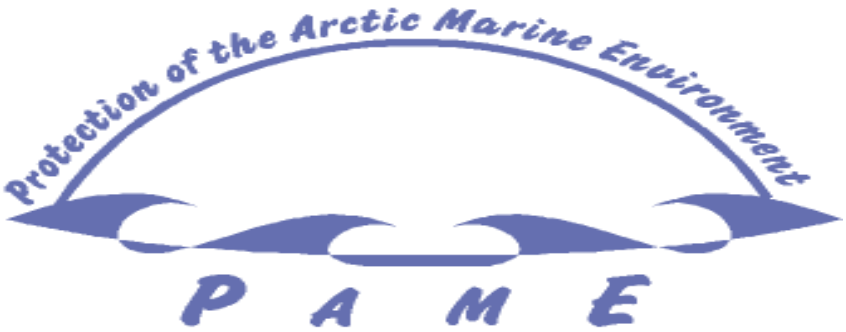

PROGRAM FOR THE

PROTECTION OF THE ARCTIC MARINE ENVIRONMENT

PAME

Working Group Meeting Report

June 5-8, 2000
Copenhagen, Denmark

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Session I: Introduction

Session I (1): Adoption of Agenda

The Protection of the Arctic Marine Environment (PAME) Working Group met in Copenhagen, Denmark, June 5-8, 2000. Participants attending the meeting are shown in Appendix I.

The meeting was chaired by John Karau from Canada. A list of documents submitted for consideration at the meeting is shown in Appendix II.
The meeting was opened with a warm welcome from the Deputy Director-General of the Danish Environmental Protection Agency, Mr. Karsten Skov.

The meeting adopted the agenda as shown in Appendix III. The Chairman noted that the primary objective for the PAME meeting was to prepare for the upcoming Ministerial Meeting in October 2000, with a particular emphasis on recommending possible Ministerial deliverables and ensuring that PAME's workplan was up to date.

Session I (2): Report from PAME Secretariat

The PAME Secretary provided a summary budget statement on the operational costs for the first 7 months of its operation, and the country contributions received for the year 1999 – 2000 (Appendix IV).

Commitments for further contributions (2000 – 2001) towards the operation of the PAME Secretariat were confirmed by the following countries:

Canada
Denmark
Finland
Iceland
Sweden

USA confirmed its commitment towards a 2-year voluntary contribution for the PAME Secretariat.

Norway noted that its voluntary contribution was directed to specific PAME projects (i.e., Shipping Analysis).

Session I (3): Debrief from SAO Meeting

The Chairman introduced a Secretariat paper on the highlights from the recent Senior Arctic Officials (SAO) meeting held in Fairbanks, Alaska. He noted the value of the Advisory Committee on the Protection of the Sea (ACOPS), the

World Wide Fund for Nature (WWF) and the International Union for the Conservation of Nature (IUCN) reporting on their respective PAME activities as part of his presentation to SAOs. He also noted that SAOs expressed strong interest in having a clearer understanding of the linkages among projects that appear to overlap one another. United States added that the issue of coordination and complementary work should also apply to the Sustainable Development Working Group and noted that the recent sustainable development workshop on Oil and Gas overlapped with PAME's work.

As a way to help promote the work of PAME in a global context, the Chairman observed that PAME's work program is very similar to other Regional Sea Programmes and Action Plans. PAME is again invited to participate in the next Global Meeting of Regional Seas Conventions and Action Plans scheduled for November 2000.

Session II: Shipping Activities

Session II (1): Snap Shot Analysis

Norway noted that a Correspondence Group on Shipping Activities in the Arctic had been established in January 2000. A questionnaire was distributed to PAME representatives requesting relevant information to carry out a Snap Shot Analysis of current and future shipping activities in the Arctic.

The draft Snap Shot Analysis submitted by Norway included updated information from several countries and from other sources such as Lloyds World Fleet Statistics, Fairday Ship database and the OCEAN-Atmospheric data set (OADS). Although lacking in updated information on fishing activities, the report provided an updated picture on shipping activities in the Arctic. The analysis also identified future trends and concluded that bulk carrier and cruise vessel traffic were expected to increase. Regarding bulk carriers, increased traffic of oil tankers within and from northwest Russian region is expected.

The Snap Shot Analysis also identified shipping activities and associated environmental risks, including a summary of the analysis in a matrix format to help provide a clearer picture for possible response by PAME representatives.

Iceland commented on the lack of data regarding the fishing fleet.

Finland noted that they had responded to the Snap Shot Analysis questionnaire prior to the meeting.

Canada and Iceland commented that they had come to the meeting with a completed response to the questionnaire regarding the Snap Shot Analysis.

Denmark/Greenland/Faroe Islands commented that they had also come to the meeting with information on fishing activities.

USA commented that the Exon Valdiz was not within the Arctic region as defined by the Arctic Council (AC), and that the Military activities are not included in the AC.

In response to a question from the Inuit Circumpolar Conference (ICC), the chairman confirmed that military activities are not included in the AC.

Several participants noted the linkage between the Shipping Analysis and the consideration of Oil and Gas activities.

The Chairman noted that PAME has a leadership role with respect to shipping activities and needed to work in a collaborative fashion with other working groups (Arctic Monitoring and Assessment Programme (AMAP), Conservation of Arctic Flora and Fauna (CAFF) and Emergency Prevention, Preparedness and Response (EPPR)). The meeting noted that the Snap Shot Analysis identified areas of potential concern. The meeting also recognized that criteria for making decisions were needed and information supporting Table 1.2 was lacking.

Shipping experts from Norway, Canada and Denmark were in attendance at the meeting and they were requested to review the Snap Shot Analysis during the meeting. They used the following Terms of Reference developed by PAME:

1. Consider including the existing additional information provided by the Arctic countries according to the questionnaire 2000.
2. Look into maritime operations of concern (Table 1.2/9.1) and the reasoning given in Chapter 9.3.
3. In presenting Tables 1.2/9.1, include issues addressed in other forums.
4. Evaluate if the snapshot analysis can be recommended as a base document on the shipping activities in the Arctic.
5. Pending the outcome of the evaluation, recommend subsequent next steps including:
    - A PAME/EPPR peer review
    - Identification of possible additional information required.

Session II (2): Report on the Northern Sea Route User Conference

Norway reported on the Northern Sea Route (NSR) User Conference that was held November 18-20 1999 in Oslo, Norway. The conference focused on the main results of the 6-year International Northern Sea Route Programme (INSROP), which concluded in 1999, and the market response to the NSR as a commercial alternative route.

The INSROP´s main conclusions were that it was feasible to have the route as a transit route for commercial traffic and that ships could be built to operate safely in the route. The commercial viability of the route is however uncertain due to the ongoing political change in Russia. Due to the negative market response presented at the conference, it appeared unlikely that there will be commercial transit traffic through the NSR in the near future, but increased traffic to and from Northern Russia can be expected.

Finally it was noted that the INSROP Programme had provided important research results which can be used to help reduce environmental risks from shipping activity in Northern Russia.

Session II (3): Report on Polar Guidelines

Canada provided an update on the development of the Polar Guidelines and informed the meeting that in March, 1998 at International Maritime Organization's (IMO) forty-first meeting of the Ship Design and Equipment Sub-Committee (DE 41) an Outside Working Group submitted a draft *Code of Safety for Ships in Polar Waters*, also know as the *Polar Code*. During this meeting there were several tasks noted, which later resulted in the formation of a Correspondence Group whose objective was to address those tasks.

Following a Marine Safety Committee (MSC) meeting the DE was asked to remove the *Polar Code's* application to Antarctic waters and to confirm that the Polar Code would be a non-mandatory document which was MSC's original intention as stated in May of 1997.

Since the last PAME Working Group Meeting in November, 1999, the Correspondence Group reported back to IMO at DE 43 in December 1999. At that meeting, the most significant change to the *Polar Code* was it's resubmission to DE as a new document entitled *Guidelines For Ships Operating In Ice-Covered Waters*, more commonly referred to now as the ***Polar Guidelines***. As stated earlier, all the references to the Antarctic have been removed, however the signatory nations to the Antarctic Treaty have initiated their own work on a parallel set of Guidelines. The *Polar Guidelines* will be referred to DE's next meeting (DE 44) for further consideration.

Canada was asked if Det Norske Veritas (DNV), Norway's Classification Society had a role in the development of the *Polar Guidelines*. Canada responded yes that DNV, like a variety of other classification societies, belonged to an organization known as the International Association of Classification Societies (IACS).

Further information, discussion points or specific material related to the *Guidelines* generated by the correspondence group can be accessed at: http://www.tc.gc.ca/polarcode

The meeting agreed that PAME would continue to monitor the progress and development of the Polar Guidelines.

Session III: Offshore Oil and Gas Guidelines

Session III (1): WWF Report on the Evaluation of PAME Offshore Guidelines

WWF presented a progress report on their evaluation of the PAME Guidelines given to the SAO's in April 2000. WWF reported that Canada and Norway had provided helpful comments (see below, Session III(2)) on the structure and criteria WWF proposed using for its evaluation of the effectiveness of the PAME Offshore Guidelines. WWF incorporated nearly all of these comments and welcomed additional input.

The revised evaluation will have two stages: first, a general assessment of whether or not the Guidelines are being used; and second, an analysis of three case studies that will show whether the Guidelines are effective or whether they need revision. For the first stage, WWF will employ relatively informal methods such as surveying PAME representatives and contacting those regulators involved in the three case studies. For the second stage, WWF will examine three proposed offshore developments – Northstar, Shtokmonovskoye, and one other site to be decided – to see whether the standards employed meet or exceed the Guidelines, and how these standards match up against the criteria presented to and commented upon by PAME. WWF anticipates that the evaluation will be finished in October, in time for it to be distributed at the Arctic Council Ministerial Meeting in Barrow, Alaska.

