

CONSERVATION OF ARCTIC FLORA AND FAUNA

CAFF

REPORT TO SENIOR ARCTIC AFFAIRS OFFICIALS

of the
Arctic Environmental Protection Strategy

ALTA

June 1997

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FOREWORD

On behalf of the Program for the Conservation of Arctic Flora and Fauna (CAFF), I am pleased to provide this progress report to the Senior Arctic Affairs Officials (SAAOs) in preparation for the fourth Ministerial Conference of the Arctic Environmental Protection Strategy. It is our hope that the Report and its recommendations will meet with your approval and be taken into consideration when advising the Ministers on matters of conservation and sustainable use. ___

The Report is in two Sections - Program Review and Future Considerations

*The **Program Review** section focuses on headway made by CAFF since the third AEPS Ministerial Conference in Inuvik (March 1996). Special attention is drawn to the following:*

- *In response to Ministerial request at Inuvik, the **Co-operative Strategy for Conservation of Biological Diversity in the Arctic Region** is now ready for adoption.*
- *A special progress report is submitted on the implementation of the Circumpolar Protected Areas Network (CPAN) Strategy, **CPAN Progress Report 1997**.*
- *A progress report on implementation of the **Circumpolar Murre Conservation Strategy and Action Plan** is provided as a part of this report.*
- *Responding to Ministerial request for additional conservation strategies for species of circumpolar conservation concern, CAFF has now completed a **Circumpolar Eider Conservation Strategy and Action Plan** which awaits endorsement.*
- *Last but not least, CAFF is submitting to the Ministers the fruit of several years of collaboration among Arctic botanists, the **Atlas of Rare Endemic Vascular Plants of the Arctic**.*

*The section on **Future Considerations**, provides our preliminary thoughts and recommendations about the future role and priorities of the Program within the Arctic Council, stemming inter alia from an ongoing analytical exercise to evaluate all elements of the Program.*

Once the Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region has been adopted, CAFF proposes to organise its work in accordance with the Strategy, and with the conservation and sustainable use provisions of the Convention on Biological Diversity, on which it is based. We foresee for example more effort devoted to activities outside protected areas and to monitoring biological diversity from a circumpolar perspective, in order to detect long term trends and gather needed scientific data on which to base sound conservation advice and support sound stewardship of the living resources and ecosystems of the Arctic.

As we move forward to the Arctic Council, I would also like to take this opportunity to express our sincere thanks and appreciation for the guidance which you, as the Senior Arctic Affairs Officials of the AEPS, have given to CAFF over the years.

*Peter Nielsen
Chair, CAFF*

June 1997

EXECUTIVE SUMMARY

In the Foreword, Peter Nielsen, Chair of CAFF, asks the Senior Arctic Affairs Officials (SAAOs) to accept the CAFF Report and recommendations, informs them of the documents being presented by CAFF and proposes that CAFF's future work be organised according to CAFF's *Co-operative Strategy on the Conservation of Biological Diversity in the Arctic Region*, which is based on the conservation and sustainable use provisions of the Convention of Biological Diversity. He explains that CAFF is carrying out an evaluation of its program activities and structure and concludes by thanking the SAAOs for their guidance over the years.

The CAFF Report is in two parts - Section I (Program Review) and Section II (Future Considerations).

SECTION I - PROGRAM REVIEW - PROGRESS SINCE INUVIK

The Section begins with a summary of Ministerial Priorities for CAFF established by the Ministers at Inuvik - implementing the CPAN Strategy and Action Plan and the International Murre Conservation Strategy and Action Plan and completing an Arctic Strategy for Conservation of Biological Diversity, and goes on to report on CAFF's work under the headings of Habitat Conservation, Species Conservation, Conservation of Biological Diversity, Integration of Indigenous Peoples and their Knowledge and Program Management.

Habitat Conservation.

CPAN Implementation: Most countries are making slow but steady progress in implementing CPAN; the number of Protected Areas in the Arctic has increased by 9 to bring the number to 294. Further CPAN activities are: Russia is preparing a reporting, evaluation and assessment framework; Canada is developing a discussion paper on protection of marine ecosystems and Russia, the Netherlands and the Bonn Convention Secretariat are collaborating on a discussion paper on gaps in conservation measures for Arctic migrants when outside the Arctic.

Circumpolar Arctic Vegetation Mapping Project:(CAVM): A cloud and snow free satellite image of the Arctic and a vegetation greenness map are now completed. The final circumpolar synthesis, to be reflected in a new circumpolar vegetation map, will be completed by the year 2001.

Species Conservation.

Flora: The *Atlas of Rare Endemic Arctic Vascular Plants of the Arctic* is now complete. It contains an annotated list with distribution maps of approximately one hundred species. The maps confirm that the majority of these are still not formally protected.

Fauna: Five of the seven countries implementing the *International Murre Conservation Strategy and Action Plan* have begun work on their five-year national implementation plans and most have identified their national implementation priorities. The *murre colony database* will be completed in 1997. A draft *circumpolar monitoring plan for murre*s has been developed by the United States and it will be completed in 1997. Murre banding recovery data is being summarised and a *banding program for the North Atlantic* will be completed in 1997. The *Circumpolar Eider conservation Strategy and Action Plan* has been finalised by the Circumpolar Seabird Working Group (CSWG) and is ready for endorsement by the SAAOs and Ministers. The reports on *Incidental Take of Seabirds in the Arctic and Human Disturbance at Arctic Seabird Colonies* will be completed and presented to the SAAOs in 1997 and published as CAFF Technical Reports

Conservation of Biological Diversity: Under the leadership of Finland, CAFF finalised its *Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region*, being presented to Ministers for adoption. It is intended to serve as a framework for future CAFF conservation activities. Work on the report on *Threats to Arctic Biological Diversity*, also led by Finland, is well underway and will be submitted to Ministers in 1998. CAFF has recommended that the AEPS launch a broad-based initiative to study threats to the Arctic environment and recommend mitigating measures.

Integration of Indigenous Peoples and Their Knowledge: As a follow-up to the *Indigenous Knowledge Mapping Project on the Beluga Whale*, there was a seminar on integrating Traditional Ecological Knowledge. The *Seminar Recommendations* were provided to CAFF and are now being presented to the SAAOs for AEPS-wide consideration. The *Report on Co-Management* is complete and provides a source of information about the structure, strengths and weaknesses of co-management systems.

Program Management and Organisation: According to CAFF's rotational system, P. Nielsen took on the job of Chair and G. McKeating the job of Vice-Chair. The *CAFF International Working Group* held its annual meeting (CAFF V) in Finland and the *CAFF Management Board*, along with Permanent Participant representatives met three times over the year. The *CAFF Secretariat* relocated from Canada to Iceland and S. Baldursson, of Iceland, became the new Executive Secretary. CAFF now has two operational *sub-groups*, the Circumpolar Seabird Working Group and an ad hoc Analytical Group charged with reviewing and evaluating the CAFF program and structure. The *Permanent Participants* have attended CAFF meetings and contributed to project work in several ways. In *AEPS collaboration*, CAFF has proposed to AMAP that the two programs jointly investigate the feasibility of establishing a circumpolar monitoring network for biodiversity and contaminants. CAFF continues its collaboration with *observers* and several are actively contributing to CAFF's Work Plan. However, countries hold divergent views on collaboration with observers and CAFF has recommended that the SAAOs/SAOs provide clear guidelines on this issue. CAFF has maintained its website (<http://www.grida.no/caff>) and continues to produce the CAFF Newsletter and Circumpolar Seabird Bulletin. *CAFF's Resources* come through voluntary contributions and are directed either at its program activities or at the Secretariat which is funded on a cost-sharing arrangement.

SECTION II: FUTURE CONSIDERATIONS

CAFF is bringing three *concerns and challenges* to the SAAOs/SAOs attention: its future role within the *Arctic Council*, and the implications for conservation in the Council structure; its program review and evaluation activities to provide clear *program focus*; and its continuing need for *program resources and support*.

The Report makes three specific *recommendations* on the future of the program and its work. First of all, it recommends that CAFF's *role in the Arctic Council* be to continue in its role to conserve Arctic flora, fauna, their diversity and their habitats and that it be the expert scientific body for provision of biological data and *advice for sustainable use of natural living resources*. CAFF also recommends *adoption of the Co-operative Strategy* referenced above and that it be considered as an overall conservation framework for CAFF and that the SAAOs and Ministers accept its identification of five priority areas as a focus for CAFF work (conserve genetic resources, species and their habitats; conservation outside protected areas; integration of biodiversity conservation and sustainable use objectives into sectoral plans and policies; protected areas and monitoring of biological diversity.)

CAFF proposes a process to determine its *future scientific activities* as well as a time schedule and milestones for CAFF's analytical work to culminate with Ministerial endorsement of CAFF's program review and recommendations in 1998. The proposed process would see CAFF's Annual Work Plans flowing out of a long term CAFF Action Plan developed to implement the Co-operative Strategy for Conservation of Biological diversity in the Arctic Region. All would be based on the CAFF AEPS mandate.

The Report concludes with a section on *financial implications* in which CAFF again points out the general need to strengthen the resource base of CAFF and the necessity for countries to provide adequate funds to meet their program commitments. The Report also notes that the financial and staff base of the *CAFF Secretariat* needs to be strengthened to take on a more proactive role in external liaison and fund raising and in light of CAFF's proposed role within the Arctic Council

SECTION I: PROGRAM REVIEW - PROGRESS SINCE INUVIK

INTRODUCTION

CAFF has reported twice to the AEPS Ministers, at Nuuk (1993) and at Inuvik (1996). At each of these meetings the Ministers provided CAFF with specific directions. At Nuuk (1993) the program areas emphasised were: habitat conservation; species conservation within an ecosystem approach; co-operative implementation of the conservation measures of the Convention on Biological Diversity (CBD); and further integration of Indigenous Peoples and their knowledge into the work of CAFF.

At Inuvik (1996), the Ministers agreed with the CAFF evaluation that major gaps remained both in knowledge and conservation efforts. They directed CAFF to continue and/or complete program work undertaken in 1992-96 and as a priority to:

- Continue the development of the Circumpolar Protected Areas Network (CPAN) and assist countries with the implementation of the *CPAN Strategy and Action Plan*.
- Assist countries with the implementation of the *International Murre Conservation Strategy and Action Plan*.
- Complete an Arctic Strategy relating to the goals of the CBD.

CAFF's program activities, as specified in the annual work plans, have been grouped under five headings: Habitat Conservation; Species Conservation; Conservation of Biological Diversity; Integration of Indigenous Peoples and their Knowledge; and Program Management. This grouping is maintained in the present review for the sake of clarity.

In addition to reporting on the priority tasks identified above, this review section focuses on projects which have shown substantial progress since Inuvik and those for which final products have been delivered or are anticipated this year.

1.1 HABITAT CONSERVATION

1.1.1 The Circumpolar Protected Areas Network (CPAN)

The Circumpolar Protected Areas Network (CPAN) is designed to help protect habitats, species and ecosystems in the Arctic region. Its goal is:

“to facilitate implementation of initiatives to establish, within the context of an overall Arctic habitat conservation strategy, an adequate and well managed network of protected areas that has a high probability of maintaining the dynamic biological diversity of the Arctic region in perpetuity.”

The CPAN Strategy relies on a series of reports completed by CAFF¹ to provide the background information for actions to be taken by CAFF countries both individually and co-operatively.

