.

- *Russia*: The catch of Atlantic walrus has been prohibited since 1956.

#### **Research and management needs**

- *Western Atlantic Arctic*: To ensure sustainable exploitation of walrus, accurate information of the catch (number, age and sex composition, losses) is needed for Canada, but in particular for Greenland. Because the stock of walrus in the Baffin Bay - Davis Strait region presumably are shared between Canada and Greenland, bilateral management of this stock is eminent. Research on delineation of sub-populations (satellite telemetry, primarily at Canadian haul outs; further DNA studies) and surveys to determine numbers are needed (e.g. aerial surveys during summer when the shared population presumably occurs at terrestrial haul outs in Canada).

- *Eastern Atlantic Arctic*: Studies of range, stock identities and numbers of walrus in the Novaya Semlya, White and Barent Sea regions are needed. In these areas, studies of human activities (disturbance, pollution) are also needed.

- *Management and scientific bodies*: Management of walrus is not covered by any international bodies. The Walrus International Technical and Scientific Committee (WITS) established in 1990, partially as a result of the 1987 CITES meeting in Ottawa, communicates various information between the walrus range states USA, C, G/D, N and R. The second meeting of this exclusively scientific forum, now chaired by C, takes place in Canada in January 1993.

## APPENDIX 2. LIST OF PRIORITY SPECIES: CETACEANS

### 1. BELUGAS OR WHITE WHALES (*Delphinapterus leucas*)

#### General distribution

Arctic and northern boreal waters of the North Atlantic. Especially abundant in the Davis Strait - Baffin Bay region and in the Barents Sea, Kara Sea and the White Sea. They are also found around Spitsbergen but they are rare in East Greenland waters and the Greenland Sea. Small populations exist in the Saint Lawrence River and in the eastern Hudson Strait.

#### National interests

- *Jurisdictions (EEZs)*: West Atlantic: Canada (C) and Greenland (G); Central and East Atlantic: Norway (N) and Russia (R).

- *Exploitation*: C, G, R. Subsistence use in Canada and Greenland, but internal distribution and level of exploitation resembles commercial utilization.

- *Interactions*: Possible conflict with shrimp fishery in the Davis Strait - Baffin Bay and fishery for capelin and cod in the Barents Sea. In the Saint Lawrence river and the White Sea, there is a conflict with industrial development and the seals are subjected to contaminants, especially organochlorines.

Table 1. Published data on catch of belugas by Canada, Greenland and USSR during 1974-1987.

Year	Canada	Greenland	USSR
1974	1,124	917	198
1975	971-1,119	656	165
1976	1,091	1,213	531
1977	1,293	841	765
1978	695-702	719	51
1979	884	741	279
1980	787	889	236
1981	927	1,017	-
1982	798	899	139
1983	772-774	601	221
1984	936	763	334
1985	821	611	719
1986	683-686	435	178
1987	550	696	34

Source: *Rep Int. Whal. Commn* 42: 178-234; SC/44/SM3.

#### Stock identity

West Greenland and Canadian High Arctic white whales probably belong to the same population. Stragglers from Svalbard perhaps visit East Greenland. The Barents Sea and the White Sea populations are probably shared between Norway and Russia.

#### Status

The Canada - Greenland population is estimated at 20,000-30,000 animals, but an evidence for a decline has been given. The size of the East Greenland - Svalbard population is unknown, but unlikely exceeds 10,000 animals. The Barents Sea - White Sea population is unknown, but is probably less than 30,000 animals.

#### Management regimes

The Joint Commission on Conservation and Management of Narwhal and Beluga (JCCM)

instigated by Canada and Greenland has dealt with management questions related to this species, while the Scientific Committee of the International Whaling Commission (IWC) has recently reviewed available information relevant for management. There are at present no quotas on beluga catches in the Davis Strait - Baffin Bay, but there are limitations on the size of boats involved (<50 tons) and only full time hunters are allowed to take belugas in Greenland. The JCCM recommended reductions in catches and ways of achieving this are presently being considered by the Greenland Home Rule.

## 2. NARWHALS (*Monodon monoceros*)

### General distribution

Arctic waters of the North Atlantic; Baffin Bay, Davis Strait, Lancaster Sound Region, Smith Sound, Foxe Basin, Greenland Sea, northern Barents Sea and the Polar Basin.