Session III (2): WWF Report on PAME Comments

WWF reported on comments received from Canada and Norway. The comments WWF received from Canada focused primarily on the need to structure the proposed evaluation so that it first addressed the question of whether the PAME Guidelines were being used. WWF incorporated this point and the evaluation is now restructured along the lines that Canada suggested.

The comments WWF received from Norway covered several issues, among them the need for the Guidelines to address regional differences; the need to cover both offshore and onshore impacts, and perhaps even onshore development, in one document; and an overly strong focus in WWF's evaluation on both shallow water development and development in Alaska. In addition, Norway recommended that WWF select a different site in Russia, Shtokmonovskoye, than the site WWF initially had picked. To the extent possible, WWF has incorporated these recommendations.

Session III (3): Report on the Workshop on "Production of Oil and Gas in the Arctic in a Sustainable Perspective"

Norway reported on the workshop on Production of Oil and Gas in the Arctic in a Sustainable Perspective held in Tromsø, Norway, March 2000. The workshop had been announced at the Iqaluit Ministerial Meeting in 1998. About 60 participants from USA, Canada, Greenland, Denmark, Finland, Russia and Norway attended the workshop, representing industry, authorities, indigenous people and NGO´s. The workshop had fruitful presentations and discussions on several aspects of sustainable production of oil and gas in the Arctic, including the application of the PAME Oil & Gas Guidelines. There are no plans for future workshops of this kind on oil & gas activities in the Arctic.

Norway informed the meeting of an upcoming Expert Meeting on Environmental Practices in Offshore Oil and Gas Activities to be held in Stavanger, Norway, June 29-30, 2000. The Expert Meeting is a follow-up of a similar meeting held in Noordwijk, Netherlands in 1997. The Meeting will be arranged in close co-operation between Norway, United Nations Environment Programme (UNEP), Oil and Gas Producers (OGP) and the Netherlands. A main objective is to enhance the exchange of information and experience between different regional seas as a follow-up to the recommendation made at CSD-7.

Session III (4): Report on the RUNARC Project

Progress on the RUNARC (Russian Federation, Norway and USA Cooperation) project, trilateral agreement between USA, Norway and Russia was presented. This cooperation is on-going and provides a good example of cooperative effort.

Session III (5): Report from IUCN/OGP

The representative from OGP noted his appreciation for the earlier comments provided on the draft IUCN/OGP operator guidelines and expressed OGP's and IUCN's continued interest in revising the Guidelines. IUCN is currently seeking resources to support their involvement. OGP noted that they are also considering updating their onshore and offshore guidelines as a single document. In addition, he noted that the World Bank Guidelines on Oil and Gas have been developed and that UNEP's Paris office has developed an oil and Gas website at: http://www.natural-resources.org/offshore

WWF raised the issue of promoting the highest standards possible such as a zero discharge policy.

Denmark/Greenland/Faroe Islands encouraged OGP to provide more detailed guidance and information to industry on best available technologies and environmental practices for environmental protection and conservation.

In response to a question from WWF, Norway clarified that their "zero discharge" policy related to the discharge of produced water from offshore oil installations. The policy relates in particular to the discharges of hazardous chemicals contained in produced water and it applies to new developments. A precondition for the policy is the possibility to re-inject the produced water into the reservoir at the field or a field nearby.

ICC raised a question on the possibility of establishing an environmental fund to meet future risks not yet analysed or recognised. OGP responded that such arrangements do exist and are established between states and oil companies.

The meeting agreed that an immediate request should be made for both specific and general comments on revising the PAME Offshore Oil and Gas Guidelines and should include suggestions on other measures that PAME might undertake in this field. These comments and suggestions would be considered at the next PAME meeting tentatively scheduled for January/February 2001. They would form the basis for determining the best approach for addressing possible guideline revisions and whether other actions in this area are necessary. PAME also agreed that their guideline review process would take into account the WWF review project, IUCN/OGP guidelines, World Bank Guidelines, UNEP Oil and Gas web-site information, and results from the June 2000 Oil and Gas Conference to be held in Stavanger, Norway. USA agreed to continue as lead country on the oil and gas guideline review.

Session IV: Regional Programme of Action

Session IV (1): Progress Report from Russia/ACOPS

The Russian Federation and the Advisory Committee on the Protection of the Sea (ACOPS) provided the following presentation:

The National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation (Russian NPA-Arctic) was developed gradually over the last 7 years. Currently the Russian NPA-Arctic is implemented by the Working Group of the Inter-Agency Commission on Arctic and Antarctic in cooperation with ACOPS. After the recent beginning of a new presidential term in the Russian Federation, significant changes in the structure of the Russian Government were introduced. The State Committee on Affairs of the North (Goskomsever) was dissolved and its functions were transferred to the new Ministry of Economic Development and Trade, with Minister Mr. G. Gref. The State Committee for Protection of the Environment (Goskomecologia) was also dissolved and its functions were transferred to the Ministry of Natural Resources, with Minister Mr. B Yatskevich. These two Ministries will now play a leading role in the further development and implementation of the Russian NPA-Arctic. The general approach of giving high priority to economic development in the Northern Territories, as well as protection of fragile Arctic environment remains the same.

The Russian NPA-Arctic is in its first phase of implementation (1999-2002). A key aspect will be the Partnership Conference scheduled for mid-2001. The following activities of the Russian NPA-Arctic are being implemented in the framework of the PDF-B Russia Project (GF/1100-99-13) “Support to the National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation”:

- Review and evaluation of relevant legislative and administrative arrangements at federal and regional levels (document to be prepared by July 2000);
- Analysis of pollutant transport mechanisms and zones of impact (document to be prepared by July 2000);
- Identification, characterisation, and prioritisation of hot-spots (document to be prepared by November 2000); and
- Analysis of the existing practice in preparation of pre-investment studies in the Russian Federation and development of guidelines for their future preparation (document to be prepared by November 2000).

Besides these activities four new activities from the Russian NPA-Arctic have been initiated. These are:

- Identification of existing capacity for environmental management in the Arctic (document to be prepared by November 2000);
- Programme of measures for radioactive waste and nuclear materials treatment, storage and disposal (document to be prepared by January 2001);
- Development of proposals for restoration of environment at decommissioned military bases in the Russian Arctic (especially in coastal zones) (document to be prepared by January 2001); and
- Preparation (in co-operation with organisations of small indigenous people) of the Arctic Charter to ensure protection of habitat and traditional lifestyle of small ethnic groups and communities and their participation in matters related to the development in areas of their habitats and traditional nature use (document to be prepared by January 2001).

The Russian NPA-Arctic implementation is envisaged to have three phases:

- Phase 1 (1999 – 2002). Creates institutional, legal and managerial basis at federal, regional and local levels. Detailed plans for priority hot-spots are developed. Investment portfolio is presented to Partnership Conference;
- Phase 2 (2002 – 2007). Several priority hot-spots investment projects are implemented and their environmental efficiency is assessed. Means and ways for further improvement in environmental quality are developed; and
- Phase 3 (2007 – 2015 and beyond). Strict international standards of environmental quality and provision for their implementation are in place for the whole Arctic region of Russia. Significant reduction and elimination of hot-spots. Drastic reduction of incremental hazards to marine and coastal environment.

All the above information on the implementation of the Russian NPA-Arctic are contained in the following three documents, which were sent to the participants or were available at the meeting:

- First Six-monthly Report (Oct. 1999 – March 2000) on the implementation of the Russian NPA-Arctic, containing progress report and reports of the first five meetings which were held in the framework of the Russian NPA-Arctic;
- National Plan of Action for the Protection of the Marine Environment from Anthropogenic Pollution in the Arctic Region of the Russian

Federation (Russian NPA-Arctic), containing updated version of the Russian NPA-Arctic; and

- Summary Report on the GEF PDF-B Project "Support to the Russian NPA-Arctic, containing information on the implementation of the Project, Partnership Conference, and involvement of various partners.

The Chair of AMAP questioned whether all the Russia NPA-Arctic hot-spots related to degradation of the marine environment. Russia responded that the more detailed technical assessments for the hot spots demonstrated the connection to the marine and coastal environment.

The Indigenous Peoples Secretariat (IPS) sought clarification regarding the involvement of Indigenous Groups in the NPA-Arctic projects and the Partnership Conference. Denmark also noted the importance of involving the Russian Association of the Indigenous Peoples of the North (RAIPON) .

Russia responded that representatives of RAIPON and civil servants of Goskomsever were invited to all working group meetings of the GEF PDF-B project. They took part in many of the meetings and participated in the production of final documents. In the framework of the Russian NPA-Arctic, a new working group has been created which will prepare an "Arctic Charter" to ensure protection of habitat and traditional lifestyle of small ethnic groups and communities, and ensure their participation in matters relating to the environmental effects of economic development. RAIPON will be a part of this working group and RAIPON will also be involved in the preparation of the Partnership Conference in 2001.

The meeting agreed that the ACOPS/PAME Secretariat report on the GEF Project offered a helpful overview on the progress to date and endorsed the wider distribution of an updated report to all interested parties. PAME also supported the continued collaboration between the PAME Secretariat and ACOPS in support of the project and the upcoming Partnership Conference scheduled for June 2001.

In response to a proposal from Norway, the meeting supported recommending an early announcement for the Partnership Conference. ACOPS reported that such an announcement would be available by October 2000.

In response to a proposal from the USA, ACOPS recommended including an additional day after the next GEF project Steering Group meeting to offer interested PAME participants and other interested parties an opportunity to learn more about the GEF project. The intent would be to promote greater support and coordination of efforts. The meeting supported this recommendation and the promotional day is planned for October 19, 2000.