CPAN Implementation. Action item 16 of the CPAN Strategy and Action Plan calls for Annual Progress Reports from the countries. The Countries have delivered their reports² which

¹ See Appendix III for published reports in the CAFF Habitat Conservation Report series

² These progress reports are preliminary since the CPAN reporting and evaluation *Framework* is under preparation.

have now been processed and compiled into CAFF Habitat Conservation Report No. 7 - *Circumpolar Protected Areas Network - Progress Report 1997*.

The national reports show that most countries are making slow but steady progress in implementing the provisions of CPAN. The countries are satisfied with their own mechanisms for designating and managing protected areas which they see as fully consistent with CPAN's Principles and Guidelines. The reports further show that there are nine new protected areas in the Arctic, bringing the total number to 294 and the percentage under protection to 14.9% (Table 1).

Table 1³. Protected areas in the Arctic - by country as of 1997 (includes areas qualified for inclusion in the United Nations List of Protected Areas)

Country	No of areas established in 1996-97	Size (km ²) of areas established in 1996-97	Total no. of areas	Total size (km ²) of areas	% of Arctic in protected areas
Canada	2	27,815	48	462,674	8.8
Finland			52	25,905	32.6
Greenland/Denmark			14	993,023	45.7
Iceland	1	5.4	26	12,165	11.8
Norway			38	41,637	25.5
Russia	5	76,157	31	313,818	4.9
Sweden	1	725	44	20,348	21.4
USA (Alaska)			41	331,425	56.1
Total	9	104,702	294	2,201,001	14.9

Further development of CPAN. Several further CPAN related activities are underway. These include:

- Russia is drafting a framework for the future reporting, evaluation and assessment of CPAN
- Canada is leading the development of a discussion paper, "Protection and Maintenance of Marine Ecosystems in the Circumpolar Arctic", describing the existing jurisdictional responsibilities and protection mechanisms with respect to marine ecosystems. This work will provide a basis for future circumpolar efforts pertaining to marine protected areas.
- Russia in co-operation with The Netherlands and the Bonn Convention Secretariat has been developing a discussion paper on the gaps in available conservation measures for Arctic species during the time they spend outside the Arctic. As an initial step, the countries are concentrating on migratory birds and Wetlands International has been contracted to write the initial draft. The discussion paper will review a whole range of international instruments (both bilateral and multilateral, legally binding and voluntary) relating to the conservation of migratory birds and their habitats.

Reports on these activities are anticipated by CAFF VI in Nuuk, September 1997.

1.1.2 The Circumpolar Arctic Vegetation Mapping Project (CAVM)

³ Updated from *Habitat Conservation Report No 2: Proposed Protected Areas in the Circumpolar Arctic* 1996 (Table 2.1, p. 13)

A new circumpolar vegetation map is needed and important for uses related to future changes in climate and vegetation, planning for parks and protected areas, land-use planning, and education.

The CAVM project confines itself to the “region north of the Arctic tree-line” which simplified the creation of legend for the maps and keeps the project within manageable constraints. Expansion to areas south of the tree-line is expected to be relatively straight forward once the Arctic tundra and desert have been mapped.

Three products are anticipated at a scale of 1:7,500,000, a scale at which the entire circumpolar Arctic can be displayed on a single 100 cm x 100 cm map sheet:

- A photo quality cloud and snow free false colour infrared AVHRR (Advanced Very High Resolution Radiometer) satellite image of the Arctic.
- A map of the relative vegetation greenness as portrayed by the maximum NDVI (Normalised Difference Vegetation Index).
- A geo-botanical database and derived vegetation maps of the Arctic tundra and polar desert.

The first two products will be displayed as posters at the 4th Ministerial Conference in Alta. They have been prepared by the U.S. Geological Survey Earth Resources Observation System (EROS) Alaska Field Office in Anchorage.

A major milestone towards the completion of the third item was reached at the project's second workshop in Arendal in May 1996, where a legend for the database and the final vegetation map was developed and agreed upon. The database will consist of an integrated map coded with landscape and vegetation information.

Schedule of products. According to a schedule developed at the Arendal Workshop, regional draft maps are to be completed in 1998, the continental syntheses in 1999, and the circumpolar synthesis, the final Circumpolar Arctic Vegetation Map, by the year 2001.

1.2 SPECIES CONSERVATION

FLORA

1.2.1 The Atlas of Rare Endemic Vascular Plants of the Arctic

During the next few decades the circumpolar Arctic will be strongly influenced by many environmental forces from outside and within the region, which could dramatically alter its ecosystems. This calls for a new assessment of rare Arctic plant species which, aside from their intrinsic and aesthetic value, provide insights into the evolutionary history of Arctic ecosystems and communities. In addition, they may provide potential benefits such as nutrients and drugs to Arctic inhabitants and mankind and are potential environmental indicators. Annotated lists of rare plants also will play an essential role in the recognition and delimitation of ecosystems that need conservation.

At the inaugural meeting of CAFF in Ottawa 1992, the countries agreed that one of the priority issues should be a compilation of lists of rare, vulnerable and endangered flora of the Arctic. A decision was subsequently taken to focus the attention on rare endemic vascular plants. This work has now resulted in the *Atlas of Rare Endemic Arctic Vascular Plants of the Arctic* (CAFF Technical Report No 1) which represents a major feat of collaboration and

harmonisation among Arctic botanists. The Atlas contains an annotated list with distribution maps of approximately 100 species. The final selection of species was based on (1) an ecological description of the Arctic as the “region north of the Arctic tree-line”, (2) a concept of rarity based on the two highest Global Element Ranks (Categories)⁴, and (3) certain taxonomic considerations.

The Atlas also includes collective distribution maps of the rare plant species superimposed on maps of protected areas in the Arctic. These maps confirm that the majority of these rarest elements of the Arctic flora still do not enjoy any formal protection, a situation of continuing great concern to CAFF and CPAN.

FAUNA

Since Inuvik, a major effort has continued to be directed at seabird conservation activities under the auspices of the CAFF Circumpolar Seabird Working Group (CSWG), chaired by the United States. The CSWG initially selected two groups of seabirds for circumpolar conservation efforts - the murres or guillemots and the eiders. Both groups have shown alarming population declines in various parts of their range. At Inuvik (1996), the AEPS Ministers endorsed the *International Murre Conservation Strategy and Action Plan* and acknowledged the future need for additional conservation strategies for species of circumpolar concern.

1.2.2 Implementation of the International Murre Conservation Strategy and Action Plan (IMCS)

In accordance with the directive of the AEPS Ministers and the 1996-97 CAFF Annual Work Plan, each of the seven countries implementing the IMCS was to complete in 1997, a five-year implementation action plan with the CSWG co-ordinating the implementation process and reporting annually on progress. (*Note: Sweden has chosen not to be involved in the IMCS*).

The IMCS includes 31 specific action items in the context of the following six objectives:

- To ensure that consumptive use of murres is managed to be sustainable.
- To ensure that non-consumptive use of murres is sustainable and takes place with due consideration for conservation requirements.
- To minimise the deleterious effects on murre populations and their habitats from commercial activities and industries in coastal and marine areas, such as shipping and commercial fishing.
- To ensure that murre habitat identification, protection and enhancement measures are undertaken to ensure that the quality and quantity of murre habitat is maintained or restored.
- To implement communications and education programs to ensure public support for protecting murre populations and their habitats.

⁴ G1(Category 1) - Critically imperilled because of extreme rarity (five or fewer occurrences; less than one thousand individuals or very few remaining individuals or acres) or because some extinction factor of its biology makes it especially vulnerable to extinction; G2 (Category 2) - Imperilled globally because of its rarity (six to twenty occurrences; one thousand to three thousand individuals or few remaining individuals or acres) or because of other factors demonstrably making it vulnerable to extinction throughout its range.

- To facilitate circumpolar co-ordination of murre research and monitoring programs, to provide the common knowledge base needed to conserve and manage murre and their habitats.

National Implementation. The United States Canada, Iceland, Finland and Greenland have initiated their action planning process and Norway will begin this summer (1997). *Canada* intends to implement all the 31 IMCS actions, *Greenland* will be implementing 30 actions, and *Iceland* will be implementing 27 actions. Although *Russia* has not yet initiated its five-year action plan, it considers all 31 items relevant. *The United States* will be implementing 27 of the 31 IMCS actions. Table 2 lists the IMCS action items and the country priorities as identified to date.

International Implementation. The CSWG is working on four CAFF-approved murre projects: Circumpolar Murre Colony Database, Circumpolar Murre Monitoring Network Plan, Murre Banding Plan-Atlantic Region, and Murre Banding Recoveries Report - Atlantic Region. Progress is as follows:

- *Circumpolar Murre Colony Database.* The primary purpose of the murre database is to provide a circumpolar-wide perspective on murre distribution and abundance. Each country has now provided their murre colony information to Canada and a database will be completed in 1997.
- *Circumpolar Murre Monitoring Network Plan.* Action item number twenty two of the IMCS identifies the need for a co-ordinated monitoring program for murre throughout the Arctic. The United States have drafted a circumpolar monitoring plan for murre and the final plan will be completed in 1997.
- *Murre Banding Plan - Atlantic Region and Murre Banding Recoveries - Atlantic Region.* Murre banding recovery data is being summarised by Norway, and Iceland will complete a banding program for the North Atlantic in 1997.

Table 2. IMCS action items and national priorities⁵: H = high priority; M = medium priority; L = low priority; - = not applicable

IMCS Actions	CAN	GRE	ICE	RUS	USA
1. Ensure that consumptive uses of murre are sustainable.	H	H	M	L	-
2. Monitor harvest levels and assess their impacts on populations.	H	H	M	L	H
3. Harmonise management and harvest regimes for shared populations.	M	M	M	M	L
4. Involve local and indigenous people in the management of consumptive uses.	M	-	-	M	M
5. Ensure that non-consumptive uses of murre are sustainable.	H	H	M	L	H
6. Implement management plans for areas of eco-tourism activity.	M	M	M	L	-
7. Implement standard guidelines to minimise the impact of disturbance at murre colonies.	M	M	L	L	M
8. Identify, publicise and minimise impacts of commercial activities on murre breeding and foraging areas.	H	M	H	H	H
9. Implement programs to reduce oil pollution in areas used by murre.	H	M	H	H	H
10. Assess and reduce mortality of murre in commercial fishing gear.	M	L	H	H	H
11. Ensure that management of commercial harvests of small fish species provide for their role in murre diets.	M	L	H	H	M
12. Identify important murre colonies and designate them under national and international systems of protected areas.	H	M	H	H	M
13. Promote the establishment of marine protected areas in important pelagic habitats for murre.	M	L	M	M	L
14. Contribute to the "Important Bird Areas" system to highlight important areas for murre.	H	L	H	M	L
15. Explore the establishment of an international network to identify and protect key areas for murre.	L	L	H	M	L
16. Ensure that conservation action will benefit populations, by assessing causes of population declines from an ecosystem perspective.	L	L	-	H	H
17. Undertake specific restoration activities to assist depressed populations to recover.	L	L	-	M	M
18. Determine appropriate communication approaches and produce materials to deliver specific messages.	H	M	M	M	L
19. Emphasise communication to operators of ships at sea, the fishing industry and tour boat operators.	H	M	M	L	M
20. Produce educational materials aimed specifically at children.	M	M	M	M	L
21. Issue joint scientific reports of activities relating to murre conservation.	H	M	M	M	H
22. Co-ordinate circumpolar murre population monitoring and store data in standardised databases.	H	H	H	H	H
23. Conduct research on population demography at circumpolar monitoring sites.	H	M	M	M	H
24. Develop a co-ordinated circumpolar murre banding program.	H	M	H	M	L
25. Monitor murre feeding ecology and food availability	M	M	H	M	H
26. Monitor murre mortality due to oil pollution, commercial fisheries, and hunting.	H	H	H	H	H
27. Conduct research to develop techniques to reduce entrapment in fishing nets.	L	L	L	M	H
28. Develop management techniques to restore habitats and populations.	L	L	-	M	-
29. Consider the effects of global warming and local eutrophication on murre populations.	L	L	L	M	-
30. Assess the need to conduct research into the genetics of murre populations.	M	M	M	M	M

⁵ Note: Norway plans to initiate the IMCS implementation process this summer (1997)

31. Conduct research to define distribution and abundance of murrens at sea and factors affecting these.	H	H	H	M	H
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1.2.3 The Circumpolar Eider Conservation Strategy and Action Plan

With the implementation of the Murre Strategy underway, the CSWG turned its attention to the Eiders, and has now finalised a *Circumpolar Eider Conservation Strategy and Action Plan* for approval.