### National interests

- *Jurisdictions (EEZs)*: West Atlantic: Canada (C) and Greenland (G); Central and East Atlantic: Norway (N) and Russia (R).
- *Exploitation*: Subsistence use by C and G, but internal distribution and level of exploitation resembles commercial utilization.
- *Interactions*: Possible conflict with shrimp fishery in the Davis Strait - Baffin Bay by disturbance and reduced prey availability.

**Table 2. Published data on catch of narwhals by Canada and Greenland during 1975-1987.**

Year	Canada	Greenland
1975	271	278
1976	305	280
1977	255	408
1978	267	615
1979	319	395
1980	350	520
1981	406	752
1982	404	560
1983	344	492
1984	285	731
1985	314	305
1986	263	555
1987	181	713

Source: *Rep.Int.Whal.Comm* 42: 178-234.

### Stock identity

West Greenland and Canadian High Arctic narwhals probably belong to the same population, that is likely to be separated from narwhals in the Greenland Sea.

### Status

The Canada - Greenland population is estimated at 20,000-30,000. The East Greenland - Svalbard population is unknown, but unlikely exceeds the Baffin Bay - Davis Strait population.

### Management regimes

The Joint Commission on Conservation and Management of Narwhal and Beluga (JCCM) instigated by Canada and Greenland is responsible for management of the species in their waters, while the Scientific Committee of the International Whaling Commission (IWC) has

recently reviewed available information on the status of the stocks. There are at present quotas on narwhal catches in Canada. In Greenland there are only limitations on the size of boats involved (<50 tons) and only full time hunters are allowed to take narwhals. The JCCM has recommended reductions in catches and ways of achieving this is presently being considered by the Greenland Home Rule.

### 3. HARBOUR PORPOISE (*Phocoena phocoena*)

#### General distribution

The general distribution of the harbour porpoise is limited to temperate and subarctic waters of the Northern Hemisphere. The distribution is primarily coastal, and the species is frequently found in bays, rivers, estuaries and tidal channels. Recent surveys have, however, demonstrated that the species is more common in offshore waters than previously believed. In the eastern North Atlantic the harbour porpoise is found from the Kara Sea in the north to Senegal in the south. It appears to be absent from the eastern Mediterranean Sea, but an isolated population inhabits the Black Sea and the Sea of Azov. The eastern limit in the Baltic Sea appears to be the Polish coast. The species is found all around Iceland, and the southern part of Greenland (the northern limits being Angmagssalik on the east coast and Upernavik on the west coast). Along the east coast of North-America the harbour porpoise is found from the southern part of Baffin Island, south to northern Florida.

#### National interests

- *Jurisdictions (EEZs)*: Western North Atlantic: Canada (C), Greenland (G) (and USA). Central North Atlantic: G, Iceland (I), Norway (N). Eastern North Atlantic: Russia (R), N, Faroes (F) (UK, Ireland, Sweden, Denmark).

- *Exploitation*: Historical local subsistence exploitation: C, G, I, F, N. At present direct catches only in G and on a small scale in the F.

- *Interactions*: Bycatch in fisheries (mostly demersal and salmon gill nets) in C, G, I, F, and N, but numbers are usually poorly documented. Various estimates have indicated that this bycatch is substantial in many areas. Perceived as a competitor by fishermen in many areas, and may cause damage to fishing gear. Host for nematodes (herring worm), also found in commercially important fish species, but the implications for the fish industry are not well known. May suffer from habitat degradation in heavily polluted areas.

**Table 3. Published data on direct (D) and indirect (I) catches of harbour porpoise in Canada, Greenland, Iceland, Faroe Islands and Norway.**

Year	D/I	Canada	Greenland	Iceland	Faroes	Norway
1972	D		1,047			
	I					
1973	D		778			
	I					
1974	D		596			
	I					
1975	D		936			
	I					
1976	D		911			
	I					
1977	D		1,007			
	I					
1978	D		798			
	I					
1979	D		1,075			
	I					
1980	D		1,216			
	I					
1981	D		996			
	I					
1982	D		853			
	I	>317		63		
1983	D		737/900			
	I	1				
1984	D		330/651			
	I					
1985	D		746/861			
	I	x				
1986	D		836			
	I					
1987	D		608		1	
	I					3
1988	D				11	
	I	2				96
1989	D		49			
	I	91				30
1990	D				5	
	I	1		23		39
1991	D					
	I					

Sources: *Rep. int. Whal. Comm.*: National Progress reports.