Session IV (2): PCB Project and Possible links to the Partnership Conference

The Chairman introduced a paper on a Comparative Analysis of Arctic Contaminant Programmes prepared by the chair and ACOPS. He noted that the paper was in response to SAO questions at the Fairbanks Meeting (April 2000) regarding the overlap between various projects and proposals on contaminants in the Arctic (Appendix V). The paper addressed the Russian NPA Arctic draft Arctic Council Action Plan to Eliminate Pollution of the Arctic (ACAP) and AMAP projects and proposals on Arctic contaminants. It suggested that the various projects and proposals could be complimentary but that increased coordination and cooperation is required. Several suggestions were made for improving the paper such as: noting that overlap based on different strategies can be beneficial; changing the title and introduction to reflect the need for coordination as called for in the RPA; and expanding the table format to include additional information. The Chair was requested to revise the paper and circulate to PAME for comments by end of July 2000. A revised PAME paper would then be circulated to the other working groups for their review and possible endorsement prior to forwarding to SAOs for their consideration. The meeting noted that Table 2 found in Appendix VI provided helpful overview information and it was agreed this table should be forwarded to the upcoming EPPR and ACAP meetings for their consideration.

Session IV (3): UNEP/GPA related activities

The Chairman noted that the Coastal Zone 2000 Conference will have a session on the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) / Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (RPA) / Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities (NPA).

With respect to National reporting on implementation of the GPA, USA noted that a recent GPA Experts Meeting convened by UNEP recommended that the underlying purpose of this reporting should be to promote implementation of the GPA. Thus, States should be encouraged to report on a wide range of GPA related activities and lessons learned.

Session IV (4): GPA Clearing-House Mechanism

A presentation on the GPA Clearing-House mechanism was provided by Mr. Kenneth Korporal from the UNEP/GPA Coordination Office with the aim to give PAME members a general overview of the aims, purpose and key characteristics of the GPA Clearing-House mechanism. The GPA Clearing-House aims to be the source for GPA information, data, news and storing of knowledge and

experience in the framework of a series of nodes that comprise the 'network of networks'.

The presentation also reviewed the status of developing the global, regional and pollutant source category of clearing-house nodes. There are many simultaneous developments and implementation activities underway and, in general, rapid progress is being made. The role of the GPA Coordination Office is to promote and facilitate the development of the Clearing-House mechanism. In conclusion, PAME was reminded that the Clearing-house mechanism is a tool to help the delivery of information and experience to decision-makers, especially in developing countries, using the Internet as well as ensuring dissemination in hard-copy and on CD-ROM. The major challenge is to obtain adequate funding and support to implement activities.

Further information on the GPA Clearing-House Mechanism can be found at: http://www.gpa.unep.org

Session IV (5): Canadian Presentation on Most Frequently Asked Questions

Canada presented background information on most frequently asked questions contained in its draft NPA Clearing House. The Clearing House will soon be ready for public release and Canada said it would welcome PAME comments. Canada will provide the website address when the site is available.

Session IV (6): Canadian Clarification on Codes of Practice

Canada presented the following clarification on its interpretation on possible codes of practice for mining:

> *"Codes of practice refer to environmentally responsible and voluntary practices for the prevention and control of pollution from mining operations. This applies to all phases in the production of minerals and metals such as exploration, extraction, processing, smelting and refining. It includes waste management, decommissioning, and site rehabilitation."*

As stated at the last PAME meeting, Canada had offered to lead a PAME project to develop Arctic Mining Guidelines. The Regional Programme of Action calls for Arctic states to "develop and adopt Arctic-wide environmental guidelines on opening, operating and closing of mines in the Arctic coastal zone." The meeting agreed that the development of mining guidelines could be considered as a future PAME activity but was not an immediate priority.

Session IV (7): Co-operation Between and Among Regional Seas Conventions

The meeting noted the importance of PAME's continued contribution and participation in the Global meeting of Regional Seas Conventions and Action Plans.

Session IV (8): ACAP Developments and Possible Related Projects

Norway noted that there are still some open issues in the ACAP strategy. The major issues are the implementation mechanism and the approval procedures.

To help the discussion on the Strategy, Norway has invited SAO's or SAO-designated representatives to attend a separate meeting that will be held in Oslo, June 19, 2000. The technical meeting will be held in Oslo, June 20-21 2000 to discuss the proposals for further actions.

Session IV (9): Other RPA Project Proposals

Denmark introduced its "Proposal on Phasing out Pollution with Chemicals within one Generation". The original proposal to phase out hazardous chemicals within one generation was revised in response to comments from the PAME meeting in November 1999 to make the proposal more compatible with the terminology used within international fora like UNEP. Denmark suggested that the proposal would be a clear signal to neighbouring regions and put the Arctic States in a good position when discussing progressive action in other parts of the world. Denmark advocated that the proposal should go forward to the Arctic Council's ministerial meeting in Barrow, USA for ministerial consideration.

Although the overall goals of the proposal could be supported in principle, the detailed aspects still lacked consensus.

Session IV (10): National Programme of Action (NPA) Progress Reports

Canada informed the meeting that their national programme of action would be released by the Ministers for the Environment and Fisheries and Oceans on Ocean Day, June 8, 2000. Canada agreed to distribute the NPA to other Arctic States. Canada also noted its ongoing support for the Russian NPA-Arctic and its participation in a pilot project application of the GPA in the Gulf of Maine.

Denmark informed the meeting that it is a party to a number of regional conventions, agreements etc. and have made NPA's in accordance with requirements set out in these instruments.

Finland informed the meeting on the preparation of their national programme for the Protection of the Baltic Sea in accordance with the Government Programme. This Programme covers all necessary measures to be taken by different parties for the protection of the sea and will be finalized by the end of year 2000.

Iceland informed the meeting that the lead for their NPA was the Environmental and Food Agency of Iceland. The Agency finished the plan after a wide consultation in January 2000 and suggestions have been sent to the Ministry for the Environment for its consideration.

Norway informed the meeting that a Norwegian NPA as a separate document had not been developed, but considered that its participation and commitments within different regional bodies as well as national measures and programmes in effect constituted appropriate implementation of the GPA. Norway looked forward to receiving the Canadian NPA as well as the process leading to the review of the GPA in 2001.

Russia informed the meeting of other Russian GPA – related activities in regional sea areas adjacent to the territory of the Russian Federation:

- Baltic Sea – National part of the Helsinki Convention;
- Black Sea – National part of the Bucharest Convention;
- Caspian Sea – Regional agreements are updated and negotiated;
- Northwest Pacific – Bilateral and multilateral agreements.

ACOPS also reported that the Joint Group of Experts (IMO/FAO/UNESCO/IOC/WMO/WHO/UNEP/IAEA) on the Scientific Aspects of Marine Environmental Protection (GESAMP) considered and adopted the Report on the Effects of the Land-Based Activities on the Marine Environment at its recent meeting. In the framework of this report an analysis of regional activities in protection of the marine environment from land-based activities was prepared. The Regional Programmes of Action (RPAs) were compiled and summarised and the priorities, objectives, strategies, measures, and time frames were presented. Regional priorities are, as expected, specific to the conditions in each region, but there is general agreement among regions on the prioritisation of issues. Sewage is clearly the highest priority in most regions. In terms of sources, agricultural runoff and industrial facilities are also high priorities.

United States reported that it is actively involved in preparation of a partnership market meeting process under the aegis of Asian-Pacific Economic Cooperation (APEC) and in co-operation with the Government of the Philippines, APEC partners, the private sector and the non-governmental community. A second major activity was participation in the consultation on the land-based protocol to the Cartagena Convention. The U.S. has also co-operated with its NAFTA partners in two GPA pilot programs - one in the Gulf of Maine and the second in

the Bight of the California's. The U.S. also provides technical and financial support to the implementation of the Russian NPA-Arctic and the partnership process in Sub-Saharan Africa.

Session V: Circumpolar Marine Workshop (CMW)

Session V (1): Recommendations from the CMW

The meeting reviewed the recommendations from the Circumpolar Marine Workshop and noted that there was a clear call for integrated management approaches.

Session V (2): Future Work Regarding CMW Results

PAME agreed that the marine workshop results were a useful reference for completing its update on the PAME 1996 report.

Session VI: Analysis of International Agreements and Arrangements

Session VI (1): Review Preliminary Update of Legal Analysis from 1996 PAME Report

The Secretary outlined its efforts to provide a year 2000 status report on the 1996 Analysis of International Agreements and Arrangements.

The meeting agreed that Tables 1 and 2 found in Appendix VII, were useful working documents and it was agreed that these tables should represent a factual presentation of the status of the listed agreements at the time of the original 1996 PAME report and as of June 2000.

Some of these agreements have a global scope while others cover specific areas of the Arctic and are therefore not applicable to all Arctic States.

PAME also agreed to distribute Tables 1 and 2 for further legal review and comment by the end of July 2000. Based on the factual correctness of the status of the listed arrangements, PAME would provide an interim report to the ministerial meeting on the changes, which have taken place sine 1996.

PAME will continue to review the status and adequacy of international agreements as part of its 2000 – 2002 Work Plan. During this period PAME will consider, inter alia, whether additional agreements should be added and the format for presentation of this information.

Session VII: Relations with other Organisations and Working Groups

PAME recognizes the importance of effective communication between working groups and other organisations, the value of sharing work-plans and the benefit of identifying collaborative issues, which may result in joint work.

Session VII (1): Working Group Comments

AMAP:

AMAP has been working on their report to the ministerial meeting in October 2000. The lead country experts have reported new findings and based on this the AMAP Board has sent out suggestions for conclusions and recommendations to the Head of Delegations for their consideration.