Eiders are sea ducks that breed, moult, and winter largely in Arctic regions. Four species are recognised: Common eider, King eider, Spectacled eider, and Steller's eider. At least two of the four species are found in most Arctic countries during parts or all of each year. The eiders have for centuries provided meat, eggs, and down for Indigenous Peoples and other local residents.

Now, however, eiders are declining in many parts of their range (Table 3). Many populations have declined by more than 50% and some have vanished completely. As a result, Steller's eider has been listed as a globally threatened species by the IUCN and Spectacled eider has been listed as a threatened species in the United States. Reasons for the declines are largely unknown although e.g. high hunting pressure, mortality in fishing nets, oil- and other contamination may contribute.

The *Circumpolar Eider Conservation Strategy and Action Plan* responds to the need to stabilise and manage eider populations in a sustainable manner, and was developed in recognition of the fact that eiders are a truly a circumpolar resource shared by the Arctic countries.

The goal of the Strategy is to “*facilitate circumpolar efforts to conserve, protect and restore eider populations*”.

To accomplish this goal the Strategy identifies six broad objectives:

- Ensure that consumptive use of eiders is sustainable.
- Encourage non-consumptive uses of eiders that will benefit local communities.
- Minimise adverse effects on eiders of commercial and industrial activities.
- Protect key habitats as necessary to ensure the continued viability of eider populations that depend on them.
- Encourage an interest in eider conservation and awareness of the strategy and participation in its development and implementation.
- Provide reliable scientific information on eiders and the appropriate legislation needed to implement the Strategy.

Accompanying the Eider Strategy is a technical report *Status and Conservation Issues for Eiders in the Arctic* (CAFF Technical Report No 2) detailing the information gathered from the countries during the preparation of the Strategy and on which the Action Plan is based. This report is anticipated by CAFF VI.

Table 3. Long-term population trends of eiders, identified by their breeding locations. *I* = increasing, *S* = stable, *D* = decreasing, *U* = unknown.

Country	Common ^a	King	Spectacled	Steller's ^b
Canada	D ^b	D	-	-
Finland	D	-	-	-
Greenland	D	U	-	-
Iceland	I	-	-	-
Norway	S ^c	S/D ^c	-	-
Russia	S/U	U	D?	U
U.S.	U	U	D	D

^aPopulations in the Baltic sea region increased ten-fold 1949-1985;

^bPopulations in Labrador appear to be increasing; ^cBased on winter surveys

1.2.4 Incidental take of seabirds in the Arctic

An unfortunate consequence of almost all fisheries is that non-targeted species of fish and other marine wildlife are caught unintentionally in fishing gear. Such incidental take, or by-catch, of seabirds has been a long-standing conservation concern within the Arctic countries. There are many known examples where very high numbers of birds have been caught in nets. Information is also obtained by analysing recovery data of ringed seabirds caught in fishing gear. However, specific surveys and studies are few and scanty.

In an attempt to assess the incidental take at the circumpolar level, the CSWG has been compiling existing information among the member countries which will be presented as CAFF Technical Report No. 3 - *Incidental Take of Seabirds in the Arctic*.

Although the data is scant, findings to date identify several issues that should cause concern among policy makers:

- Seabird experts from Norway, Iceland and the United States⁶ consider incidental take a serious issue in seabird conservation.
- Strong circumstantial evidence suggests that incidental take is accountable for population declines of e.g. Black guillemots in Iceland and Common murrelets in Norway.
- Mortality differs depending on fishing practices, fishing gear and countries. In Alaska about 90% of by-catch occurs in the long line fisheries. In Iceland lump sucker's nets are by far the most important cause of drowning, while in Norway, cod nets seem to catch most seabirds.
- The different bird species are vulnerable to different types of fishing gear. Thus, e.g. in Iceland the alcids tend to be caught primarily in cod nets, while inshore feeders like the Common eider and Black guillemot drown mainly in lump sucker's nets.
- Regulations and guidelines for counteracting incidental take are few and poorly developed.

Research and guidelines are needed to: (1) obtain accurate estimates of incidental take, (2) design fishing gear and mechanisms that deter seabirds from nets and long lines, (3) develop fishing practices that will reduce incidental take.

1.2.5 Human Disturbance at Arctic Seabird Colonies

The disturbance of seabirds by humans is recognised as a world wide conservation concern. Disturbance can take many forms and originate from sources such as industrial and recreational development, agriculture and forestry, military activity, aircraft and boat activity, research, eco-tourism, fishing, and direct exploitation of eggs and chicks.

Due to the sparse human population and limited development in the Arctic, human disturbance traditionally has not been considered a conservation issue, except locally. However, with the Arctic rapidly opening up to development and tourism, the CAFF CSWG is reviewing human disturbance at Arctic seabird colonies and the various regulations and guidelines in place to limit disturbance.

A questionnaire was distributed among the Arctic countries. Based on the answers, the CSWG is finalising a report on *Human Disturbance at Arctic Seabird Colonies* (CAFF Technical Report No 4). Some of the main conclusions to date are:

⁶In Canada the present moratorium on ground-fish fishing has significantly reduced or eliminated seabird by-catch for the time being

- Although human disturbance occurs to some extent at seabird colonies in all CAFF countries, it is generally local in nature and not considered an immediate conservation issue of national importance in any country.
- However, information is lacking to assess the long term consequences of low level disturbance.
- Hunting, shooting and egging are the most common disturbances recorded.
- All countries except Canada and the United States have regulations which cover human activities that disturb seabirds or cause their deaths.
- Regulations apply mostly to land-based activities. Disturbance caused by aircraft or boats is usually restricted by distance limits only in protected areas.

The report suggests three main future priorities regarding human disturbance at seabird colonies: (1) enhanced research on the internal, long term and cumulative effects of disturbance on seabird colonies, (2) improved public awareness, and (3) better enforcement of existing regulations.

1.3 CONSERVATION OF BIOLOGICAL DIVERSITY

1.3.1 Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region

Acting on Ministerial directions from Inuvik (1996), CAFF has completed its revised *Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region* (henceforth called the Strategy) based on selected provisions of the Convention on Biological Diversity (CBD).

The review of the original draft Strategy was overseen by Finland and conducted in close co-operation with the CAFF Analytical Group (AG) (see 1.5.3 below). As the goals and objectives of CAFF and the CBD are largely complementary, the Strategy is now seen as an overall conservation framework for the CAFF Program. A separate Action Plan, under development by the CAFF Analytical Group, will be presented at CAFF VI in Nuuk (see section 2.2.4)

The Strategy provides goals which aim to enhance co-operation among Arctic countries and relevant agencies, communities and organisations, to secure the natural productive capacity of the Arctic ecosystems, and to secure conservation of biological diversity at all levels in the Arctic. The revised goals are:

- I. Support the conservation of Arctic biological diversity, including the diversity of ecosystems, species, populations and their habitats, and genetic resources. Where Arctic biological resources are used, the use should be at levels that are sustainable, meet the needs of local and indigenous people and do not adversely affect other ecosystem components.*
- II. Promote the participation of local and indigenous people in the development and implementation of policies and programs relating to the conservation of Arctic biological diversity and the sustainable use of biological resources.*
- III. Develop and improve public education and awareness programs that promote the conservation of Arctic biological diversity and the sustainable use of biological resources.*

1.3.2 Threats to Arctic Biological Diversity

Threats to Arctic biological diversity have been high on CAFF's agenda since its inaugural meeting in 1992. By 1996, matrices of threats had been developed and CAFF had singled out a few of the most immediate and widespread threats for counteraction, based on a survey among the countries. A preliminary report was given to the Ministers at Inuvik (see CAFF's Report to Ministers, 1996). Discussions at CAFF V in Rovaniemi (1996) emphasised the importance of finishing this study and of providing the Ministers with a fair and objective analysis of priority threats facing Arctic biological diversity. Under Finland's leadership this work is well underway and will be submitted as a technical report to the Ministers in 1998.

The report classifies threats into five broad categories: (1) climatic change, i.e. temperature rise and increased UV radiation; (2) physical and chemical disturbance such as mineral and petroleum exploration and development, road infrastructure and motorised vehicles, and habitat fragmentation; (3) direct exploitation of living resources, i.e. fisheries practices and by-catch, hunting and introduction of alien species; (4) agriculture, pasturage and forestry; and (5) expanded tourism. A matrix is being developed showing which organisation or AEPS program is dealing with the various identified threats.

Based on the preliminary findings, some of the main conclusions are that:

- Several widespread threats or categories of threats are not dealt with at present within CAFF or other AEPS programs. These include e.g. marine and freshwater fishing, aquaculture, and introduction of alien species.
- More research is needed to address and combat threats adequately. Especially mentioned is the lack of comparative ecological data at the circumpolar level, winter research activities and year round studies. Also the research conducted needs to be more holistic in its approach, directed at large scale structures and ecosystem dynamics.
- Scientific knowledge, although important, will not by itself mitigate threats; thus, the need to educate and raise public and political awareness of environmental threats is emphasised.
- And, as previously reported, closer co-operation and collaboration among the AEPS programs to address threats is considered essential.

***Recommendation:** All AEPS Programs have identified threats. Since many of the mitigating measures require a broad based approach and resources for this work are limited, CAFF proposes that the AEPS launch a broad-based initiative to study threats to the Arctic environment and recommend mitigating measures to the Ministers. The technical report discussed above, combined with e.g. EPPR's work on Risk Analysis and AMAP's AAR would serve as a solid foundation for such an initiative.*

1.4 INTEGRATION OF INDIGENOUS PEOPLES AND THEIR KNOWLEDGE

The Inuit Circumpolar Conference (ICC) has actively pursued a number of projects which have now been successfully concluded. At CAFF V in Rovaniemi (1996) it was decided that a separate section for Indigenous Peoples activities will no longer be necessary in the CAFF Program work "as the work of CAFF should incorporate indigenous peoples and their knowledge directly into the CAFF Program areas and projects".

1.4.1 Indigenous Knowledge Mapping Project on the Beluga whale

The overall goal of the project was to: (1) demonstrate an effective methodology for documenting traditional ecological knowledge (TEK), and (2) to prepare recommendations concerning the documentation and use of indigenous knowledge in the future work of CAFF and the AEPS. At CAFF V in Rovaniemi (1996), a final report⁷ was submitted to CAFF.

Through semi-directive or open ended interviews, i.e. where the discussion is allowed to flow, both in direction and scope although guided by the interviewer, TEK and the expertise of local hunters on beluga whales was recorded so that it could be presented, reviewed, and used on its own merit. Six communities were chosen for this work, three each in Alaska and Chukotka, in the Chukchi and northern Bering seas.