### Stock identity

The available evidence indicates that there are several population units (sub-populations) on each side of the North Atlantic, but the details of stock distinctions are poorly understood. In the western North Atlantic, the seasonal pattern of strandings indicates a north-south migration pattern (Bay of Fundy-Gulf of Maine sub-population), but in the eastern North Atlantic the pattern seems to be more complicated and may be linked to variable food availability. The formerly large scale migrations in and out of the Baltic Sea apparently no longer occur.

### Population trends and actual status

- *Eastern/Central North Atlantic*: The only available long-term data series on relative abundance in this area is from British and Irish waters showing a significant decline since the 1960's. Indirect evidence also indicates some decline in the Baltic and North Seas. In this respect research into habitat requirements of harbour porpoises was pointed out as a

matter of particular importance by the Scientific Committee of the IWC in its latest review of the species. Abundance estimates have been generated for the Lofoten - Barents Sea area (10,994, CV 0.2381) and the northern North Sea (82,619, CV 0.2165). Preliminary calculations based on recent sighting surveys (NASS) indicate a stock size of some 27,000 animals around Iceland.

- *Western North Atlantic*: In the Bay of Fundy and Gulf of Maine changes in summer distribution, consistent with a decline in abundance, have been found, although confounding changes have also occurred in prey abundance. Quantitative assessment of trends in abundance has not been provided for other areas in the region. The only available abundance estimates in the western North Atlantic are from the Bay of Fundy and Gulf of Maine (45,000, 95% CI 23,000-79,000). The West Greenland population has been estimated as 10-15,000, and around 15,000 animals "are thought to be" in the area between southern Nova Scotia and North Carolina.

#### **Management regimes**

Management and conservation of this species is not regulated by any international organization, although the Bonn convention takes to some extent to it in the North Sea and Baltic waters. The species is listed in Appendix II of CITES, CMS and the Berne Convention and protected by national legislation in many countries. IUCN/SSC Cetacean Specialist Group Action Plan mentions incidental takes throughout the range as problems to be monitored.

#### **Research needs**

Although the IWC has not been directly involved in management of harbour porpoise, its Scientific Committee has reviewed available information relevant for management. The ICES Marine Mammals Committee have also discussed biological aspects of the species, particularly with reference to pollutant burden. Ongoing investigations in several countries may substantially add information on general biology of the species in near future while for management purposes substantial work is needed on stock delineation and abundance throughout the range.

### **4. WHITE-BEAKED DOLPHIN (*Lagenorhynchus albirostris*)**

#### **General distribution**

The white-beaked dolphin is confined to cold temperate and subarctic waters of the North Atlantic (including the Baltic Sea). The distribution of the species ranges from the ice edge in the north to Portugal and Cape Cod in the south.

#### **National interests**

- *Jurisdictions (EEZs)*: Western North Atlantic: Canada (C), Greenland (G), (USA). Central North Atlantic: G, Iceland (I), Norway (N). Eastern North Atlantic: Russia (R), N, Faroes (F), (UK, Ireland, Denmark, Sweden).

- *Exploitation*: Small numbers have been taken in the past for local consumption throughout the distribution area. At present few animals are probably taken each year in G, I and F.

- *Interactions*: Accidental mortality due to fishing activities is generally considered low. Possible conflict with fishing industry (in the form of damage to fishing gear, competition or nematode transfer) in C, G, I, F and N. May suffer from habitat degradation in heavily polluted areas.

#### **Stock identity**

Migration pattern and stock distinctions are unknown, but the discontinuous (coastal)

distribution pattern of the species suggests that there are a number of sub-populations within the North Atlantic.

#### Population trends and actual status

This species has never been assessed by any organization and no information is available on trends in abundance. Preliminary calculations based on the Icelandic sighting surveys (NASS-87 and -89) indicate an abundance of roughly 30,000-80,000 in the surveyed area.

#### Management regimes

While catches of White-beaked dolphins appear to be in low numbers, no international agreement takes to management and conservation of the species in most of the NAMMCO area. The species is listed in Appendix II of the CITES and the Berne Conventions. North and Baltic Seas populations are included in Appendix II of the Bonn Convention.