AMAP, together with CAFF, continues its work with the Arctic Climate Impact Assessment (ACIA). AMAP will have the next Working Group meeting together with CAFF and has planned a joint meeting for one day to discuss their involvement in the ACIA.

The steering group of the PCB Multinational project will have a meeting in June 2000 to finalize the reports of Phase 1 and discuss the continuation of Phase 2.

AMAP has participated in the steering group meeting for the PDF-B project to support the National Plan of Action for the Protection of the Arctic Marine Environment form Anthropogenic Pollution in the Russian Federation. How best AMAP can participate in the future will be discussed at their next working Group meeting.

CAFF:

With respect to the CAFF-GEF Project in Arctic Russia (Integrated Ecosystem Approach to Conserve Biodiversity), there is no decision on funding. CAFF is still optimistic that the project will be funded in some capacity and is waiting further instructions from the GEF Secretariat.

With respect to the Circumpolar Marine Workshop report, CAFF noted that it would need some additional time to review the recommendations before it could consider any of them as potential CAFF projects for the next inter-Ministerial period. CAFF will revisit the workshop recommendations at its next working group meeting in Trondheim, September 6-8 2000 and would like to see the workshop acknowledged in the Ministerial Declaration with the intention to evaluate and further develop the recommendations. It was suggested that CAFF and PAME collaborate on preparing this text.

Regarding the Sustainable Development Programme and ACAP, CAFF remains concerned about the overlap of existing and possible new mandates. CAFF suggested that these organisational issues be discussed thoroughly at the next meeting of the working group chairs .

CAFF and AMAP are considering a joint one-day meeting in Trondheim on September 4, 2000 to discuss common projects, mainly the Arctic Climate Impact Assessment (ACIA) and monitoring work.

EPPR:

EPPR will be holding their annual meeting June 13-15th in Iceland. There are two projects that have relevance to the PAME Working Group. The first is a legal analysis and the second is the Circumpolar Marine Map of resources, which is planned to be completed for submission to the Ministerial meeting in October. EPPR noted that this work could be related to PAME's shipping project.

SUMMARY:

The meeting agreed to the Chairman's proposal that he write to the AMAP Chair and Secretariat to suggest that, in the interest of coordination on RPA related projects, PAME should be invited to participate as an observer to the PCB project Steering Committee. This would be similar to the observer role that AMAP has on the Steering Committee for the GEF Russian NPA-Arctic proposal.

The Meeting considered the draft EPPR legal analysis and agreed that the Chair should inform EPPR of PAME's recommendation that only an integrated assessment of international agreements, arrangements and measures (particularly as it relates to shipping) should go forward to SAO's and Ministers.

The Arctic Council Secretariat confirmed that the Arctic Council Ministerial meeting will be held on October 12-13, 2000 in Barrow Alaska. The preceding SAO meeting will take place on October 10-11, 2000.

Session VII (2): New Format for Recommended Contacts and Activities

The PAME Secretary informed the meeting about the new PAME website at: http://www.grida.no/pame The Secretary was requested to make the PAME meeting documents available on the website using a password protective access on a trial basis. Regular document distribution will continue during the trial period. The Arctic Council's Secretary informed the meeting that the Arctic Council used this procedure and offered its assistance in preparing some information protocols to help users.

The meeting suggested that the website should also be linked to other relevant sites such as the GPA and UNEP's Oil and Gas website.

Session VIII: Report Back from Shipping Working Group

Session VIII (2): Review Snapshot Analysis and Recommendations

PAME reviewed the Experts progress report on the revised Snap Shot Analysis (refer to Appendix VIII) and thanked the group for its productive work.

The meeting agreed:

- that the revised snapshot analysis would benefit from additional review by CAFF, AMAP, EPPR, and National Administrations;
- to request Norway as the lead country to complete the revisions to the snapshot analysis as soon as possible and forward to the PAME Secretariat for distribution to PAME and others working groups for comments by the end of July 2000;
- to provide a progress report on the shipping analysis to the Minister's Meeting in October 2000; and
- to promote PAME/CAFF/EPPR collaboration on combining the shipping lane information with the sensitivity mapping information from CAFF and EPPR.

Norway clarified that the basic revisions would be completed in two weeks, however revising the detailed calculations would take until August.

United States noted that the Snap Shot Analysis in its current form did not provide a sufficient basis to recommend additional shipping measures.

Session X: PAME Workplans

The PAME Workplans are summarized in Appendix IX.

Session XI. Other Business

Tom Laughlin of the USA was elected Chair and David Egilsson of Iceland was elected Vice Chair. Their terms will begin following the Ministerial Meeting in October 2000.

Denmark on behalf of PAME thanked the outgoing Chairman for his leadership and guidance over the past several years and welcomed his continued participation in the Working Group.

The meeting accepted USA's kind offer to host the Next PAME meeting in Washington D.C. Exact dates will be provided at a later time, but USA provided a tentative schedule for the meeting to be held in late January or early February 2001.

APPENDIX I

LIST OF PARTICIPANTS
PAME Working Group Meeting
June 5-8, 2000 – Copenhagen, Denmark

PAME Secretariat
Mr. John H. Karau, PAME Chairman, Environment Canada
Ms. Soffia Gudmundsdottir, PAME Executive Secretary

Canada
Mr. Chris Cuddy, Indian Affairs & Northern Development (DIAND)
Mr. Robert Wolfe, Prairie & Northern Region – Marine (AMNS), Transport Canada

Denmark
Ms. Birte Rindom, Danish Environmental Protection Agency – EPA
Mr. Kjeld F. Jorgensen, Danish Environmental Protection Agency – EPA
Mr. Fleming Otzen, Danish Environmental Protection Agency - EPA
Ms. Dorthe Tronoe, Danish Environmental Protection Agency - EPA
Mr. Joseph Nazareth, Danish Energy Agency

Greenland
Ms. Tina Davidsen, Directorate for Environment and Nature

Faroe Islands
Mr. Jacob P. Joensen, Food and Environment Agency

Finland
Ms. Vappu Tervo, Ministry of the Environment

Iceland
Mr. David Egilsson, Icelandic Environmental & Food Agency, Office of Marine Environmental Protection

Norway
Mr. Gunnar Futsaeter, Norwegian Pollution Control Authority
Mr. Sveinung Oftedal, Ministry of Environment
Mr. Per S. Schive, Ministry of Environment
Ms. Hanna Lee Behrens, Veritas consultants

Russian Federation
Dr. Vitali Lystsov, Chariman of Arctic Working Group in Russian Federation

Sweden
Mr. Stig Norström, Environmental Assessment Department, Swedish Environmental Protection Agency
Ms. Ulla-Britta Fallenius, Swedish Environmental Protection Agency

USA
Mr. Thomas Laughlin, National Oceanic and Atmospheric Administration (NOAA)

CAFF
Ms. Lioubov Anissimova, CAFF Secretariat

ACOPS
Dr. Ljubomir Jeftic, Advisory Committee on Protection of the Sea (ACOPS)
Dr. Vitali Lystsov, Chariman of Arctic Working Group in Russian Federation

AMAP
Hanne Petersen, National Environmental Research Institute

WWF
Ms. Samantha Smith, WWF International Arctic Programme

Indigenous Peoples Secretariat
Ms. Tove Sovndahl Petersen, IPS Executive Secretary
Ms. Alona Yefimenko, IPS Technical Advisor
Ms. Marianne Sjodal Johansen, IPS Secretary

UNEP
Mr. Kenneth Korporal, GPA Clearing House

OGP
John Campell, Technical Director

Arctic Council Secretariat
Mr. Rudy D´Alessandro

APPENDIX II

LIST OF DOCUMENTS
PAME Working Group Meeting
June 5-8, 2000 – Copenhagen, Denmark

Session I: Introduction

I (1) Agenda
I (2) Budget Statement for the year 1999 – 2000
I (3) PAME Report to SAOs – Alaska April 27-28 2000

Session II: Shipping

II (1) PAME Draft Snap Shot Analysis of Maritime Activities the Arctic – Norwegian Maritime Directorate
II (2) Report on Northern Sea Route Conference / Norway

Session III: Oil and Gas Guidelines

III (1) Review and Evaluation of PAME Arctic Offshore Oil and Gas Guidelines presented to SAOs – WWF

Session IV: Regional Programme of Action

IV (1)a GEF PDF-B Russia Project, First Six-Monthly Report (Oct. 1999 – Mar 2000) – ACOPS, UNEP and Goskomsever
IV (1)b NPA for the Protection of the Marine Environment form Anthropogenic Pollution in the Arctic Region of the Russian Federation (NPA-Arctic) – ACOPS and Goskomsever
IV (1)c NPA-Arctic, GEF PDF-B Project, Summary Report, PAME and ACOPS
IV (2) Comparative Analysis of Arctic Contaminant Programmes – prepared by PAME Chairman in consultation with ACOPS
IV (5) Canadian most frequently asked questions for Clearing House.
IV (7) Danish Proposal on Phasing Out Pollution with Chemicals within one Generation

Session V: Circumpolar Marine Workshop

V (1) Summary Report from IUCN/Jeanne Pagnan presented to SAOs – Alaska April 27-28 2000

Session VI: Analysis of International Agreements and Arrangements

VI (1) Draft update on the 1996 PAME report – Tables 1 and 2
VI (2) Draft Work Plan 2000 - 2002

APPENDIX III

AGENDA

PAME Working Group Meeting
June 5-8, 2000 – Copenhagen, Denmark

MONDAY, JUNE 5

10:00-11:00, Session I: Welcome and Introduction (Chair)

1. Adoption of agenda
2. Reporting from Secretariat including budget report, etc.
3. Debrief form SAO Meeting (Chair)

11:00-12:00, Session II: Shipping

1. Report on Snapshot Analysis / Norway
2. Report on Northern Sea Route Conference / Norway

12:00-13:00 Buffet Lunch

13:00-14:30, Session II: Cont.