To discuss the integration and application of indigenous knowledge further, a special seminar⁸ was held in Inuvik, Canada (1996). Fifty-eight participants attended the seminar, brought together through the common denominator of TEK: hunters, elders, researchers, and resource managers.

From this seminar, *Recommendations on the Integration of Two Ways of Knowing: Traditional Indigenous Knowledge and Scientific Knowledge* were developed (Appendix I) and forwarded to CAFF in early 1997. The recommendations address the survival of TEK, standards for community participation in documentation efforts, and guidelines for applying and integrating traditional environmental knowledge and western science. The recommendations are directed at researchers, government agencies and the Indigenous communities.

Several generalisations about TEK can now be drawn from this extended CAFF effort. These include:

- Indigenous knowledge is an area of rapidly growing interest to scientists, resource managers, and Arctic residents.
- It can be gathered quickly and efficiently and to the satisfaction of interviewers as evident by positive reviews.
- The early instances in which indigenous knowledge has been applied in research and management have shown great benefit to researchers, managers, and the Indigenous communities which provided the information.

In recognition of the fact that the Seminar recommendations are broad, far reaching and directed at several audiences, and as a result of a decision at the Meeting of National Representatives and Permanent Participants in Akureyri (February 1997), the recommendations are being forwarded to the SAAOs for consideration at the AEPS level and onward to the Ministers should they deem it appropriate.

For the application of TEK in conservation work, CAFF has welcomed ICC's generous offer to develop more specific recommendations on the use of TEK within CAFF's mandate.

1.4.2 Review of co-management system project

⁷ Henry P Huntington and Nikolai I. Mymrin (eds.). 1996. *Traditional Ecological Knowledge of Beluga Whales - An Indigenous Knowledge Pilot Project in the Chukci and Northern Bering Seas*. Inuit Circumpolar Conference, Anchorage, Alaska.

⁸ Seminar on the Documentation and Application of Indigenous Knowledge, Inuvik, Northwest Territories, Canada, November 15-17, 1996.

As a part of the effort to integrate the Indigenous Peoples and their ecological knowledge into the program work, a report was written on the structures, strengths, and weaknesses of co-management systems in Canada, the United States and elsewhere in the Arctic, and presented at CAFF V (Appendix II). The report was based on the findings of the Co-management Conference in Inuvik, September 1995⁹.

The Inuvik Conference was attended by over 240 participants from five countries, Canada, the United States, Russia, Greenland, and England. Through discussion sessions ranging from finances and administration to migratory birds, where key case studies were presented and reviewed, a number of recurrent themes appeared. They concerned for example:

- The importance of land claims in the creation of co-management regimes.
- Overlap between jurisdictions at all levels being a major concern of co-management.
- The fact that politics and international lobbying groups are factors that have to be dealt with.
- The importance of improving communication, co-operation, and sharing of knowledge and experiences.
- Aspects of community involvement and use of traditional knowledge.
- The impact of research on wildlife and local people, through e.g. inappropriate research techniques and ethics, and poor communication.

In all, the report provides a source of information about the structure, strengths, and weaknesses of co-management systems, a rich discussion of practical experience of co-management from many viewpoints and angles, and a number of recommendations for CAFF and the AEPS to consider (Appendix II).

1.4.3 Indigenous Knowledge Data Directory

Much work has been done by the Inuit and other Indigenous Peoples of the north to document indigenous knowledge. However, there have been no easy means available to locate and access this information. At CAFF II, it was proposed to create a Directory of Indigenous Ecological Knowledge Databases. Different formats have been tested in the attempt to find one useful to potential users and also acceptable to the holders of the information. Some caution has been shown by the indigenous peoples in revealing the existence and nature of their databases, but it is expected that these reservations may disappear once the directory, established at the ICC Website, is operational. The site will provide its users with an annotated directory of Inuit ecological knowledge databases; information about content, structure and cultural context for each Inuit database and bibliographic references concerning aspects of Inuit ecological knowledge.

1.5 PROGRAM MANAGEMENT AND ORGANISATION

1.5.1 Management

As described in CAFF's Framework Document, CAFF's eight National Representatives function as the CAFF Management Board with the positions of the Chair and Vice-Chair rotating

⁹ *Circumpolar Aboriginal People and Co-management Practice - Current issues in co-management and environmental assessment*. 1996. The Arctic Institute of North America and the Joint Secretariat, Inuvialuit Renewable Resources Committee. ISBN 0-919034-85-3

annually among the National Representatives. In March 1996, Peter Nielsen, National Representative for Greenland stepped in as Chairman. Gerald McKeating, National Representative for Canada is CAFF's new Vice-Chairman. Other members of the Management Board are: Paula Kankaanpää (Finland), Aevor Petersen (Iceland), Berit Lein (Norway), Amirkhan Amirkhanov (Russia), Christer Borgh (Sweden) and Janet E. Hohn (USA). The Management Board, along with the Permanent Participants has met three times since the Inuvik Conference: in Trondheim, June 1996; in Rovaniemi, September 1996; and in Akureyri, February 1997.

The three Indigenous Peoples Organisations (IPOs) with Permanent Participant status in the AEPS (the Inuit Circumpolar Conference (ICC), Saami Council and the Russian Association of Peoples of the North (RAPON)) are invited to attend all meetings, including meetings of the CAFF Management Board.

The CAFF International Working Group held its Fifth Annual Meeting (CAFF V) in Rovaniemi, Finland, September 9-12, 1996¹⁰. Greenland will host CAFF VI in Nuuk on September 27-30, 1997, and Canada will be hosting CAFF VII in Yellowknife in May 1998 (tentative date).

1.5.2 The Secretariat

Since the Inuvik Ministerial Conference, the CAFF International Secretariat has been relocated from Ottawa, Canada, to Akureyri, Iceland. The painstaking job of transferring the Secretariat was managed by CAFF's outgoing Executive Secretary, Jeanne L. Pagnan, of Canada. The physical transfer process was accomplished by late June. On July 1, a new Executive Secretary, Snorri Baldursson, of Iceland, took office. The Secretariat was fully staffed by November 1 with a full time Executive Secretary, a part time Administrative Assistant, Vigdis Rafnsdottir, and a part time Program Officer, Snaebjorn Fridriksson. To minimise disruption and to ensure a smooth transition, consultations were held between the new and outgoing Secretariats.

1.5.3 CAFF sub-groups

Two sub-groups are currently operating within CAFF: (1) the *Circumpolar Seabird Working Group* (CSWG), led by the United States and responsible for co-ordinating CAFF's work on seabirds and their interaction with the marine ecosystem, and (2) the *ad hoc CAFF Analytical Group* of Iceland (Chair), Canada, Finland, Greenland and the United States, which is charged with analysing CAFF's past and present work program, suggesting future priorities for work and recommending the most efficient program structure to address these priorities and other obligations (see Section II)

1.5.4 Participation of Indigenous Peoples

Representatives from the ICC and the Saami Council attended CAFF V in Rovaniemi, and one or more Indigenous Peoples Organisation's (IPOs) representative has attended all meetings of the CAFF Management Board since Inuvik.

The three IPOs are regularly invited to participate in the development and review of CAFF projects and reports and, as described in section 1.4 above, the ICC has traditionally actively

¹⁰ See *Fifth Meeting of the CAFF International Working Group - Summary Report*, Rovaniemi 1996. CAFF International Secretariat, 34 pp.

pursued CAFF Program work under the heading of Integration of Indigenous Peoples and their Knowledge. With these projects successfully completed it is expected that the IPOs will become fully integrated into the program work.

1.5.5 Co-operation with other AEPS programs

The AEPS programs routinely exchange information and material and invite each other to attend meetings and to provide comments and input for each others work. Nevertheless, CAFF agrees with AMAP's assessment (*AMAP Interim Report to the Third Ministerial Conference*, Inuvik, 1996, p. 12) that a permanent mechanism for co-ordination among the AEPS programs would be beneficial.

Previously, CAFF and AMAP have discussed mutual monitoring interests and had developed compatible lists of indicator species. CAFF has recently revisited this issue by directly proposing to AMAP that the two programs jointly investigate the feasibility of establishing a circumpolar monitoring network which would focus on both biological diversity and contaminants and their effects. In broad terms, CAFF's role in such an initiative would be to cover the ecosystem, species and populations aspects. Initially what would be needed is to scope the project in terms of feasibility of collaboration; division of labour among the programs; minimum number of sites, indicator species and criteria needed; and how this effort could be linked with existing national, international and circumpolar monitoring initiatives. As a minimum such work should ensure that the monitoring efforts of the two programs make use of the same sites and indicator species as feasible.

1.5.6 Collaboration with other organisations

CAFF observers include *countries* (Germany, The United Kingdom, The Netherlands, Poland); *regional and global conservation conventions* such as Berne, Biological Diversity, Bonn, CITES, Ramsar, and UNESCO-Man and the Biosphere; *regional implementation bodies* (Barents Euro-Arctic Council of Ministers, Nordic Council of Ministers); *international intergovernmental bodies* (United Nations Environment Program (UNEP), represented by UNEP GRID-Arendal, and the World Conservation Union (IUCN)); and *non-governmental organisations* (Arctic Network, BirdLife International, International Arctic Science Committee (IASC), Wetlands International, World Conservation Monitoring Centre (WCMC), and World Wide Fund for Nature (WWF). (*Note: CAFF's main linkages and areas of contact were discussed in detail in the CAFF Report to Ministers, Inuvik, 1996*).

Most observers are involved in CAFF indirectly, i.e. collaboration is through attendance at meetings and provision and receipt of information and material, etc. Certain observers have participated more directly and proactively in the CAFF program work. These are:

- **The Netherlands** via the Bonn Convention Secretariat by financing a CPAN study on available conservation efforts and mechanisms for bird species migrating outside of CAFF countries (see section 1.1.1).
- **The Arctic Network** by co-ordinating and financing work on the Ice Edge Pilot Mapping Project
- **The WCMC and UNEP GRID-Arendal** by providing database facilities and mapping expertise for projects such as CPAN, Atlas of Rare Endemic Vascular Plants of the Arctic, the Circumpolar Seabird Colony Database, and the Circumpolar Database on Terrestrial Migratory Species.

- **The WWF- Arctic Programme and The WCMC** by compiling information, originating within CAFF and the other AEPS programmes, into a Conservation Atlas of the Arctic which is intended to communicate important circumpolar conservation issues and concerns to the general public.

Opinion varies among the countries on the extent to which observers, NGOs in particular, should be involved in the work of CAFF. Some argue that the best way to involve NGOs, and other collaborators, is to have them undertake and be responsible for actual Program work. Other countries take a more reserved view and have expressed reservations for too close a working-relationship with observers. As an example, the WWF-Arctic Programme generously offered to finance a workshop with CAFF, in the fall of 1997, intended to assist in the further development of the conservation strategy and long term action plan for CAFF. However, due to non-consensus among the countries, CAFF was unable to accept this offer. Yet, from the viewpoint of the workers in the field, observers may, in many cases, be the most logical or sometimes the only available vehicle for advancing important program activities.

***Recommendation:** CAFF considers that these different views about observer participation and involvement need to be co-ordinated and harmonised by the SAAOs/SAOs and clear guidelines developed.*

The CAFF National Representatives have agreed that collaboration and co-operation with programs, institutions and organisations is the general responsibility of the CAFF Secretariat. However, important as it is to keep up with the information flow and to avoid overlap and unnecessary duplication of work, the Secretariat has been unable to nurture this liaison role adequately due to its small size and taking into account its current and increasing work-load.