**Table 4. Published data on direct (D) and indirect (I) catch of Atlantic white-sided dolphins and white-beaked dolphins (in parenthesis).**

Year	D/I	Canada	Greenland	Iceland	Faroes	Norway
1972	D					
	I					
1973	D					
	I					
1974	D					
	I					
1975	D					
	I					
1976	D	(x)	1			
	I					
1977	D	(x)	34			
	I					
1978	D	(x)	1			
	I					
1979	D		8			
	I					
1980	D		11			
	I					
1981	D		5			
	I					
1982	D		1			
	I					
1983	D				10	
	I					
1984	D					
	I					
1985	D		(13)		195*	
	I					
1986	D				*	
	I					
1987	D				76	
	I					
1988	D				603	
	I					
1989	D				6	
	I	1		(1)		
1990	D				55	
	I			(4)		
1991	D					
	I					

\*: 195 animals caught in 1985 and 1986. Sources: *Rep Int. Whal. Commn* : National Progress Reports.



### Research needs

Very little research has been conducted on all aspects of this species, despite the fact that it is found in substantial numbers throughout its range. Research on basic information on vital rates, stock sizes and stock structure are lacking as well as data on feeding ecology.

## 5. ATLANTIC WHITE-SIDED DOLPHIN (*Lagenorhynchus acutus*)

### General distribution

The Atlantic white-sided dolphin is restricted to temperate and subarctic areas of the North Atlantic. On the west side the distribution ranges from the Chesapeake Bight in the south to West-Greenland in the north, and on the east side from Adriatic Sea and the Azores in the south to the southern Barents Sea in the north. This species is considered to be more pelagic than the closely related white-beaked dolphin.

### National interests

- *Jurisdictions (EEZs)* : Western North Atlantic: Canada (C), Greenland (G), (USA). Central North Atlantic: G, Iceland (I), Norway (N). Eastern North Atlantic: Russia (R), N, Faroes (F), (UK, Ireland, Denmark, Sweden).

- *Exploitation*: In the past white-sided dolphins have been taken in drive fisheries for local consumption. At present few animals are probably taken each year in G, and occasionally in F.

- *Interactions* : Some incidental take in fishing gear occurs throughout the range. Possible conflict with fishing industry (in the form of damage to fishing gear, competition or nematode transfer) in C, G, I, F and N.

### Stock identity

Migration pattern and stock distinctions are practically unknown. Judging from observations in the UK and Gulf of Maine on seasonal variation in sightings rate, it must be considered likely that the species migrates between EEZ's.

### Population trends and actual status

This species has never been assessed by any organization. Some indications have been found for an increase in abundance in the western North Atlantic during the 1970's, but information on trends in other areas is lacking. Preliminary calculations based on recent Icelandic sighting surveys (NASS-87 and -89) indicate an abundance of roughly 50,000-100,000 in the surveyed area, mainly deep southeast to southwest of Iceland.

### Management regimes

While catches of White-beaked dolphins appear to in low numbers, no international agreement takes to management and conservation of the species in most of the NAMMCO area. The species is listed in Appendix II of the CITES and the Berne Conventions. North and Baltic Seas populations are included in Appendix II of the Bonn Convention.

### Research needs

In the NAMMCO region this species is even less known than white-beaked dolphin, probably due to its wide pelagic and temperate distribution. Data on basic biological parameters, stock distinction, abundance and feeding ecology is therefore lacking.

## 6. KILLER WHALE (*Orcinus orca*)

### General distribution

Killer whales have a worldwide distribution in all waters from the tropics to both Arctic and Antarctic waters. It is found all over the North Atlantic both in coastal and oceanic waters.

### National interests

- *Jurisdictions (EEZs)*: Canada (C), Greenland (G), Iceland (I), Faroe Islands (F), Norway (N) (and UK, Ireland, Denmark).

- *Exploitation*: In this century, killer whales have been exploited by N from the early 1930s until 1981, and on a much smaller scale by G and F. The average annual Norwegian catch of killer whales from 1938 through 1981 was about 55 animals. A small live-capture fishery has been conducted by I.

Table 5. Catches of killer whales by Norway, Greenland, Faroe Islands and Iceland during 1973-1987.

Year	Catches			
	Norway	Greenland	Faroe Isl.	Iceland/*
1973	1	0		
1974	6	2		
1975	2	1		
1976	0	0		3
1977	7	11		6
1978	64	0	31	8
1979	221	0		6
1980	52	2		5
1981	13	1		6
1982	protected	1		5
1983		0	11	3
1984		5		5
1985		0		0
1986		16	protected	0
1987				4

\* Removals in connection with live-capture fisheries.