3. Report on Polar Guideline – Canada
4. Discussion on next steps and proposals

[Propose Shipping Experts convene separately on Tuesday to finalize snapshot analysis and recommendations. Report back to PAME on Wednesday]

14:45-15:30, Session III: Oil and Gas Guidelines

1. WWF project for evaluating the PAME Offshore Guidelines – WWF
2. Review comments received from PAME members regarding the WWF evaluation

15:30-16:30, Session III: Cont.

3. Report on the Workshop held in Tromsö, Norway 20-21 March 2000 on "Production of Oil and Gas in the Arctic in a Sustainable Perspective" – Norway
4. Report on the USA/Norway/Russian cooperation on Oil and Gas
5. Report from IUCN / OGP on their guideline efforts

TUESDAY, JUNE 6

09:00-12:00, Session IV: Regional Programme of Action

1. Russia/ACOPS to provide detailed progress report on Russian NPA - Arctic and organization of the Partnership Conference (6 months progress report).
2. PCB project and possible links to the Partnership Conference and RPA/ACAP deliverables.

12:00-13:00 Buffet Lunch

13:00-15:00, Session IV Cont.

3. Reports on UNEP/GPA related activities.
4. GPA Clearing House presentation – Kenneth Korporal.
5. Canadian presentation on most frequently asked questions for Clearing House.
6. Canadian clarification on codes of practice.
7. Co-operation between and among regional seas conventions and action plans.
   Review comments from PAME on the Final Report of the 2nd Global Meeting of Regional Seas Convention and Action Plans (The Hague 5-8 July 1999).

15:30-17:00, Session IV Cont.

8. Norway to provide update on the development of ACAP and possible related projects.
9. Consider other RPA project proposals.
10. Progress reports on developments of National Plans of Actions (NPA).

EVENING: Dinner sponsored by the Danish Environmental Protection Agency

WEDNESDAY, JUNE 7

09:00-10:30, Session V: Circumpolar Marine Workshop

1. Recommendations from the Workshop in relations to PAME work plan
2. Future work for PAME regarding workshop results.

11:00-12:00, Session VI: Analysis of International Agreements and Arrangements

1. Review preliminary update of legal analysis from 1996 PAME Report.
2. Prepare detailed work-plans for updating 1996 PAME Report.
3. Reporting to SAOs and Ministers.

12:00-13:00 Buffet Lunch

13:00-13:30, Session VII: Relations with other Organizations and Working Groups

1. Short summary from each working group on upcoming/continuous work (CAFF/EPPR/AMAP)
2. New format for recommended contacts and activities for PAME International Secretariat.

   Communication Strategy
   Future workshops with respect to the RPA
   Relationships with work done within the Nordic Council, Northern Dimension etc.

13:30-14:30, Session VIII: Report back from Shipping Working Group

1. Drafting Report.
2. Finalize Snapshot Analysis and Recommendations.

15:00-18:00, Excursion

THURSDAY, JUNE 8

09:00-10:30, Session IX: Review Draft Meeting Report

10:45-12:00, Session X: Future Work Programme

1. Refine future work programme.
2. Reporting to the Ministerial Meeting Fall 2000.

12:00-13:00 Buffet Lunch

13:00-14:00, Session XI: Election of Officers and Other Business

1. Election of Officers
2. Any other business

PAME Meeting Concludes

APPENDIX IV

BUDGET STATEMENT FOR THE YEAR 1999-2000

Accrued expenses for the period of Oct. 1 1999 - Apr. 30 2000

OVERVIEW:

	TYPE OF EXPENDITURE	IKR	USD
	Staff	3.255.530	43.407
	Operating costs - office	938.075	12.508
	Operating costs - travel	1.240.070	16.534
	TOTAL:	***5.433.675***	***72.449***

BREAKDOWN:

TYPE OF EXPENDITURE:		**IKR**	**USD**
STAFF	Salary, benefits,taxes,insurance,pension (1 person full time and 1 person 60%)	3.255.530	43.407
	Subtotal:	**3.255.530**	**43.407**
OFFICE	Service (telephone, fax, e-mail)	289.892	3.865
	Office supplies	179.913	2.399
	Housing (rent, heat, electricity)	464.855	6.198
	Bank cost	3.415	46
	Subtotal:	**938.075**	**12.508**
TRAVEL	Domestic - airline tickets	148.989	1.987
	Airline tickets abroad	385.118	5.135
	Hotel, per diem etc.	705.963	9.413
	Subtotal:	**1.240.070**	**16.534**

Countries Contributions for the Fiscal Year of 1999 - 2000

Country	Period	Contribution	Contribution in USD
Canada/Environm.	1999 - 2000	20.000 CAD	$13.300
Canada/Foreign Affairs	Nov 99 - Oct 00	10.000 CAD	$6.600
Denmark	Oct 99 - Oct 00	11.000 USD	$11.000
Finland	Oct 99 - Dec 00	10.000 EUR	$9.700
Iceland	1999 - 2000	5.000.000 ISK	$66.700
Norway			
Sweden	Nov 99 - Oct 00	17.600 USD	$17.600
USA			
Russia		in-kind	
TOTAL CONTRIBUTIONS:			***$124.900***

Notes:
In addition to Iceland´s annual contribution it paid **$66.700** towards the set up cost of the PAME Secretariat in 1999 of which **$32.340** have been used.

APPENDIX V

COMPARATIVE ANALYSIS OF ARCTIC CONTAMINANT PROGRAMMES

PAME Chairman in consultation with ACOPS
June 2000

Purpose of this Document

There are a number of international programmes addressing problems associated with contaminants, especially chemical contaminants, in the Arctic. Questions have been raised regarding the compatibility of these programmes and the degree to which they may be duplicatory. This document reviews the contemporary array of such programmes to determine if they are coherent and are demonstrably consistent with an overall strategy for the protection of the arctic environment and related interventions.

Introduction

In the last five years, a number of international programmes have been developed to address environmental issues in the Arctic. They include those which have as their objective the completion of assessments and the identification of interventions addressing contaminants in the aquatic environment, their sources, transport, fate and effects on resources, amenities and human health. In large part, these programmes require support from the arctic states that are parties to the Arctic Environmental Protection Strategy and are more recently members of the Arctic Council. Such support includes both the commitments of national resources and financial assistance, directly or indirectly, to multilateral ventures. In view of the rapid growth in the number of these programmes, concerns have been raised that individual initiatives may be being considered for support in an *ad hoc* manner. There is a need for confidence that all these programmes represent logical constituents of a coherent strategy for addressing priority issues affecting the Arctic.

For these reasons, it was felt useful to undertake a review of existing and known planned programmes in a holistic manner to assess their compatibility and the degree of coherence among them. This document has been prepared for that purpose.

Relevant Programmes

Relevant programmes fall into two groups: programmes developed within a regional arctic context by arctic states, particularly through the medium of the Arctic Council, and a programme that is intrinsically global but has a strong

arctic component.

The following sections respectively describe the various regional and global programmes that warrant analysis to determine their compatibility and complementarity in respect to the improvement of the arctic environment.

Regional Programmes

Some of the regional activities were developed to implement the National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation (NPA-Arctic) developed by an International Task Team created jointly by the State Committee for the North (Goskomsever) of the Russian Federation and the Advisory Committee for the Protection of the Sea (ACOPS). This programme is described first to provide some background to the development and objectives of some of the relevant regional programmes.

The ***National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation (NPA-Arctic):*** The overall management objective of the NPA-Arctic is to reduce pollution and habitat damage to the Arctic environment in a manner that permits the conservation and sustainable development of its natural resources and the removal of threats to the health of its human population from anthropogenic activities.

In order to achieve this objective, the NPA-Arctic was divided into the following six sections for which specific action plans have been developed:

- improvement of the government's environmental policy in the Arctic;
- improvement of legal and statutory regulation with respect to environmental protection and the use of natural resources in the Arctic zone of the Russian Federation;
- enhancement of management controls with special emphasis on priority problems specified in the NPA-Arctic during the period 1998-2001;
- strengthened monitoring of the environment;
- improvement of public involvement, especially arctic peoples, in environmental activities and access to environmental information; and
- capacity building through the implementation of the NPA-Arctic.

The NPA-Arctic contains 38 activities, which should be implemented until year 2002. Results of some of these activities will be presented at the Partnership Conference, which is planned for mid-2001.

Persistent Toxic Substances (PTS), Food Security and Indigenous Peoples of the Russian North: Global Environment Facility Medium-sized Project Brief. Implemented by the Russian Association of Indigenous Peoples of the North (RAIPON) in association with AMAP.

This project addresses human health risks posed by persistent toxic substances (PTS) to indigenous arctic peoples in the Russian Federation. It deals with the contamination of foods with PTS derived both from national (*i.e.,* within the boundaries of the Russian Federation) and external sources. It includes assessments of body burdens of PTS and dietary surveys to enable exposures and risks to be estimated. It aims to determine intervention measures that can be implemented to reduce human health risks to indigenous peoples at both individual and community levels.

Support to the National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation: Global Environment Facility PDF-B (GF/1100-99-13). Implemented by the State Committee for the Northern Affairs of the Russian Federation (Goskomsever) in association with ACOPS.

This PDF-B encompasses the identification of hot-spots of pollution within the Russian Arctic and the application of causal chain analysis as a basis for the evaluation of options for intervention. The project covers assessments of the sources and contaminated areas (both termed *hot-spots*) within the Russian Federation. It is concerned primarily with chemical contaminants but also deals with physical alterations arising from coastal and offshore activities. It will assess the ranges of effect and threat of these hot-spots and assign priority to those affecting marine areas beyond the jurisdiction of the Russian Federation. This project addresses four of the 38 activities identified in the Russian NPA-Arctic (Annex I). The PDF-B phase is expected to lead to proposals for interventions and pre-investment studies that can be presented at a Partnership Conference proposed for 2001. The project may result in one or more full project briefs for submission to the GEF.