1.5.7 Information activity

The CAFF Secretariat has maintained its site (homepage) on the World Wide Web, <http://www.grida.no/caff>. This website is the Secretariat's main tool for spreading information on program activities to the member countries and the global community. The site was initially designed and established by Gregg Legare, of the Ottawa Secretariat and contains information on program structure and activities, newsletters, meeting reports, summaries of published CAFF reports and mechanisms for their downloading. In addition, the CAFF Secretariat publishes the *CAFF Newsletter* on an *ad hoc* basis and the CAFF Circumpolar Seabird Working Group, publishes the *Circumpolar Seabird Bulletin* on a yearly basis. Appendix III lists CAFF's main publications to date, copies of most of which are available upon order from the CAFF Secretariat or from the CAFF Website.

1.5.8 CAFF resources

Resources for CAFF are directed at program activities and at the Secretariat. Program activities have been financed primarily through voluntary contributions from member countries on a lead country basis. In a few cases, observer countries and organisations have directly sponsored CAFF program activities (see section 1.5.6). The Secretariat has operated strictly on the budget agreed upon by the SAAOs and cost-shared among the countries. For 1996-97 the SAAOs agreed on a budget of USD 162.000, consisting of 147.000 USD in cash plus an *in kind* contribution amounting to USD 15.000.

SECTION II: FUTURE CONSIDERATIONS

2.1 CONCERNS AND CHALLENGES

2.1.1 The Arctic Council

The establishment of the Arctic Council represents new concerns and challenges for CAFF. Concerns relate to the fate of conservation efforts, as expressed in CAFF's approved mandate, under the Council's umbrella. At the same time the Council's establishment can be seen as a major opportunity for CAFF to enhance its status, to enhance public and political understanding for the necessity of conserving Arctic biological diversity, and to profile itself as the logical professional organisation for doing that.

2.1.2 Program focus

CAFF has sometimes been criticised for lack of sufficiently clear focus, resulting in quite diverse program activities. CAFF was assigned a broad mandate for conservation at Rovaniemi (1991). During the initial approximately two-years of the program no clear program-direction, management structure, or priority setting process were put in place. Consequently, CAFF ended up with a large and almost unmanageable workload in relation to the limited amount of governmental support and funds allocated to circumpolar conservation measures. These are matters which CAFF has been actively addressing ever since and, most recently, CAFF has established the special *ad hoc* Analytical Group to review the situation.

However, what remains important is that (1) the collective Arctic region is the largest remaining pristine ecosystem in the world and increasingly valuable as such, (2) CAFF/AEPS/AC is the only intergovernmental body that can tackle Arctic conservation issues from a circumpolar perspective, (3) CAFF has proven its ability and competence to produce wide-reaching circumpolar conservation strategies and management plans for species and habitat conservation, and to collect and document a wealth of valuable information on Arctic flora, fauna and habitats (see Appendix III).

2.1.3 Resources and political support

CAFF competes with a host of other organisations and institutions for the limited funds that are devoted to biological research and conservation work in the member countries. This situation can be amended to some extent through prioritising and by avoiding overlap of work. However, the resource foundation for CAFF must be strengthened. Although financial contributions to CAFF/AEPS/AC have been voluntary, it is CAFF's considered opinion that decision makers within the countries need to (a) realise that circumpolar conservation efforts have their monetary price and (b) be ready to fulfil their voluntary obligations as presented in approved strategies and annual work plans.

Even though all the countries have willingly engaged in the AEPS and CAFF co-operation, their contributions vary quite significantly. The countries might consider investigating the feasibility of establishing a common AEPS/AC Trust Fund to facilitate work on circumpolar issues. In the meantime, it appears that CAFF could also be much more proactive in soliciting external funding for its work, although, as a recent example shows (section 1.5.6), clear policy guidelines for external funding of program activities are needed from the SAAOs/SAOs.

Recommendation: CAFF recommends that the level of political and financial support for the work of CAFF/AEPS/AC within and among the countries be openly debated and formalised.

2.2 RECOMMENDATIONS

At CAFF V in Rovaniemi (1996) an *ad hoc* Analytical Group (AG) was established to focus the program work further and make recommendations as to the future role and priorities of CAFF. The AG has since met twice. The work of the group is not complete at the present time, but some of its preliminary recommendations are as follows:

2.2.1 The role of CAFF within the Arctic Council.

It is recommended that the future role of CAFF within the Arctic Council be seen as twofold:

1. To continue to “co-operate for the conservation of Arctic flora and fauna, their diversity and their habitats”. More specifically to continue, as appropriate and feasible, to: identify gaps in knowledge; identify and alert about threats and concerns; develop conservation strategies and action plans for species and habitats of common concern and oversee their implementation.
2. To be an expert scientific body providing advice on the biological/ecological data and monitoring programs required to determine and verify the level of Arctic living natural resource use that can be sustained.

2.2.3 CAFF’s conservation framework and proposed future priorities

The CAFF Analytical Group recommends that the Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region be adopted and considered as an overall conservation framework for CAFF.

In order to initiate the process of focusing future work within the overall framework of the Strategy and to identify priority areas for the accompanying long-term Action Plan, a ranking exercise was carried out by the National Representatives, along with the Permanent Participants, to evaluate the relative priority of the different objectives of the Strategy. The results of this ranking exercise indicate a remarkable agreement on priority issues¹¹ (Appendix IV). The top five are:

1. *Support and implement measures for the conservation of Arctic genetic resources, species and their habitats.*

This objective has traditionally been high on CAFF’s agenda. Ongoing activities include the implementation of the *International Murre Conservation Strategy and Action Plan*, the preparation of the new *Circumpolar Eider Conservation Strategy and Action Plan*, the identification and mapping of rare and endangered flora and fauna and species of common conservation concern, and the creation of circumpolar GIS databases of the breeding and moulting areas of seabirds and migratory birds.

¹¹ It should be noted that objective 13, “Promote the involvement of indigenous and other local communities in the development and implementation of biodiversity policies and programs”, was not included in the ranking exercise since CAFF’s aim is to fully integrate Indigenous Peoples into all its program areas.

CAFF proposes to finish ongoing activities under this objective and to continue to develop new conservation strategies and action plans for species and groups of species of circumpolar concern as needed and as feasible.

2. Manage activities outside protected areas in order to maintain the ecological integrity of protected areas and to ensure the conservation of biological diversity.

As protected areas cover only a small part of the Arctic region, CAFF has long realised the need to look into the whole issue of habitat management outside protected areas. However, a decision was made early on to begin work at the protected area level and proceed from there. With CPAN well under way and in the process of being implemented in the Arctic countries, the time has come to advance work in this important field. Projects that have already been initiated are the Ice Edge Ecosystem Mapping Project¹² and the CAVM (section 1.1.2), both of which will facilitate improved general habitat management in the Arctic. A future project will be e.g. the preparation of a unified habitat conservation strategy.

3. Enhance integration of biodiversity conservation and sustainable use objectives into sectoral and cross-sectoral plans and policies.

CAFF's proposal to provide the biological and ecological expertise for the sustainable development program of the Arctic Council involves provision of biological diversity expertise when issues such as tourism, the forestry industry, urban development, etc. are addressed within the Council.

4. Establish protected areas in the Arctic region where they contribute to the conservation of ecosystems, habitats, and species

CAFF proposes to continue the implementation and further development of CPAN (see section 1.1.1). The preliminary gap analysis conducted so far within CPAN has shown that although roughly 14.9% of the Arctic land area is currently protected, many important ecosystems and habitats are inadequately covered. This applies e.g. to coastal and marine areas, islands, forests, and critical habitats for rare endemic vascular plants. Remedying this situation within CPAN remains a major challenge for the Arctic countries.

5. Enhance efforts to monitor Arctic biological diversity, paying particular attention to species, populations, habitats and ecosystems which are of greatest ecological, cultural, social, economic or scientific value

CAFF has so far not actively pursued monitoring of Arctic biological diversity, although monitoring is an important part of biological research and is singled out as a necessary tool and action item in all four CAFF conservation strategies. The reasons for this reluctance may partly be related to the fact that all member countries are either considering or already implementing their own biodiversity monitoring networks and plans, and the fact that long-term monitoring work tends to be expensive and difficult to finance from external sources. An *Overview of Biodiversity Monitoring Efforts* in the Arctic has been in preparation within CAFF and should be completed in 1998.

As a part of implementing the Murre Strategy, the United States have prepared a draft circumpolar monitoring plan for murre (see section 1.2.2). CAFF has recently proposed to AMAP (AMAP WG-9 meeting in Stockholm, April 1997), that the programs collectively investigate the feasibility of establishing a unified Circumpolar Monitoring Network (see section 1.5.5).

¹² Activities have been recently resumed on this project after a period of funding shortage.

2.2.3 CAFF procedures and delivery mechanism.

As a part of the ongoing evaluation work, CAFF is reviewing its organisational structure and procedures (meetings, sub-groups, document management, reporting, etc.). The United States have submitted a discussion paper on these issues which has been circulated among the countries and observers for comments.

The meeting of CAFF National Representatives and Permanent Participants in Akureyri (February 1997) decided to postpone decisions regarding procedural aspects until CAFF's future role and priorities have been decided on by the Ministers. The procedural aspects, however, will be developed further and tabled at CAFF VI in Nuuk, taking into account the wider discussions by the SAOs on the Rules of Procedures for the Arctic Council.

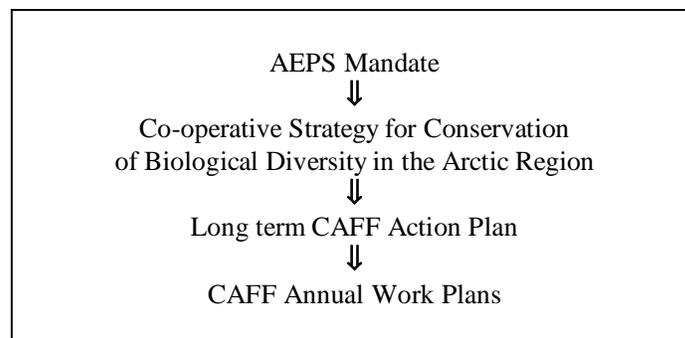
2.2.4. Next steps.

Pending adoption of the Biodiversity Strategy by Ministers in June 1997 and positive response on the priority issues and the general program thrust identified above, the next year is seen partly as an interim period during which, in addition to ongoing work, a refocused and revitalised program will emerge.

A long-term CAFF Action Plan will be developed over the next few months to implement the Strategy. A draft will be tabled at CAFF VI in Nuuk for a thorough discussion and refinement. CAFF VI will also initiate discussions on procedural aspects and adopt an interim Annual Work Plan for 1997-98, focusing on the completion of ongoing-projects.

Depending on decisions at CAFF VI, *ad hoc* specialist groups may be established or small workshops planned to develop specific program areas or procedural aspects further, and to make direct recommendations and proposals for action items and projects. The long-term CAFF Action Plan and recommendations on procedural aspects, are planned to be tabled at the SAO meeting in Ottawa in January 1998 (April 1998, the latest) and a new CAFF Annual Work Plan for 1998-99, based on the long-term CAFF Action Plan, will be adopted at CAFF VII in Yellowknife, Canada, in the spring of 1998. SAOs will be consulted and kept informed on progress at every available opportunity throughout the process and as requested.