- *Interactions*: Killer whales aggregate at the coasts of Iceland and Norway during the herring seasons, and are also associated with large schools of shoaling fish species like mackerel. This might introduce a competitive element to fisheries. Killer whales have been reported as a nuisance to fisheries in I, N and F, for example by removing fish from fishing gear, scaring the fish, net-entanglements and gear damage.

### Stock identity

Unknown, but probably not many stocks in the North Atlantic in the genetical sense, although local populations may be rather isolated. Killer whales migrate possibly between EEZs. Photoidentification work has demonstrated migration over shorter distances, for example between coastal areas in Norway, but not over longer distances like between Norway and Iceland.

### Abundance

Precise estimates of abundance are not available, but photoidentification work and recent sightings surveys indicate that the abundance of killer whales in the northeast Atlantic is in the order of 5,000 - 10,000 animals. An estimate of 6,600 animals is given for Icelandic and Faroese waters; 3,100 for the Norwegian Sea-Lofoten area, both estimates with large confidence limits. Around 1,000 killer whales are thought to reside on the Norwegian coast during autumn and winter.

### Status

No assessments are available for this species in the North Atlantic Ocean. The past level of harvest may have affected some local herds of the total stock, while the overall impact may not have been serious. No indication of trends in the stock are available, although major fluctuations in some of the principle prey species (such as herring and capelin) may have had impact on the stock trends.

### Research needs

Clarification of population structure, migrations and interactions with fisheries need further studies for management/conservation of the species in this area, although some progress has been made in recent years.

### Management regimes

The biology of this species has been reviewed by the IWC Scientific Committee, that recommended in 1980 the classification of the stock as Sustained Management stock with an annual catch limit of 52 for Norway, pending assessment. However, IWC did not make recommendation with respect to this stock, while Norway voluntarily set national catch limit of 52 animals in 1980 and no catches were permitted after the 1981 season.

## 7. LONG-FINNED PILOT WHALE (*Globicephala melas*)

### General distribution

The North Atlantic Sightings Surveys (NASS) from 1987 and 1989 have shown concentrations of pilot whales, especially from 2-40°W and 45-65°N. Only few records were made in the Norwegian survey area. The pilot whale is shown to be commonly distributed in the western basin of the Mediterranean Sea, and commonly seen in the Gibraltar Strait and off Spain. In the western part of the North Atlantic, the long-finned pilot whale occurs from New Jersey and Cape Cod in the south, and from Newfoundland and north to latitude 66°N off West Greenland.

### National interests

- *Jurisdictions (EEZs)*: Canada (C), Greenland (G), Iceland (I), Faroe Islands (F), Norway (N) (and UK, Ireland, Denmark).

- *Exploitation*: Previously, pilot whales were taken in all Norse areas of settlement, including Norway, Iceland, Shetland and the Orkney Islands. Until 1972, the pilot whale was still taken off Newfoundland. Today, a few pilot whales are taken in Greenland, but are otherwise only exploited by the Faroe Islands.

In the Faroe Islands, pilot whales have been harvested since the earliest days of Norse settlement. Catch statistics date back to 1584, and are unbroken from 1709 to the present. During the period 1709-1992, a total of 1,697 pods were harvested, with a total of 240,721 whales. The catch statistics show a periodical occurrence of whales with peaks every 110-120 years, i.e. around 1720, 1835-1845, and 1940-1960, respectively. The entire catch statistics, including all available details, are held at the Faroese Museum of Natural History in Tórshavn.

- *Interactions*: The main diet of the long-finned pilot whale is squid and nothing is known about the interaction with commercial fishery. Significant incidental takes occur in the western North Atlantic mackerel fishery (141 in 1988 in the US EEZ).

### Stock identity

Based on morphometric analyses, the long-finned pilot whales that occur in the eastern and western parts of the North Atlantic seem to represent two different stocks, separated by the

Irminger Current. No connection has yet been established between pilot whales occurring around Newfoundland in the summertime and the pilot whales which occur year-round around the Faroes (ICES 1991).

#### **Stock size and status**

The NASS-87 survey area was bounded by Spitzbergen and the Barents Sea in the north, the Spanish coast in the south, West Greenland in the west and the Norwegian coast in the east, while NASS-89 examined the area between 50-65°N and 06-45°W. Based on the NASS-87 Faroese-Icelandic data, around 100,000 animals were in the survey area. Based on both NASS-87 and NASS-89 (combined Icelandic/Faroese/Spanish data), an estimate of 600,000-800,000 animals has been calculated for the area north of 50°N.