Development of a Plan of Priority Measures for Radioactive Waste and Nuclear Materials Treatment in the Coastal Zone and Development of Proposals for Restoration and Remediation of the Environment at Decommissioned Military Bases in the Russian Arctic**:** Implemented by the State Committee for the Northern Affairs of the Russian Federation (Goskomsever), the Russian Ministry of Defence (Minobrony) and the Russian Ministry of Atomic Energy (Minatom) in cooperation with the Advisory Committee for the Protection of the Sea (ACOPS).

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* currently not funded

This project involves assessments of environmental damage and threats arising in two fields: nuclear waste management within the civilian and military maritime sectors; and decommissioned military bases.

In the nuclear waste sector, the project is designed to review all radioactive waste management activities, particularly the handling of spent nuclear fuel arising from the servicing and decommissioning of civilian and military vessels. There are already several bilateral and multilateral programmes addressing aspects of military and civilian nuclear waste management. This programme will determine the nature of overall priorities and determine if there are outstanding issues that warrant additional interventions to reduce threats to the environment and human health.

In respect to decommissioned military bases, a review will be conducted of the legacy of chemical contamination and physical damage to the environment to identify priority issues that warrant additional intervention measures to obviate sources of damage and threat to the environment and human health. This project addresses two additional activities among the 38 identified in the Russian NPA-Arctic.

Arctic Monitoring and Assessment Programme Phase II: Arctic Environmental Protection Strategy Programme within the purview of the Arctic Council: Implemented by the Arctic Monitoring and Assessment Programme Secretariat, Oslo, Norway.

This programme is the successor to the first phase of AMAP that resulted in an assessment of environmental and human health conditions in the Arctic. In this programme the boundary of the Arctic is set on political considerations and extends considerably further south than the Arctic Circle, generally to 60^{o}N. Based on the results of the AMAP assessment, the arctic states decided that the second phase of AMAP should concentrate on the issues of radioactive waste, persistent toxic substances, metals and human health. The report of Phase 2 of AMAP is to be completed in 2002 and will be used to determine needed interventions to reduce damage and risks in these categories.

Arctic Multilateral Cooperative Pilot Project for Phase Out of PCB Use and Management of PCB-Containing Wastes in the Russian Federation: Implemented by NEFCO (Nordic Council Forum for Environmental Cooperation) in association with AMAP.

This project involves a sequence of activities relating to reducing the production and use of polychlorinated biphenyls (PCBs) and promoting their recovery from sources and contaminated areas in the Arctic of the Russian Federation. Its objectives are: to discourage further production of PCBs; encourage the replacement of PCBs in existing use with less hazardous materials; ensure the application of environmentally-sound techniques for the destruction of PCB stocks, contaminated equipment and containers; and ensure the rehabilitation of

PCB-contaminated territory. The execution of this project is in three phases as follows:

Phase 1: Evaluation of the current status of the problem with respect to environmental impact and the development of proposals for priority remedial actions;

Phase 2: Feasibility studies; and

Phase 3: Implementation of demonstration projects.

Phase 1 will be completed in mid-2000. This project is entirely focussed on source management. It is consistent with the priorities laid down for Phase II of AMAP. It is based on an implicit assumption that the risks associated with exposures to PCBs are a priority and worth minimizing and does not consider net benefits of the project activities in relation to other sources of exposure and risk, either to humans or animals.

The Arctic Council Action Plan to Eliminate Pollution of the Arctic (ACAP): A series of proposals have been made for projects under this programme. These are:

***[*]Reduction of Atmospheric Mercury Releases from Arctic States** *(Proposed by Norway):* The aim of this project is to initiate cost effective reduction measures at one or a few important sources of atmospheric mercury that could serve as pilot projects for more widespread reduction measures.

***Regionally-based Assessment of Persistent Toxic Substances (PTS) (Global Component** *(Proposed by Canada*): This project constitutes the Arctic region component of a GEF Project on Regionally-Based Assessment of Persistent Toxic Substances. It involves: the identification of major sources of PTS; assessment of the impact of PTS on the environment and human health; assessment of transboundary transport; assessment of the root causes of PTS-related problems and the regional capacity to manage these problems; and the identification of national and regional priorities for PTS-related environmental issues.

***Project in the Russian Federation on Dioxins and Furans** *(Proposed by Sweden):* This project deals with the identification of major sources of polychlorinated dibenzo-*p*-dioxins and dibenzofurans in the Russian Federation. The source categories considered are metal smelters, waste incineration and pulp and paper mills.

***Environmentally-sound Management of Stocks of Obsolete Pesticides in the Russian Federation** *(Proposed by Sweden*): The objectives of this project are to prepare an inventory of stockpiles of obsolete pesticide and the development of a strategy for the removal and disposal of stockpiles.

Multilateral Co-operative Project for the Phase-Out of PCB Use and the

[*] currently not funded

Management of PCB-Contaminated Wastes in the Russian Federation *(Proposed by PCB Steering Group*): This project would involve the identification of the sources of PCB production and locations of equipment containing PCBs, feasibility studies for the removal and destruction of PCBs and the execution of demonstration projects dealing with the replacement and destruction of PCBs.

****Risk Management – Guidelines for Performing Environmental Impact Assessments*** *(Proposed by Norway):* This project would deal with the incorporation of risk into the design of environmental impact assessments for the impacts of radionuclides potentially released to, and within, the environment from a wide variety of sources.

****Assessment of Risks Connected with Releases from Reprocessing Plants in Europe and Eurasia*** *(Proposed by Norway):* This project would undertake an analysis of the dose consequences to humans and biota associated with previous, current and projected releases from spent nuclear fuel reprocessing plants in Europe (Sellafield and Cap de la Hague) and those in the drainage basins of the Ob and Yenisei Rivers of the Russian Federation.

****Arctic Council Approval of Fact Sheets on Arctic Contaminants*** *(Proposed by Denmark/Greenland):* This project is designed to compile a fact sheet for each of the three priority pollutant types: POPs, heavy metals and radionuclides. The fact sheets are intended to ensure that Arctic concerns are considered when other forums are formulating and implementing actions that may have an impact on the Arctic.

Global Programmes

Global International Waters Assessment: GEF Full Project implemented by the GIWA Project Office, University of Kalmar, Sweden.

This is a global project under which assessments are made of freshwater shortage, pollution, habitat and community modification, unsustainable exploitation of fisheries and global change affecting international waters. The specific issues being addressed by GIWA in the pollution category are: microbial pollution; eutrophication; chemical pollution; suspended solids; solid wastes; thermal pollution; radionuclides; and spills. The project will include assessments within 66 sub-regional areas within nine mega-regions. One of these mega-regions comprises the Arctic Ocean and its contiguous drainage basins. The resulting assessment of the Arctic will have an influence on the selection of future GEF-supported interventions in the region. Other GIWA sub-regions relevant to the area of interest defined by the Arctic Council are: the western Greenland Shelf; the East Greenland Shelf, the Iceland Shelf, the Norwegian Sea, the Faroe Plateau and the Barents Sea (all within the North Atlantic mega-region); and the Gulf of Alaska, the East Bering Sea and the West Bering Sea

(within the North Pacific mega-region). Other areas of related interest to the arctic states will include the Baltic Sea and the Sea of Okhotsk.

The GIWA methodology to be applied consistently in each sub-region is based on the initial application of a scoping process to identify priority issues among the five main categories of interest. This is followed by detailed characterization of these priority issues and causal chain analysis. The results of the causal chain analysis will be used to evaluate options for intervention. These in turn will lead to identification of intervention options offering the greatest benefits in relation to effort. The Arctic and Antarctic differ from the other seven mega-regions as neither is subdivided into sub-regions. GIWA should be able to derive substantial initial benefit, at least in the areas of pollution, habitat destruction and global change from the detailed AMAP assessment published in 1998 and the ongoing GEF PDF-B Project "*Support to the National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation*". In addition, many of the other arctic programmes will provide GIWA with more detailed regional information regarding sources and conditions in the Russian Arctic and associated transboundary effects. The GEF Project was specifically designed to align with the GIWA assessment requirements and therefore provide deliverables of direct utlility to GIWA.

It is expected that the other mega-regional assessments will be based on the assembly of results from their constituent sub-regions while the overall global analysis will synthesize the results from all GIWA assessments. In this context, the Arctic and Antartic are unique in having no defined sub-regional components. The purpose of GIWA is to provide a global basis for the assessment of priorities in the context of GEF Operational Programme 10 as well as in the other areas included in the GIWA list of issues. This will aid in the strategic development of the International Waters Portfolio of the GEF as well as other funding agencies seeking clarification of priorities from regional, sub-regional and global perspectives.

Summary of Programmes, Foci and Principal Activities

Table 1 below summarizes the foci of the projects listed in the previous section indicating their contaminants of interest and their principal activities. An evaluation of the regional programme alignments with the elements of the Global Plan of Action for the Prevention of Marine Pollution from Land-Based Activities (GPA/LBA) is provided in Table 2. Although not used directly for the purposes of this analysis, it does provide a further measure of the relevance and broader applications of the various regional programmes discussed here.