The proposed hierarchy of strategic documents for CAFF's future scientific work is as follows:



The proposed time schedule and milestones for CAFF's analytical work are as follows:

June 1997	Ministers adopt the <i>Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region</i> and decide on priorities.
September 1997 (CAFF VI)	Draft CAFF Action Plan developed; Procedures discussed; Interim Annual Work Plan for 1997-98 adopted.
January 1998	SAOs review Draft CAFF Action Plan and Procedures.
April 1998	SAOs adopt CAFF Action Plan and Procedures.
May 1998	CAFF VII adopts new Annual Work Plan for 1998-99.
September 1998	Ministers endorse CAFF's analytical work; Program review completed.

2.3 FINANCIAL IMPLICATIONS

2.3.1 Program activities

Previously (section 2.1.3) we pointed out the general need to strengthen the resource foundation of CAFF and the necessity for countries to financially sustain their voluntary commitments for program activities. Considering future activities and priority areas, active involvement in a monitoring program will, especially, demand significantly more financial resources for the CAFF program than are currently available.

2.3.2 The Secretariat

The internal workload is only barely manageable for the present staff. Reporting obligations to the SAAOs and the Ministers have steadily increased since 1994 and the shift to the Arctic Council will add a new dimension. Liaison, collaboration and communication activities have therefore not been sufficiently addressed. The small size of the Secretariat has also prevented a proactive approach to fund raising for program activities.

At their recent meeting in Akureyri (February 1997) the CAFF National Representatives agreed that the financial and staff base of the CAFF Secretariat needs to be strengthened, firstly, in order to take on a more proactive role in external liaison and fund raising and secondly, in light of CAFF's proposed role within the Arctic Council.

Appendix I

Recommendations on the Integration of Two Ways of Knowing: Traditional Indigenous Knowledge and Scientific Knowledge

from the Seminar on the Documentation and Application of Indigenous Knowledge, Inuvik, Northwest Territories, Canada
November 15-17, 1996

Introduction

The Seminar on the Documentation and Application of Indigenous Knowledge brought together hunters, elders, researchers, and resource managers with expertise in indigenous knowledge, or traditional ecological knowledge (TEK). The 58 participants live or work in Alaska, northern Canada, Greenland, and northern Russia, or are interested in TEK and its applications. The seminar began with presentations by groups working in the four countries on projects documenting and utilising indigenous knowledge, followed by four concurrent discussion groups. These four groups discussed a range of issues related to the collection and application of indigenous knowledge. Based on these discussions, each group provided recommendations to the seminar on how indigenous knowledge can be perpetuated, documented, applied, and used in conjunction with other forms of knowledge.

The participants emphasised that traditional indigenous knowledge is a way of life, based on the experience of the individual and of the community, as well as knowledge passed down from one's elders and incorporated in indigenous languages. This knowledge is constantly being adapted to the changing environment of each community and will remain current as long as people still use the land and sea and their resources.

The participants also stressed that the work recommended below is urgently needed. In all circumpolar regions represented, the elders who grew up living on the land and sea are passing away, and with them their knowledge of the land and of the traditions of the community. It is essential both that we document the elders' knowledge, and that we promote the continued transmission of that knowledge to today's youth, which must include protecting the use of the land and its resources. Otherwise, traditions and knowledge will be lost, and the people who remain and the generations to follow will be left without the benefit of this irreplaceable heritage.

In particular, there is a need to revive traditional methods of using natural resources for the continued survival of indigenous peoples of the circumpolar north. The participants encourage efforts and actions of all organisations and individuals in restoring, developing, and documenting traditional ways of life, culture, and TEK, in all areas of the north and specifically including preservation of a unique traditional culture of whale hunting in northern Russia.

As the recommendations show, we know a great deal about TEK, but there is a great deal more to be learned. Documenting and preserving the use of indigenous knowledge at the community level and using this knowledge to address resource management issues are complex undertakings. The holders, users, and recipients of indigenous knowledge must respect each other and their cultures if these ideas are to gain wider application. This mutual respect will be necessary as new ideas and approaches are developed for the appreciation, documentation, and application of indigenous knowledge.

Several recommendations address the processes by which TEK can be documented, applied, and integrated into the decision making processes for resource management. They stress a collaborative approach as the starting point for successfully making local knowledge accessible to the scientific community.

Although the recommendations are organised into several categories, they are overlapping and should be considered together. The recommendations are also broad and far-reaching and directed to several audiences. While few researchers, projects, or organisations are able or likely to implement all the recommendations by themselves, awareness of the full range of ideas will help all those involved to understand the directions in which TEK research is headed. In this way, each project can make a partial contribution to the full implementation of the recommendations.

Terminology

There are many terms in use to describe the body of expertise and knowledge held in indigenous communities. Among these are indigenous knowledge, traditional ecological knowledge, indigenous science, ecological wisdom, and many others. None is wholly adequate or satisfactory. The seminar only addressed this issue in passing, with the chairman's observation that "indigenous knowledge" may imply that any indigenous person may have this expertise, when in fact personal experience and learning from the elders are more important factors than ancestry. Because they are widely used terms, these recommendations use as synonyms the terms "indigenous knowledge" and "traditional ecological knowledge" and the acronym, "TEK."

Recommendations

Perpetuating the Use of TEK at the Community Level

To promote the use of indigenous knowledge in the community, ways of documenting the knowledge of community elders and making it locally available should be encouraged. Work in this area is particularly urgent, since so much knowledge is being lost so rapidly.

- Adult/child exchanges of TEK should be encouraged, for example at home, in elder/youth camps, by hunters taking youth out on the land, or in community centres where children and elders can get together. Video and first-hand experience can be used in combination to pass TEK to the next generations. The continued use of indigenous languages is vitally important and should be promoted in these and other settings.
- TEK should be incorporated into the school curriculum through:
 - * Adapting the school calendar and requirements to accommodate participation in traditional activities at appropriate times of the year (e.g. spring fishing or whaling)
 - * Land-based education which includes elders to pass on TEK plus other academic instructors for other kinds of education so that various methods and subjects can be integrated
 - * School-room educational material which is culturally relevant and supplements the experience of living on the land and learning TEK first-hand
 - * Asking elders to come to the schools to share their knowledge with the students
 - * Indigenous language programs
 - * Using artefacts in education
 - * Directly involving students in TEK studies, for which they can gain school credit
 - * The use of multi-media formats incorporating TEK.(Note that incorporation of TEK into the education curriculum is not a substitute for first-hand experience.)
- A detailed review of the current state of TEK education and perpetuation in northern circumpolar regions should be conducted to assess and evaluate current practices.
- Respect for hunters and other TEK experts in communities should be promoted, through such means as hunter support programs.
- Sustainable renewable resource industries are one means of protecting the continued use of TEK, and should be encouraged by governments and indigenous organisations working together.
- Artefacts should be returned to and kept in the regions from which they came. If local institutions do not exist, they should be established, with funding for curators and education programs.

Community Consultations and Involvement

- In the conduct of TEK projects, researchers should contact and work with appropriate community organisations. In doing so, researchers should allow enough time for consulting with the community about the purpose and methods of the research before it begins, for obtaining consent from the community, and for reviewing draft results of the project with the community.
- Communities should establish or identify the appropriate organisations to consult and design the consultative process so that everyone understands what is required. One outcome of such a process can be a negotiated research protocol between the researcher and the community, which includes details

about the procedures and conduct of the project, the extent of local control over use of the information, and matters of intellectual property rights.

- Proposed scientific studies should be reviewed by the communities at all stages of the study. This can be facilitated by a regional screening committee to review proposals to determine their likely impact on or relevance to local communities. TEK should be included in studies where it is possible and appropriate.
- Communities and local organisations should initiate and conduct TEK projects themselves. A starting point is developing a list of information needs and research priorities which address community requirements. Developing local research expertise should also be encouraged, and time and funding should be invested in this.
- Communities should be responsible for recommending or approving interviewees, local interviewers, and workshop participants.
- Communities should be involved in the planning and proposal stages of TEK projects, as well as the interpretation, analysis, and write-up of results.

Documenting TEK

In the process of documenting TEK, the context of the knowledge is difficult to convey, and can be lost. In addition, some of the information is not easily transferred, so that some of the depth of knowledge is lost as well. With these limitations in mind, documentation should nonetheless be recognised as an important step towards integrating TEK with scientific knowledge. A consistent approach to TEK documentation for the entire circumpolar region is desirable, so that results and information can be compared across the Arctic.

- A variety of methods should be used to capture TEK, recognising that just one method cannot capture all aspects of TEK and that different methods work best for different applications or settings. Be sensitive to the strengths and weaknesses of each approach, and consider combining two or more methods. For example:
 - * Use group discussions, individual interviews, maps, and first-hand experience to document TEK for scientific use
 - * Use reports, videos, or photographs to document TEK for the cultural record
 - * Collect and preserve physical artefacts as part of TEK documentation.
- Due to the urgency with which TEK documentation is needed, funding agencies and local organisations should make this work a high priority.
- TEK should be documented and, with community approval, made readily accessible to the scientific community so that it may be referenced and properly cited. In this way, the holders of TEK can be given full recognition and the information will not be regarded as anecdotal data or as a "new discovery" when scientists use it.
- TEK should be gathered from both men and women, since they have different roles and can make equally valuable contributions in different areas of community TEK.
- TEK interviews should be holistic in their approach. Topics should include land, animals, people, culture, language, and environment, as appropriate. All are connected, and the interview should discuss environmental and cultural processes and influences that relate to the subject being studied.
- When possible for both interviewer and interviewee, interviews should be conducted on the land to place the knowledge in its geographic context. Having hunting equipment, animal products, or other relevant materials on hand can also help an interview.
- In documenting TEK, local place names, community concepts and terms should be used. Dictionaries of such specialised terminology related to TEK should be compiled, since such words and terminology are slowly being lost. Government agencies and other research institutions should respect the use of these names and terms as acceptable synonyms for existing terms in the dominant language.

- Youth should be involved in the documentation process so that they learn research skills and TEK at the same time.
- To ensure elder participation, interviews should be conducted in the local language and meeting proceedings should be translated into local languages, as appropriate in places where this will help include more people. For this work, expert translators are required so that the fine points of statements are not lost.
- When an interview is completed, the researcher should review the substance of the interview with the participant, so that each knows what has been learned from the interview. The information should also be reviewed after initial compilation and interpretation (i.e., during the field work), and again in draft form.
- Researchers should complete projects without long delays, so that TEK information is returned to the community promptly when the study has been completed.
- The community should decide where raw documentation (interview maps, tape recordings, video tapes, notes, etc.) will be archived, and who has access. Local repositories should be created if needed to house these materials.
- The community should decide whether final products (reports, documentary videos or films, maps, etc.) are made accessible to the public or have restricted access. If they are public, then anyone has access to them. If access is restricted, communities must recognise that researchers cannot know what is not made available to them, and cannot be blamed for mistakes that are made as a result.
- Final reports should be distributed and made widely available in the communities.
- Participants in TEK projects should be compensated appropriately and clearly acknowledged in publications, unless they wish to remain anonymous.
- Recognising the cultural dimensions of TEK and its importance to the community, researchers should ensure that TEK is presented in plain English and in indigenous languages.