There are no updated estimates from the other areas in the North Atlantic. However, there is an estimate of about 60,000 animals as the initial population in Newfoundland waters, and about 13,000 animals from an aerial line-transect surveys from the Newfoundland - Labrador area.

There is no indication that the Faroese whale fishery has had any detectable influence on the stock size of pilot whales occurring in the Faroese area. The observed periodicity in the occurrence of whales in the Faroese area is significantly correlated with the occurrence of the main prey (squid), the presence of which is supposed to be related to variations in the ocean currents. A central and eastern North Atlantic population size of 600,000-800,000 was accepted by the IWC Scientific Committee in 1992, while a study Group established by ICES and scheduled to meet in late 1993 will attempt an assessment of the species in the region.

#### **Management regimes**

The North Atlantic and Baltic populations are listed in Appendix II of CMS and the Berne Convention. No other international legislation or management agreements refer to this species, although some member states to the IWC claim that management of this species is within the competence of the 1946 International Convention for the Regulation of Whaling. The IWC Scientific Committee has recently reviewed information relevant for management of the species and a designated ICES Study Group has been established.

#### **Research**

An international team has recently (1986-1988) examined the long-finned pilot whale off the Faroe Islands. The major results of this research will be published in a special issue (no 14) by the IWC, due to appear in spring 1993. Through these studies, many aspects of the biology of the long-finned pilot whale off the Faroe Islands today are well known, but some aspects of the material from the 1986-88 project are still being treated. Some further studies (cooperation between the Faroe Islands and the National Marine Fisheries Service, Woods Hole, USA) are already in progress, including the following:

1. School composition and structure
2. The position of the long-finned pilot whale in the North Atlantic ecosystem.

Table 6. Catches of long-finned pilot whales in the North Atlantic in the period 1970-1992.

Year	Faroe Islands	Greenland	France/Italy /UK	USA/Canada	Norway
1970	388	9		156	43
1971	1015				..
1972	511				
1973	1050	1			
1974	673	14			
1975	1086	106			
1976	531	51			
1977	898	136			
1978	1195	101			
1979	1673	50		5	
1980	2775	6		3	
1981	2973	1	1	>40	
1982	2652	1	>1		
1983	1689		3		
1984	1921				
1985	2580	26		20	
1986	1677	9	1	?	
1987	1451		3	?	
1988	1690		15	7	
1989	1258			?	
1990	916			?	
1991	720			?	
1992	1572			?	

## 8. NORTHERN BOTTLENOSE WHALE (*Hyperoodon ampullatus*)

### General distribution:

The northern bottlenose whale is widely distributed across the North Atlantic with concentrations west and east of Iceland and west of the Faroes.

### National interests

- *Jurisdictions (EEZs)*: Canada (C), Greenland (G), Iceland (I), Faroe Islands (F), Norway (N) (and UK, Ireland, Denmark).

- *Exploitation*: The most significant exploitation of the bottlenose whale was conducted by N until 1978, when this species was classified by the IWC as a Protected Stock (PS). In peak years, annual catches were close to 700 whales (1965).

In Canada, all commercial whaling was prohibited in 1972. Greenland has a very sporadic catch of 1-2 animals over a 10-year period.

In Faroe Islands, northern bottlenose whales have been harvested for as long as the long-finned pilot whale. Catch statistics, dating back to 1584, are available for this species. The total catch from 1584 until today is 643 whales, with the maximum (23 whales) in the year of 1888. Nearly 80% of the catch has occurred in two villages in the southern part of the country and the catch shows the same long-term periodicity and seasonality as that of the long-finned pilot whale. The records of the entire catch statistics are held at the Faroese Museum of Natural History in Tórshavn.

Table 7. Catches of bottlenose whales in the North Atlantic in the period 1970-1992.

Year	Faroe Islands	Norway	Canada
1970	1	535	
1971		213	129
1972		17	
1973		3	
1974	4		
1975			
1976			
1977			
1978	2		
1979			
1980			
1981	3		
1982	2		
1983			
1984			
1985			
1986			
1987			
1988	3		
1989	2		
1990			
1991			
1992			

**- Interactions:**

The main diet of the long-finned pilot whale is squid and nothing is known about the interactions with commercial fisheries.

**Stock identity**

Unknown, but migrates between EEZs.