APPENDIX VI

TABLE 2 – ANALYSIS OF PROGRAMMES IN RESPECT TO THE ELEMENTS OF THE GLOBAL PROGRAMME OF ACTION for the Prevention of Marine Pollution from Land-Based Activities (GPA/LBA)

	PROGRAMMES (see key below)							
	P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
NATIONAL LEVEL								
□ Identification and assessment of problems	x	x	x	x	x	x	x	x
□ Establishment of priorities	x						x	x
□ Setting management objectives for priority problems	x	x	x	x	x			
□ Identification, evaluation and selection of strategies and measures	x		x	x		x	x	x
□ Criteria for evaluating the effectiveness of strategies and measures	x			x				
□ Programme Support Elements	x							
INTERNATIONAL LEVEL								
□ Capacity building	x	x	x				x	
□ Mobilising financial resources	x		x					
□ International institutional framework	x		x		x			x
SOURCE CATEGORIES								
□ Sewage	x		x					x
□ POPs	x	x	x	x	x	x	x	x
□ Radioactive substances	x		x	x	x		x	x
□ Heavy metals	x		x	x	x		x	x
□ Oils (hydrocarbons)	x		x	x				x
□ Nutrients	x		x					x
□ Sediment mobilisation	x		x					x
□ Litter	x		x					x
□ Physical alterations and destruction of habitats	x		x					x

Key:

P1 - National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation (NPA-Arctic)

P2 - Persistent Toxic Substances (PTS), Food Security and Indigenous Peoples of the Russian North

P3 - Support to the National Plan of Action for the Protection of the Arctic Marine Environment from Anthropogenic Pollution in the Russian Federation

P4 - Development of a Plan of Priority Measures for Radioactive Waste and Nuclear Materials Treatment in the Coastal Zone and Development of Proposals for Restoration and Remediation of the Environment at Decommissioned Military Bases in the Russian Arctic

P5 - Arctic Monitoring and Assessment Programme Phase II (AMAP)

P6 - Arctic Multilateral Co-operative Pilot Project for Phase Out of PCB Use and Management of PCB-Containing Wastes in the Russian Federation

P7 - The Arctic Council Action Plan to Eliminate Pollution of the Arctic (ACAP)

P8 - Global International Waters Assessment (GIWA)

APPENDIX VII

PRELIMINARY UPDATE OF LEGAL ANALYSIS FROM THE 1996 PAME REPORT

APPENDIX VIII

EXPERT PROGRESS REPORT ON REVISED SNAP SHOT ANALYSIS

PAME Workshop on Shipping
5th – 7th June 2000

Revised text Chapter 9 of PAME Snap Shot Analysis on Maritime Activities

1 CONCERNS RELATED TO MARITIME ACTIVITIES

The seas of the Arctic are exposed to significant regular discharges from local sources both directly and via the large rivers, as well as long range transport of contaminants via the atmosphere and ocean currents. This is outlined in more details in Appendix 1.

1.1 Accidents in the Arctic

A detailed study has been performed in Canada (TC 1995) related to accidents in 1990. It should be noted that fisheries, research vessels, icebreakers and oil and gas industry support vessels are not included in the study. The accidental risk was documented to be 5 times higher in the heavily ice-infected regions, of which approximately 50% of this increase were due to non-ice damage. The main causes were due to human error (55%), equipment/structure (12%) and unknown (13%). In general it was concluded that the risk of accidents was higher in heavily ice-infected areas of the Arctic than in other areas.

Work performed in Norway including Svalbard (Johannessen 1999) shows that accidents are evenly distributed along the coastal areas. In areas of little or no ice the accidental rate is not expected to be higher than in other areas. Grounding, collisions and fire/explosion amounted to about 75% of the incidents. Fishing vessels is by far the largest group and constituted to about 40% of the incidents and dry bulk about 25%.

Certain parts of the Arctic have regions of inadequate hydrographic information. Hence it is assumed that the risks of accidents in heavily ice-infected areas are higher that in other areas. The causes may however, not exclusive be due to ice damage.

1.2 Environmental Impact of Shipping Activities

Maritime activities may interact with the environment in several ways. Impacts form the shipping activity can be divided into regular operations and accidental events.

1.2.1 Regular Operations

The regular operations are a point sources of long-term and low level exposure.

Operational discharges from shipping are generated by operations on board (oil, chemicals, sewage and garbage) or during cargo operations (oil, chemicals, vapour and dust). Other forms of discharges are caused by emissions to air (CO_2, NOx, SO_2, VOC, and particulars).

Release of TBT from anti-fouling paints is known to have impact on several marine organisms.

Noise and physical disturbance are other impact factors generated by frequent navigations in ice-infected areas (Brude et al 1998).

Oily wastes, sewage and garbage are to be discharged onshore according to local and international legislation. The fact of a low number of offshore facilities for wastes handling and the respective low capacity in the Arctic results in an increase in onboard incineration giving input to the emission to air. It is also experienced that due to lack of facilities sewage, garbage and oily wastes are known dumped offshore.

Transfer of living organisms (aquatic plants, animals and pathogens) via ballast water has been known to occur since the beginning of the 20th century. The extent of this transfer has since then increased with growing maritime activities and larger and faster ships. Carlton (1985) has given a comprehensive review of ballast water history. Undesirable spreading of exotic organisms has been described as the biggest threat to biodiversity and as the next big pollution challenge for the shipping industry causing irreversible processes effecting human health and industrial activities as well as the ecological balance of the seas. In several cases the introduction of non-indigenous species have caused great economic consequences, and there is an increasing realisation of the ecological costs of biological invasions in the irretrievable loss of native biodiversity. Along with growing concern on these effects, there has been an increasing amount of research related to the dispersal of organisms and transfer via ballast water during the last decades.

Conclusion

Impacts from long-term regular discharges from maritime activities are of environmental concern. The conclusions from previous works indicate that at present the impact in the Arctic of regular legal operational discharges of oil, sewage and other wastes is low. However, long-term effects of chronic low level contaminants are not fully researched and understood on Arctic ecosystems. A precautionary approach should be adopted and until research can prove acceptable effect due to regular discharges from shipping activities, these should be assessed and controlled. The expected increase in shipping activity in the Arctic addresses also the need for measures and control with respect to operational discharges. Addressing this concern PAME should follow the AMAP work on impacts of pollutants in the marine Arctic.

1.2.2 Accidental Events

Discharges caused by accidental events are mainly caused by collisions,

groundings or fires. The discharges will mainly be related to smaller amounts of cargo and bunker, but can also cause a major environmental impact. In addition, the rescue operations during and accident may cause impact to the environment.

Significant environmental impacts to the Arctic marine environment can be expected from large accidental discharges of oil and/or chemicals. A number of sensitive areas and resources are identified in the Arctic and are regarded as vulnerable due to their ecological features. Accidental discharges in areas of breeding, spawning and major feeding areas can have serious long-term effects, particularly given the low reproduction rates and the strategy of energy storage in fatty tissue that is common in Arctic species.

Presently severe acute marine pollution due to accidental events is not often reported for the Arctic region (Brude et al 1998). However, the risk of accidents to occur rises with the frequency of voyages. The Canadian assessment (TC 1995) shows increased risk of accidents in ice-infected areas (up to 5 times). The expected increase in maritime activities in the Arctic region may therefore imply and increased risk of accidents. The need for ensuring sufficient vessel standards is stressed. Furthermore, contingency planning should be evaluated and assessed.

1.3 Environmental resources at risk

In comparison with most other areas of the world, the Arctic remains a “clean” environment. However, for some pollutants, combinations of different factors give rise to concern in certain ecosystems and for some human populations. These circumstances sometimes occur on a local scale, but in some cases my be regional or circumpolar in extent.

A set of Valued Ecosystem Components (VEC) and vulnerable components in the Arctic have been defined and assessed by INSROP (1998) and TC (1995). The geographical areas not encompassed by these sources (Greenland, Iceland, western Barents and Alaska) are comparable ecologically to these sources and the combination of the sources is not expected to exclude any potential VECs.

The environmental sources consist of ice-edge communities, seabirds, marine mammals, fish resources and several marine organisms and ecosystems. These components are assessed and found to be vulnerable to normal shipping operations both in open water and in ice-affected areas (ice breaking operations) Equally, these resources are at risk in accidents.

Defined VECs by INSROP (1998) and TC (1995) are listed in appendix 5.

1.4 Maritime operations at risk

Based on general knowledge of the impact of maritime operations on the environment, a list of major high risk operations can be given as in Table 9.1. Each operations is given a priority as “high” or “low” based on a professional scientific perspective.

Table 9.1 Maritime operations expected to have significant impact on the marine environment. Priorities for discussing PAME response actions are indicated by the numbers: 1: actions should be considered by PAME or 2: actions are not recommended at present.

Regular Events					
Activity/Operations	**Issues of Concern**	**PAME Priority**		**Reasoning**	**PAME response**
		Present	Future		
1. Onboard production of oily wastes, sewage and garbage	Possible shortage of reception facilities Illegal discharge to sea Onboard incineration	1	1	**Present**: Long operational periods at sea imply waste storage problems. **Future:** Long operational periods at sea imply waste storage problems.	Observe implementation of MARPOL Annexes and encourage ratification of the relevant MARPOL Annexes*.
2. Discharge of ballast water of foreign origin	Risk of reduction in biodiversity by introduction of harmful marine organisms to the Arctic	2	1	**Present**: Low amount of foreign ballast water discharge **Future**: Expected higher volumes of ballast water discharged due to increased tanker and bulk carrier activity	In light of the IMO developments identify the need for Arctic measures on ballast water.
3. Release of TBT by leaching from anti-fouling paints	Risk of reduction in biodiversity	2	2	**Present:** Small amounts of vessels hence low TBT input to the environment. **Future**: Expected ban on the use of TBT as an antifouling agent in 2003	PAME should observe IMO developments and encourage implementation of international measures on TBT.
4. Cruises / Passenger vessels	Disturbance of vulnerable resources. Reference is made to activity 1 above.	2	1	**Present:** Ongoing activity is at an acceptable level **Future**: Increased activity is of concern	Analyse existing and possible risk reducing measures Analyse the need for joint PAME/CAFF policy Analyse the adequacy of the WWF guidelines on ecotourism with regards to codes of conduct

*list of ratified MARPOL Annexes are given in appendix

Table 9.1 cont.