Application

- TEK should be made readily available for the co-management processes in place (e.g., for wildlife management and environmental impact assessment). An example of this is the preparation and use of community conservation and wildlife management plans.
- Co-management itself should be recognised as an application of TEK.
- Identification of resource use areas and critical wildlife habitat should be used for purposes of assessing industrial impacts. Hunters' observations of environmental changes should be documented during and after industrial development projects as part of a monitoring program. This process can continue long after the project is completed and other monitoring ceases.
- Scientists should review available TEK documentation while planning their studies, as this can help save time and money while improving the quality and focus of the projects.
- TEK should be incorporated into post-secondary education to increase awareness, understanding, and respect for it by new scientists.
- Cultural awareness and appreciation should be promoted in the general public. This can be done through presentations about TEK and locally-controlled tourism that emphasizes TEK. These types of activities must remain under local control to avoid such problems as interfering with wildlife harvesting and the associated way of life.

Integration

- While TEK and scientific knowledge have inherent strengths and weaknesses, taken together they provide a stronger basis for decision making. Where possible, neither should be used alone. Other types of information, including the social sciences, should also be included.
- Each type of information base should be used to better the understanding of an issue and to help find a solution. Such issues include setting regulations and rules for animal harvests, which cannot be culturally relevant without TEK and may be scientifically unsound as well. To ensure that traditional wildlife management practices are incorporated, elders' knowledge of traditional harvest practices and rules should be documented before it is lost.
- There should be an atmosphere of co-operation, not of competition. For research using TEK to be effective, it has to be a collaborative effort between the researcher and the community.
- Management organisations and permitting processes should facilitate the incorporation of TEK into scientific studies wherever possible by:
 - * requiring community consultation and review at the concept and design stage (e.g. to identify the best times and places for research and to avoid interfering with local activities such as hunting)
 - * including local researchers/assistants during the delivery and reporting stages, recognising their expertise and not simply using them as labourers
 - * assisting communication between all parties, especially reporting results of studies back to the communities.

These activities could be co-ordinated and carried out by a screening committee.

- TEK should be considered an important part of the knowledge base and not a token.
- Programs should be developed for upper management to increase their awareness and understanding of TEK.
- TEK and scientific knowledge are based on different cultural contexts. All who are involved in this work should put themselves in the other' s shoes, use open communication, be flexible, and listen.
- Governments, non-government organisations (NGOs), and international organisations should not only incorporate TEK in their programs, but should involve indigenous peoples and local organisations in the development of policies and action plans that affect indigenous peoples and local communities.

Training

- Researchers who may work in indigenous peoples' regions should have cross-cultural training so they can better understand and work with indigenous people. This is a shared responsibility of agencies, universities, and local communities, and could include using TEK in science courses, having elders teach students, and promoting land-based education.
- Community residents should receive training to better understand their own community' s history and traditions, as well as the perspectives of science and the western world. This will help them learn the skills needed to conduct TEK work themselves.
- Funding agencies should recognise the need for cross-cultural training and exchanges before research begins, and allow time for this to take place. Specific consideration should be given to allow researchers to learn indigenous languages. Spending time on the land, such as in outpost camps, is an excellent way for researchers to learn about the values and importance of TEK, and should be encouraged.

Background

Indigenous knowledge has been recognised by the Arctic Environmental Protection Strategy (AEPS) as an important aspect of conservation in the Arctic. To help understand how TEK may be used with the AEPS, the Government of Iceland hosted the Seminar on Integration of Indigenous Peoples Knowledge in September 1994. This seminar produced a set of recommendations for the AEPS and its programs, some of which have been implemented.

Also in 1994, the Inuit Circumpolar Conference (ICC) was beginning its project, "Traditional Ecological Knowledge of Beluga Whales: An Indigenous Knowledge Pilot Project in the Chukchi and Northern Bering Seas," carried out in Chukotka, Russia, and Alaska. This project was under the joint lead of Canada and the United States in the AEPS working group on Conservation of Arctic Flora and Fauna (CAFF), and was intended to demonstrate how TEK could be documented for incorporation into the work of the AEPS. The field work for this project was completed in 1996.

In discussing the indigenous knowledge pilot project with representatives of the Fisheries Joint Management Committee (FJMC) in Inuvik in 1994, ICC and the FJMC decided that it would be valuable to bring together many experts who had first-hand experience in similar work around the Arctic. This seminar was the result, and was part of the CAFF work plan for 1996-97. The FJMC hosted the meeting, and was co-organiser with ICC. Beluga whales were chosen as a focus for the seminar, but other subjects were included as well. Therefore, these recommendations are based on a broad range of practical experience.

The FJMC and ICC will forward the seminar's recommendations to CAFF and the AEPS, through the U.S. and Canada as joint leads of the overall project. The FJMC and ICC also hope that the recommendations will be of use to the seminar's participants and their organisations, and to others who are working with these fields and issues throughout the Arctic and elsewhere.

Appendix II

Review of Co-Management Systems

Presented to the CAFF Working Group Meeting
Rovaniemi, Finland, September 9 - 12, 1996

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1. Introduction

In September 1994, the CAFF Working Group adopted a work plan item calling for a report reviewing co-management systems. Under the joint lead of the United States and Canada, this item responded to a recommendation of the Seminar on Integration of Indigenous Peoples' Knowledge held in Reykjavik the previous week. The report was to describe the structure, strengths, and weaknesses of systems of co-management of natural resources in the United States, Canada, and elsewhere in the Arctic region. Initial plans to co-ordinate with an international conference on common property systems in 1995 could not be realised.

At the Moscow CAFF Working Group meeting in September 1995, the work plan item was modified to focus on a planned international conference on co-management in Inuvik, Canada, as the principle vehicle for the review.

The Inuvik Conference on Circumpolar Aboriginal People and Co-Management Practice was held from November 20-24, 1995. Hosted by the Inuvialuit Game Council and the Joint Secretariat - Inuvialuit Renewable Resources Councils, the Conference also owed much to the initiative and organizing efforts of the Arctic Institute of North America. Over 240 participants from 5 countries participated in detailed discussions of co-management experiences in settings as diverse as Alaska, Canada, Greenland, and the Russian Kola Peninsula.

The Inuvik Conference was very successful in the breadth and range of case studies reviewed. More particularly, the organisers had planned for a focus on practical lessons. As a result nearly all the participants spoke from the basis of direct experience and responsibility in one of the co-management systems under discussion. Also significant was the time depth of the some of the systems under review. Several of the formal co-management bodies under discussion had more than a decade of experience to draw from, including those in the Inuvialuit Settlement Region of the Northwest Territories and the Yukon, and in James Bay, Quebec.

Given the location, the Conference was highly focused on Canadian cases of co-management. Coverage of Alaska, Greenland, and the Kola Peninsula, was limited to broader surveys. Nonetheless, the goal of careful review of practical experience was well served by this mix of broad overviews of diverse national experiences and highly detailed discussion of important Canadian examples.

The purpose of the CAFF Working Group review of co-management was admirably served through the Inuvik Conference. Sessions focused on the themes of local participation and traditional knowledge, wildlife research and harvest studies, finances and administration, and special issues in management of fish, marine mammals, migratory waterfowl, and ungulates. For each theme, a number of key case studies were presented. The proceedings are described in a detailed report of just over one hundred and fifty pages. A limited number of copies has been provided to CAFF delegations.

For the general benefit of the CAFF Working Group, a more limited summary of the results is provided in the present report. Following an initial discussion of the concept of co-management, its structures, strengths and weaknesses are summarised. A concluding section recounts the recommendations adopted by the Inuvik Conference.

2. The Concept of Co-Management

The term co-management has come into widespread use in Canada, Alaska, and elsewhere during the past decade. However, there is no broadly accepted definition. Typically, co-management refers to commissions or boards that share significant responsibilities between local users and resource agency managers in the conservation and allocation of public resources. Co-management systems also attempt to bridge the cultural differences between local users and managers, particularly through commitments to consensus decisions and consideration of local, traditional knowledge alongside western science. In the words of the Inuvik Conference:

Co-management involves..

- Sharing of responsibility for resource management between government agencies and resource users
- Balancing power between resource users and government agencies
- Co-operation between resource users and government agencies
- Resource users taking responsibility for management decisions
- Participation of resource users the management process and decisions making
- Consultation with local harvesters and communities
- Education and information sharing
- Communication and networking with other resource management organisations
- Recognising and addressing cultural and linguistic barriers to participation
- Consensus decision making
- Using ecologically sound management principles
- Exercising flexibility in addressing management issues
- Being adaptable to local concerns
- Using both scientific and indigenous knowledge in management decisions
- Research
- An Administrative and technical support body to handle logistic

Source: Circumpolar Aboriginal People and Co-Management. Conference Proceedings prepared by Karen Roberts. Calgary, Alberta: Arctic Institute of North America and Joint Secretariat, Inuvialuit Renewable Resource Committee. 1996. p.4

Beyond these broad commonalities, the term co-management is subject to many sharply divergent connotations. In large part, this results from highly specific national legal structure and historic setting in which co-management arises. Most Canadian co-management regimes are the result of detailed negotiations in the context of aboriginal land claims settlements. In contrast early co-management experience in Alaska was largely a pragmatic effort to build consensus in responding to conservation crisis concerning species under federal jurisdiction, including marine mammals and migratory waterfowl. For the most part, these innovations were practical to the Marine Mammal Protection Act in 1994 does the term co-management actually appear in federal legislation in the United States.

In crucial area of difference, the term co-management is used descriptively to refer to committees and boards with widely differing authorities, ranging from purely advisory to decisional, with several steps in between. An early Canadian effort to order this diversity has recently been adapted and widely circulated in Alaska (See Attachment 1. Levels of Co-Management). At the same time, co-management is often invoked in a normative sense to embody Indigenous peoples' aspirations for greater self-governance and jurisdiction over resources. This ambiguity has led to apprehensions on the part of some governments that discussions about co-management improperly attempt to delegate legal authorities to local users without the necessary foundation in legislation.

3. Structures of Co-Management

The Inuvik Conference included many examples of co-management structures, displaying a complex mix of local and regional entities, as well as institutions with completely local membership alongside those with joint membership of local users and government agencies.

The structures created under the Inuvialuit Final Agreement of 1984 are representative of the common model in Canada. Five co-management Boards with equal Inuvialuit and government membership exercise specific responsibilities for environmental review and wildlife management. An administrative secretariat provides logistical support. The co-management Boards rely for regional representation upon the Inuvialuit Game Council which includes a member from each Inuvialuit community. Hunters in each Inuvialuit community are in turn organised into a local hunters and trappers' committee. For the most part, the co-management boards are advisory to the Ministers responsible. However, the recommendations are generally adopted by consensus, including the support of the government representatives. As a result, the recommendations are rarely reversed. The Inuvialuit participants at the Inuvik Conference expressed satisfaction that the co-management committees have functioned in a way which provides for effective power-sharing.

A contrasting structure is found in Alaska, where most co-management bodies are comprised of local hunters. This is the case of the Alaska Eskimo Whaling Commission, the Eskimo Walrus Commission, the Waterfowl Conservation Committees, and others. These bodies have achieved highly influential roles advising government managers on wildlife population dynamics, conservation, and allocation. They also play a key role sharing in implementation of conservation limits on hunting by their members.

Co-management bodies exercise a wide range of responsibilities. This includes the broad management functions of research on resource abundance and community harvest levels, allocation decisions, long-range planning, and implementation through regulation, proactive communication, and enforcement. The Inuvik Conference identified the following roles:

Co-Management committees are responsible for..