**Stock sizes**

The NASS-87 examinations give a rough population estimate of some 40,000 animals in the northeastern part of the area of interest to this report. NASS-89 observed more bottlenose whales in the area between 50-65°N and 06-45°W, but the analysis of the data is not complete.

**Status and Assessment**

The bottlenose whale has not been assessed since 1970 (by IWC), but there was some dispute as to whether the stock was depleted or not, while it was classified as PS by the IWC. Estimates of abundance (NASS-87) indicate substantial numbers between Greenland, Iceland, Jan Mayen and the Faroe Islands, particularly in the area northeast and east of Iceland towards Jan Mayen. Sightings from 1979-1988 show large numbers west of Iceland, and NASS-89 has shown more bottlenose whales south of Iceland.

**Management regimes**

As with other small/medium sized cetaceans, it is a matter of major dispute within IWC as to whether the IWC has management competence over this species, although the Commission has given it a provisional protected status in the North Atlantic. The species is listed in CITES Appendix I and Appendix II of CMS and the Berne Convention.

**Research needs**

In the IWC annual report of 1977 (p. 481) sightings surveys in particular were recommended, and this has been updated by the NASS programmes, although the data from NASS-89 are still not fully analysed. The school size is known from surveys and Faroese catches to be 1-8, with an average of 3.1 from surveys and 2.4 from the catches. But little is

known about the school structure and interaction between schools, nor about the migration of individuals and schools. Such knowledge would be important when reviewing the questions of whether there is one or possibly several stocks, and whether the PS-status of the stock is appropriate.

## 9. MINKE WHALE (*Balaenoptera acutorostrata*)

### General distribution

Cosmopolitan in polar, temperate and tropical waters. It is found all over the North Atlantic, but usually the highest densities are found in coastal zones. Extensive seasonal migrations between summer feeding areas in the north and wintering areas at southern latitudes.

### National interests

- *Jurisdictions (EEZs)*: Canada (C), Greenland (G), Iceland (I), Norway (N), Russia (R) (and UK, Ireland, Sweden and Denmark).

- *Exploitation*: Exploited since early this century by C (until 1972), G, I (until 1985) and N (research takes from 1988).

Table 8. \*\*Catch statistics for minke whales in the North Atlantic 1973-1992.

Year	West of Cape Farewell	Central	Northeastern
1973	508	377	1832
1974	470	252	1420
1975	324	401	1430
1976	378	285	1889
1977	360	195	1699
1978	279	308	1383
1979	359	284	1786
1980	340	318	1807
1981	265	246	1771
1982	316	321	1782
1983	364	289	1688
1984	313	285	630
1985	282	236	634
1986	145	52	329
1987	86	54	323
1988	109	10	29*
1989	63	10	17*
1990	89	6	5*
1991	.	.	0
1992	.	.	95*

\* Scientific catches. \*\* Based on *Rep. int. Whal. Commn* 42:250

- *Interactions*: There are a few reports of net entanglements (C,I,N); competitive interactions with fisheries yet to be demonstrated.

### Stock identity

Recent genetic analyses have contributed to the understanding of North Atlantic minke whale stock structure but not entirely resolved the question. It seems as there occur at least three biological stocks in the North Atlantic: (i) one stock west of Cape Farewell, (ii) a central East Greenland/Iceland/ Jan Mayen stock, and (iii) a northeastern stock. This is a highly migratory species which will visit the EEZs of many countries during their seasonal feeding migrations.

### **Abundance**

Based on recent sightings surveys, the estimate for the central stock area is 28,000 (21,600-31,400) animals, and for the northeastern stock 86,700 (60,700- 117,000) animals. No estimate is available for the stock west of Cape Farewell.

### **Status and assessments**

Minke whales in the North Atlantic were assessed ("comprehensively") by the IWC Scientific Committee in 1990. The development of a Revised Management Procedure for minke whales in the North Atlantic is now completed by the IWC Scientific Committee, but has yet to be implemented by the Commission. Well over 100,000 minke whales have been caught in the North Atlantic the last 50 years or so. It seems clear that the North Atlantic stocks can still sustain significant catches. However, calculations of the actual catch limits depend on both the management objectives and the underlying assumptions in the population/management models used, and remain to be completed.