Accidental Events					
Activity/Operations	**Issues of Concern**	**PAME Priority**		**Reasoning**	**PAME response**
		Present	**Future**		
5. Loading and unloading activities in general	Increased risk of discharges of oil, oily water, bilge water and other hazardous substances	1	1	**Present:** Complex operations involving human element, technical solutions on board and loading and unloading facilities **Future:** Complex operations involving human element, technical solutions on board and loading and unloading facilities	**Analyse existing and possible risk reducing measures** Analyse the need for joint PAME/EPPR policy
6. Tanker traffic - Production field – Terminal - Terminal - Export	Transport of oil products has high potential impact in case of accidents	1	1	**Present:** The impact of an accident occurring is high **Future:** The impact of an accident occurring is high. The activity is expected to increase	Analyse existing and possible risk reducing measures Encourage implementation of the Polar Guidelines Analyse the need for joint PAME/EPPR policy
7. Heavy bunker oil as cargo and fuel	Heavy bunker oil has very high potential impact if discharge to the environment	1	1	**Present**: Heavy bunker can be used on serveal types of vessels, i.e. incidents can occur in all parts of the Arctic where shipping activity takes place. The impact of an accident occurring is very high **Future:** The expected increase in shipping activity strengthens the reasoning given above	Analyse existing and possible risk reducing measures Encourage implementation of the Polar Guidelines Analyse the need for joint PAME/EPPR policy
8. Operations in areas of sea ice or glacial ice concentration	Increased risk of accidental impact hence risk of pollution	1	1	**Present:** More complex operational regime than open sea operations **Future:** More complex operational regime than open sea operations	Analyse existing and possible risk reducing measures including remote sensing technologies Encourage implementation of the Polar Guidelines Analyse the need for joint PAME/EPPR policy
9. Tugging / Towing of vessels	Increased accidental risk	2	1	**Present:** Low frequency of vessel tugging/towing at present. **Future:** The activity is expected to increase in the future	Analyse existing and possible risk reducing measures Encourage implementation of the Polar Guidelines Analyse the need for joint PAME/EPPR policy
10. Cruises / Passenger vessels	Increased accidental risk in near ice or near shore operation	2	1	**Present:** Low frequency of risk operations of cruises / passenger vessels at present **Future:** The activity is expected to increase in the future hence increased risk	Analyse existing and possible risk reducing measures Encourage implementation of the Polar Guidelines Analyse the need for joint PAME/EPPR policy

1.4.1 Operational events

Onboard production of oily, wastes, sewage and garbage

Operation in the Arctic is often an operation with long periods at sea before coming into port. Hence there might be waste storage problems onboard. The occurrence of port reception facilities and infrastructure for handling oily wastes, sewage and garbage is not fully understood. In some cases wastes are incinerated onboard solving the waste problem, leading to emissions to air. However, the IMO standards on incinerators should be followed. To secure the full implementation of MARPOL Annexes entered into force is an ongoing task that will use the problems occurring. In addition the Arctic states should contribute to enter into force the MARPOL Annexes IV and VI.

The amount of waste, sewage and garbage produced is relatively high. The onshore facilities are not fully understood in the Arctic. Unless these products are transported to facilities that exists in the Arctic region or outside the Arctic these products are incinerated on board and hereby contributing to the emissions to air. The amount of waste, sewage and garbage from cruise and passenger vessels is very high compared to other vessel traffic. It should however be noted that many vessels used for these purposes normally hold very high standards and are often “optimised” with respect to environmental aspects.

At presents the cruise operations are limited in the Arctic. However, the expected increase in cruise operations in the Arctic places this activity as of major concern with a low operational impact compared to other operational activities in the region.

Discharge of ballast water of foreign origin

Introduction of harmful marine species is of concern. Presently the amount of foreign ballast water is low. However, an increase in the traffic is expected to increase the amount of foreign ballast water introduced in the region.

Canada will be introducing guidelines for the exchange of ballast water in the fall of 2000. There have been two ballast water exchange areas designated, one at the entrance to Lancaster Sound and the other at the entrance to Hudson Strait.

IMO is presently working a global instrument on ballast water. The target date for finalising the work within the Marine Environment Committee is 2003. The PAME response at present should therefore be to observe IMO development prior to taking actions on ballast water management.

Release of TBT from anti fouling paints

The release of anti-fouling paints has proven to have adverse impact on the marine environment. The expected IMO ban in use of TBT (in 2003) will reduce

this impact in the future hence the use of TBT is given a low PAME priority. However, PAME should observe IMO developments and encourage implementation of international measures on anti-fouling paints.

Cruises / Passenger vessels

Tourism by cruise vessels might disturb the vulnerable resources in their operation. Further documentation will be included using information from other working groups and other sources like WWF, EPPR, INSORP and CAFF.

1.4.2 Accidental events

Loading and unloading activities

Loading and unloading operations particularly related to oil and fuelling operations are known to have a higher risk of discharges. This is due to human element, technical solutions on board and loading and unloading facilities. Port safety procedures do to some cases reflect the risk involved.

General increases in maritime activity will increase such operations. Long-term low level contamination is of major concern environmentally and the operations are proposed to have a high PAME priority.

Tanker traffic (Production field – Terminal and Terminal – Export)

Tanker traffic in the Arctic is expected to increase due to the higher volumes of petroleum activity. An economic growth in Arctic region will require more refined oil products. There is also an expected increase of the volume of unrefined products being shipped southwards from both the Russian and Norwegian Arctic areas. The tanker traffic also includes the introduction of shuttle tankers transporting petroleum products from the productions sites to terminals. Tanker traffic itself is not expected to have a higher rate of accidents than other traffic, however, the potentially high environmental impact of a tanker accident with an oil spill addresses the need for precaution related to this activity.

Transfer operations of oil from production sites or oil terminals and their further export are given a high impact potential. Presence of tankers with double hull is expected to be higher in the future.

Heave bunker oil as cargo and fuel

The use of heavy bunker as fuel or transported as cargo is expected to increase with an increase of industrial activity. The traffic in itself is not expected to have higher rate of accidents than other traffic. However, the potential high environmental impact of an accident with spill of heavy bunker addresses the need for precautions related to this activity. The environmental impact of heavy bunker is observed in several incidents and is lately addressed in the IMO as a follow up the *Nachocta* and *Erika* accidents.

Operations in areas of sea ice or glacial ice concentration

Areas of high ice concentrations have been identified as having a higher risk of accidents although those mechanism have not been fully outlined. An increase in maritime activity is expected to involve such operations, unless regulations / voluntary procedures (i.e. Polar Guidelines) are established. This type of operation has a high impact potential.

Tugging / Towing of vessels

Towing of vessels for scrapping is regarded as a high risk operation which can result in grounding. Presently the towing activity extends from northwest Russia in a southwestly direction to foreign destinations outside the Arctic. Towing is expected to increase as the age of the Arctic fleet increases. Experience in large distance towing operations of vessels varies and has caused great concern due to several grounding casualties (e.g. the grounding of the *Murmans*k and the *Boiky* outside the northern coast of Norway). The direct environmental impact of such an incident depends upon where and when it occurs and the content of the tow. This operation is at present considered as one of low impact due to low activity.

In the Canadian Arctic tugging and towing operations are almost exclusively limited to tugs towing barges loaded with fuel and supplies destine for remote communities. Experience with this activity shows that there are at present not significant reason for environmental concern.

Cruises / Passenger vessels

Cruises in the Arctic take place in light ice or open water seasons, mainly in June – August. The general accidental risk imposed by hull / ice interaction is therefore low. In may cases tour operators place their ships near the ice-edge or shoreline in order to give their passengers a natural experience. These same areas are important for the ecosystem and many vulnerable resources are aggregated in high concentrations during the spring and summer months (feeding, nursing). At present there are relatively few cruise operations in the Arctic compared to more temperate regions. However, the expected growth of the tourism industry in the Arctic places this activity as one of major concern.

1.4.3 Risk Reducing Measures

Risk reducing measures can be found in existing IMO instruments and in their present and future amendments, and in the development of new IMO instruments. In addition national, bilateral and multinational measures can be a recommended strategy regarding some issues of concern. A PAME process of analysing existing and possible new risk reducing measures is recommended. It is also recommended that PAME co-operate with EPPR or other appropriate working groups within the Arctic co-operation in the further process of analysing possible measures on shipping activities in the Arctic.

APPENDIX IX

OVERVIEW OF PAME WORKPLANS

2000

Support the RPA, Russian NPA-Arctic and Partnership Conference
Factual updates on status of International Agreements and Arrangements
Review Snap Shot Analysis on shipping
Invite comments on Oil and Gas Guideline
Develop Proposals for Clearing House
Develop communication Brochure
Progress Reports to Ministers on:

- RPA, Russian NPA-Arctic, Partnership Conference
- Shipping Analysis
- Meeting goals and objectives of offshore guidelines
- Status of agreements and additional instruments

2001

Define Coastal Area
Hold Partnership Conference
Collate Shipping Proposals
Consider proposed amendments to PAME Offshore Guidelines
Respond to additional RPA Proposals
Complete update on marine pollution sources
Continue Analysis of International Agreements and Arrangements

2002

Complete Analysis of International Agreements and Arrangements
Provide recommendations on:

- Adequacy of international agreements and arrangements
- Possible new shipping measures
- Possible amendments to offshore oil and gas guidelines
- Possible new measures for land-based activities