- Conservation and management plans for a region
- Species management plans
- Long-term planning strategies
- Crisis management plans
- Habitat protection
- Policy review and development
- Communication and networking with other resource management agencies
- Consultation with local harvesters and communities
- Education and communication
- Consensus decision making
- Data gathering and analysis
- Regulation, allocation, and enforcement of harvest limits

Source: Circumpolar Aboriginal People and Co-Management. Conference Proceedings prepared by Karen Roberts. Calgary, Alberta: Arctic Institute of North America and Joint Secretariat, Inuvialuit Renewable Resource Committee. 1996 p. 5

4. Strengths

The co-management approach has gained in popularity because it provided practical solutions to resource management dilemmas. Many of these were based in a lack of communication and shared perspective between resource manager and local hunters. As a result, the conservation purposes of the agencies were misunderstood by local hunters, participation in harvest reporting was limited, and voluntary compliance with regulations was not consistent. Co-management structures have often served first of all as a forum for communication leading to greater mutual understanding and shared commitments. In the words of the Inuvik Conference:

Co-Management results in..

- Co-operation between government managers and local harvesters
- Creation of new relationships and partnerships between government managers and local harvesters
- Increased communication about resources and species populations
- Increased trust and respect between resource users and government
- Minimisation of resource conflicts

- Improved ability to manage and protect resources
- Increased support for indigenous knowledge and management systems
- Development and implementation of species plans
- Improved data collection and analysis

Source: Circumpolar Aboriginal People and Co-Management. Conference Proceedings prepared by Karen Roberts. Calgary, Alberta: Arctic Institute of North America and Joint Secretariat, Inuvialuit Renewable Resource Committee. 1996. p.5

5. Weaknesses

The detailed review of case studies identified a range of issues or areas for improvement in current co-management efforts. Representative examples are described here. Of crucial importance, progress towards co-management is dependent upon a measure of good will by governments and other interest groups. It was reported that strong governmental opposition to co-management had brought discussion to a stand still in some regions and that international lobbying opposing Indigenous peoples' harvest opportunities had an adverse influence in others.

Conference participants also highlighted the problems resulting from complex overlapping jurisdictions at the international and national levels. Migratory resources frequently come under the jurisdiction of different national, state, and territorial governments. In some cases, a number of Indigenous peoples share in the conservation and harvest of a particular resource. As a result, effective co-ordination in management involves very complex institutional arrangements. This requires time consuming discussion to develop consensus and co-ordinated action.

Ambiguous authority is also a problem. As noted above, co-management systems often function as enhanced advisory bodies. In some cases, the lack of clear decision-making authority was not successfully overcome by consensus building. Indigenous participants objected to the limits of an advisory role.

Differing values in regard to western scientific research methods and traditional knowledge continue to challenge co-management committees. Some Indigenous communities object to use of intrusive research methods, particularly radio-collaring. Conversely, traditional knowledge is sometimes dismissed as lacking in substance.

Administrative uncertainties pose problems, particularly where negotiations over annual funding agreements have been nearly constant. Co-management committees cannot assure the functions of information exchange, communication, and shared responsibility for decisions without consistent administrative services.

Within the dialogue process of co-management committees, participants emphasised that language and terminology can act as barriers to effective communication. It is of central importance that scientific and technical information can be conveyed in forms that are readily accessible to the Indigenous members and local communities. It takes time for co-management committees to create shared experience and an atmosphere of frank exchange. When membership changes frequently, it is difficult to establish the basis for mutual understanding.

Finally, the Conference participants noted that co-management committees must be vigilant to maintain open communication with local communities. The concerns and needs of local communities must be effectively conveyed to the committees and the resulting actions must be explained to local residents.

6. Conclusion

The Inuvik Conference provided richly detailed discussion of the practical experience of co-management in a wide variety of forms and contexts. These cases provide many insights into new and innovative methods, both formal and informal, for local involvement in Arctic conservation and resource management. Though many aspects of structure and jurisdiction are unique to particular national settings, many of the points have wider general application. The need for improved dialogue regarding scientific research methods and traditional knowledge, for example, is widespread in the north.

The momentum for co-management continues to grow among the Arctic Indigenous peoples. The Inuvik Conference emphasised the importance to Indigenous people of sharing co-management knowledge so that early experiences could benefit those involved in later negotiations. Governments, too, can benefit from these experiences.

The recommendations identified by the Inuvik Conference are quite diverse. Some respond to very local situations reported in case studies, while other have more general applicability. The full set of recommendations is included below.

The CAFF work plan contemplated a review which could serve as a central source of information. Recommendations were not requested and none are offered as a part of this report for specific consideration and adoption by the CAFF Working Group. Nevertheless, it is appropriate for the CAFF Working Group to express appreciation to the organisers and participants in the Inuvik Conference on Circumpolar Aboriginal People and Co-Management Practice. The results of the Inuvik Conference constitute a major contribution to the ongoing CAFF Working Group effort to include Arctic Indigenous people and their environmental knowledge in Arctic conservation programs.

Recommendations:

1. Ensure that communities consider the power and influence of the international community, in particular certain lobby groups, when developing management plans
2. Use traditional knowledge to inform decision making and management plans. Elders' knowledge is important and must be recognised and used before it is lost.
3. Map traditional land use to show government and other land users the long history of land use and to help revitalise community knowledge.
4. Ensure that management bodies recognise and respond to community observations and consider them in decision making. Aboriginal people can provide many valuable observations about wildlife and the environment.
5. Provide funding to users for documenting traditional environmental knowledge. Increased funding is needed now for traditional knowledge studies, because elders are dying without passing on their knowledge.
6. Provide equal funding for both scientific and traditional knowledge studies.
7. Do not set aside land so that people have no opportunity to continue their livelihood. It is important to recognise that all people must make a living off the land.
8. When managing wildlife, consider first the animal's right to exist; the human element should be a later consideration. Wildlife knows how to manage themselves. People must learn to co-exist with wildlife.
9. Census fluctuating caribou herds without using radio collaring.
10. Organise community working groups to aid in research to stop cultivating the myth of the "research expert." Cultivate a shared purpose and working arrangement instead.
11. Hire local people to conduct research. There is a real need to put work back into the communities, and wildlife research is one avenue for improving the local economic situation.
12. Involve young people in research and management activities, since any management project is a key part of their future.
13. Ensure that communities meet with the various research agencies to prioritise research needs and approve studies.
14. Co-ordinate research activities through co-management committees to help lessen the burden placed on communities by the numerous studies that are conducted.
15. Study the new muskox population on the Yukon north slope immediately. Early action on this issue may help avoid problems of caribou and muskox interactions later on.
16. Make the muskox issue a co-management priority. Being proactive is the key, since much is unknown about muskox populations.
17. Take a more strategic approach in wildlife management and identify long-term goals.
18. Use alternative approaches such as participatory action research to document traditional land use and involve local communities.
19. Explore alternative funding arrangements for the Inuvialuit co-management regime, such as establishing a permanent trust fund.

Source: Circumpolar Aboriginal People and Co-Management. Conference Proceedings prepared by Karen Roberts. Calgary, Alberta: Arctic Institute of North America and Joint Secretariat, Inuvialuit Renewable Resource Committee. 1996. p. xii

**Levels of Co-Management
by Amount of Community Authority**

8. Community control	When resources are manageable locally, power is delegated to or assumed by community; self-regulation may take place
7. Partnership	Partnership of equals between state and Native users; joint decision-making institutionalised
6. Management Boards	Community is involved in policy and decision-making about some objectives, board decisions are binding
5. Co-operation	Use of local knowledge and Native research assistants; some management activities are contracted to local Native groups
4. Regional Councils and Advisory Committees	Partnership in decision-making may start; common objectives sought; advisory only, though government may be required to respond to non-binding recommendations
3. Communication	Two-way communication begins; research plans begin to include local community
2. Consultation	Community consulted on projects; feedback from research findings go to community
1. Informing	Users are informed about regulations; communication is one-way

1. Source: Schwarber, Jim. Native American Fish and Wildlife Society. Alaska Regional Office.
2. Adapted from Berkes et al. 1991. Co-Management: The Evolution of the Theory and Practice of Joint Administration of Living Resources. TASO Research Report, Second Series, No. 1. Hamilton, Ontario: McMaster University, p. 36.

Appendix III

Main publications of CAFF¹³.

CAFF Habitat Reports:

1. The State of the Protected Areas in the Circumpolar Arctic (August 1994)
2. Proposed Protected Areas in the Circumpolar Arctic (June 1996)
3. National Principles and Mechanisms for Protected Areas in the Arctic Countries (March 1996)
4. CPAN Principles and Guidelines (March 1996)
5. Gaps in Habitat Protection in the Circumpolar Arctic (February 1996)
6. CPAN Strategy and Action Plan (March 1996)
7. CPAN Progress Report 1997 (June 1997)

CAFF Technical Reports

1. Atlas of Rare Endemic Vascular Plants of the Arctic (June 1997)
Forthcoming:
 2. Status and Conservation Issues for Eiders in the Arctic (September 1997)
 3. Incidental take of Seabirds in the Arctic (September 1997)
 4. Human Disturbance at Seabird Colonies (September 1997)
 5. Threats to Arctic Biological Diversity (January 1998)

CAFF Strategies

- International Murre Conservation Strategy and Action Plan (March 1996)
- Circumpolar Eider Conservation Strategy and Action Plan (June 1997)
- The Co-operative Strategy for Conservation of Biological Diversity in the Arctic Region (June 1997)

Program Management and Information Activity

- CAFF Framework Document (March 1996)
- CAFF Annual Work Plan 1996-97

- CAFF III Reykjavik 1994 - Proceedings (1994)
- CAFF IV Moscow 1995 - Summary Report (February 1996)
- CAFF V Rovaniemi 1996- Summary Report (March 1997)

- Report of the Working Group 1992-1993 (1993)
- CAFF Report to Ministers (March 1996)
- CAFF Report to SAAOs (June 1997)

- CSWG Bulletin, vol 1-2, (1995-1996)
- CAFF Newsletter, vol 1-2 (1995-1996)

¹³ Most of these publications are available upon order from the CAFF International Secretariat

Appendix IV

Biodiversity Strategy objectives: Priority ranking

	Can	Gre	Fin	Ice	Nor	Rus	Swe	USA	ICC	SAAMI	RAPON	TOTAL
3 Conservation of species and their habitats	4	4	4	4	4	4	4	4	4	4	4	44
7 Activities outside protected areas	4	4	4	3	4	4	4	4	3	4	3	41
10 Integration of biodiversity conservation and sustainable use	4	4	2	4	3	4	3	4	4	1	4	37
6 Protected areas	3	4	2	4	4	4	3	2	3	4	3	36
2 Monitoring biological diversity	3	3	2	4	4	4	2	3	4	2	4	35
9 Sustainable use of Arctic flora and fauna	4	4	3	3	3	3	1	3	4	1	4	33
1 Identify biological diversity	2	2	3	4	2	2	4	4	4	2	2	31
4 Threats to biological diversity	2	2	4	3	x	3	3	3	4	2	3	29
14 Public education and awareness materials	3	3	4	3	2	2	2	2	3	3	1	28
11 Sharing of data and information	2	3	2	3	4	3	2	2	3	2	1	27
8 Co-operative research related to biological diversity	3	1	3	2	1	1	3	3	1	1	1	20
12 Harmonisation of legislation, etc.	1	2	1	1	2	1	2	2	3	4	2	21
5 Environmental Impact Assessments	2	1	1	2	1	2	1	1	2	3	2	18

RANKS:

1 = low

2 = medium

3 = medium/high

4 = high

* The involvement of local and indigenous people is anticipated in every objective and therefore not ranked specifically.