### **Management regimes**

Minke whales have been regulated by IWC and catch limits set for the stock areas since the late 1970s. The catches by Greenland from the stock at West Greenland (average 1976-85: 234) have been regulated by the IWC aboriginal/subsistence management scheme (catch limit 190 animals for the two year period 1990-91). The same applies to the East Greenland catches taken from the central stock area (average 1976-85: 4; catch limit of 12 animals p.a. for the period 1990-92). The remaining catches by Norway at West Greenland (average: 80); by Norway in the central stock area (E Greenland and Jan Mayen waters, average: 92) and by Iceland in the central area (coastal Icelandic, average: 193), and Norwegian catches taken from the northeastern stock (average: 1506) have been regulated under the New Management Procedure introduced in the mid-1970s. Norway and Iceland are not bound by the zero catch limit imposed by IWC in 1986 (still in effect); Norway due to its formal protest against that decision in 1982; Iceland due to its withdrawal from the IWC in 1992.

### **Research needs**

Further studies on stock structure and migration are needed as well as information on the ecological role of the species in coastal/offshore waters of NAMMCO member countries.



## North Atlantic Marine Mammal Commission

### MANAGEMENT COMMITTEE

Report of First Meeting  
Tromsø, January 19, 1993

The Management Committee was established, with representatives present from all Member countries. The Chairman of the Council of NAMMCO was elected as Interim Chairman of the Management Committee.

The Management Committee decided not to propose any specific measures for conservation and management at its first meeting.

The Management Committee decided to recommend to the Council that the Scientific Committee provide the following advice:

1. - to assess the impact of marine mammals on the marine ecosystem, with special emphasis on the availability of economically important fish species;
2. - 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.

This question could be addressed in parallel ways. Firstly, stock specific working groups could be established. Secondly, a working group on management procedures could also be established. This latter working group would consist of specialists in areas such as population dynamics and management models, as well as biologists with relevant knowledge of the species in question.

The Management Committee envisages that the Scientific Committee establish a working group on management procedures. The need for specific stock working groups, on the other hand, would depend on the way the Scientific Committee considered it best to address points 3-7 below.

#### 3. Pilot whale

- to analyze 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 utilization;

#### 4. Northern bottlenose whale

- to undertake an assessment of the status of the northern bottlenose whale (Hyperoodon ampullatus) stock in the North Atlantic;

5. Harp and hooded seals

- 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;

6. Atlantic walrus

- 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 (ie disturbance, pollution), and changes in the food supply;

7. Killer whale

- 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.

Greenland also indicated a long-term interest in the following species:

harbour seal, harbour porpoise, beluga and narwhal.

Greenland agreed to circulate to all Members a Draft Rules of Procedure for the Management Committee, which would in particular address the questions of chairmanship, observers and meeting arrangements.

**North Atlantic Marine Mammal Commission****- NAMMCO -**

Second Meeting of the Council  
Tromsø 19-20 January, 1993

**- PRESS RELEASE -****NAMMCO - "Up and Running"**

The Council of the North Atlantic Marine Mammal Commission met for the second time in Tromsø, Norway, January 19-20, 1993. The agreement on which the Commission is based has as its objective to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic. The inaugural meeting of the Council took place in Tórshavn, Faroe Islands in September, 1992.

The second meeting was attended by delegations from the member countries - the Faroe Islands, Greenland, Iceland and Norway. Observers from Canada, Denmark, Japan, Russia and from the International Whaling Commission (IWC), the International Council for the Exploration of the Sea (ICES), and the Northwest Atlantic Fisheries Organization (NAFO) were present. Observers from a number of non-governmental organizations also attended.

The Scientific Committee of NAMMCO was formally established and it elected as its Chairman Jóhann Sigurjónsson from Iceland.

The Council agreed to establish a general Management Committee, which held its first meeting during proceedings in Tromsø. Work in the Committee got underway immediately, and requests to the Scientific Committee for advice and assessments were presented to the Council. These included requests for advice on the impact of marine mammals on the marine ecosystem as well as assessments and management advice on pilot whales, northern bottlenose whales, harp and hooded seals, killer whales and Atlantic walrus. The Management Committee also agreed to include in its future work the beluga, narwhal, harbour porpoise and harbour seal.

Initial discussions on environmental issues such as oil and radioactive pollution in the sea were taken up in the Council and it was decided to keep this item on the agenda for future meetings.

Hunting methods were reviewed and will be kept as a priority item.

Chairman of the Council, Kjartan Hoydal from the Faroe Islands, expressed his satisfaction with the progress made in establishing all important functions of the organization so quickly. "As soon as the posts in the Secretariat have been filled, NAMMCO will be a fully operative conservation and management organization," said Kjartan Hoydal.

- end -