



PAME-I 2008

MAY 31ST - JUNE 4TH

St. John's, Newfoundland, Canada

WORKING GROUP MEETING REPORT



PAME

Protection of the Arctic Marine Environment



**PROGRAM FOR THE
PROTECTION OF THE ARCTIC MARINE ENVIRONMENT**

PAME

**DRAFT Working Group Meeting Report
No: I-2008**

**31 MAY – 4 JUNE, 2008
St. John's, Newfoundland, Canada**

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Agenda Item 1: Opening of the Meeting

The Protection of the Arctic Marine Environment (PAME) Working Group met 31 May – 4 June 2008 in St. John's, Newfoundland, Canada. The list of participants attending the Meeting is in Appendix I.

The meeting was opened by the PAME Chair Mr. Chris Cuddy and the first day was designated to the Arctic Marine Shipping Assessment and as such was chaired by the AMSA lead countries. The PAME Chair reminded participants that the aim of this Meeting was to start preparations for the 2009 Ministerial meeting and begin formulating the PAME Work Plan 2009-2011 based on the AMSP and the anticipated results of PAME's current work program and projects.

Agenda Item 2: Introduction and Adoption of the Agenda

A list of documents submitted for consideration at the Meeting is in Appendix II. All power-point presentations will be sent out separately and are available within the password protected area of the PAME homepage.

The Meeting adopted the agenda as presented in Appendix III.

Agenda Item 3: Arctic Marine Shipping Assessment (AMSA)

The AMSA lead countries representatives gave an overview of the AMSA and a chapter-by-chapter status as follows (presentation as a separate file and on the PAME homepage):

- Brief Overview of AMSA & Chapter 1: Introduction and Geography~ Lawson Brigham
- Chapter 2: History of Marine Activity and Governance~ Esther Cunningham (further discussion on governance by Professor David VanderZwaag)
- Chapter 3: AMSA Data base/Shipping Data ~ Ross MacDonald
- Chapter 4: Human Dimension ~ Esther Cunningham for Henry Huntington
- Chapter 5: Scenarios and Futures ~ Lawson Brigham
- Chapter 6: Environmental Impacts ~ Maya Gold on behalf of Hein Rune Skjoldal (lead author)
- Chapter 7: Arctic Marine Infrastructure ~ Kimmo Juurmaa for co-lead authors
- Chapters 8 and 9: Integrated Findings and Research Agenda ~ Lawson Brigham

AMSA Status Chapter by Chapter

Brief Overview of AMSA & Chapter 1: Dr. Lawson Brigham/United States provided an overview of the progress and status up to date of the assessment with particular focus on the status of Chapter 1.

He informed the Meeting of the various AMSA Expert & Stakeholder Workshops held and planned through August 2008 and the outcome of the Arctic Incidents Workshop held in University of New Hampshire 25-27 March 2008 as a part of work on Chapter 7.

He noted the following required AMSA support:

- Arctic State review and confirmation of AMSA database
- Need for contributing authors for Chapter 6: Environmental Impacts
- Convening of Town Hall Meetings as partnerships with local communities
- Need for inputs from Arctic States to Chapter 7: Arctic Maritime Infrastructure on issues such as charting, hydrography, SAR
- Need for maritime expert involvement at the PAME II-2008 Meeting 28-30 October.
- Need for funding for AMSA publications including costs for editing, mapping (GIS) and Publishing (rough estimate of 160-200K USD)

Chapter 2: History of Marine Activity & Governance – Ms. Esther Cunningham/Canada provided general outline of the main contents of this Chapter to include the following:

1. Introduction
2. Early History (to World War II)
3. Modern History (development since WW II)
4. Major Arctic Marine Transportation Programs/R&D Studies/Key Meetings
5. Governance of the Arctic Ocean
6. Conclusion/Findings/Research Agenda/References

She informed the Meeting of good progress in writing this Chapter.

Professor David VanderZwaag from Dalhousie University gave an overview of the Governance section of Chapter 2 which is based on a background paper “Governance of Arctic Marine Shipping” written by an international group of marine policy experts led by the Dalhousie University.

He gave an overview of the following four main parts to the governance picture of Arctic marine shipping followed by a list of some key findings and ten possible research priorities.

1. The 1982 Law of the Sea Convention as the Overarching Framework
2. International Conventions/Documents Setting Governance Obligations for States To Control Shipping (International Public Maritime Law Framework)
3. International Conventions/Documents Aimed at the Shipping Industry and Relevant Practices of the Shipping Industry (International Private Maritime Law Framework)
4. Special National Legislative and Regulatory Requirements for Arctic Shipping (Canada and Russia)

Chapter 3: 2004 Baseline Arctic Shipping Data - Mr. Ross McDonald/Canada gave an update on the AMSA database collection process and analyses to date. He informed the Meeting that

data received had been released to respective countries in May 2008 for their approval or identification of omission or errors which will require further input.

He noted that the plan was to include, in addition to the data on shipping, the following information:

- Circumpolar ice maps - monthly - for 2004
- Arctic Shipping Incidents
- Port database for Arctic
- Risk assessment
- Findings
- Map Annexes to include LME's and routes, seasonal, ship and cargo type, shipping accident locations, Indigenous use, etc.
- Research agenda

Most of the data have been sent in with the data from Norway representing the 2006 shipping information as this information better represents the shipping in Norwegian waters than the 2004 data according to the representative from Norway. The USA data are currently under national review and Iceland has sent the leads corrections to their data.

Countries are expected to provide corrections and/or further input to their respective shipping data by 15th of June in an effort to complete the data collection.

Chapter 4: Human Dimensions of Arctic Marine Activities - Ms. Esther Cunningham/Canada provided general outline of the main contents of this Chapter and informed the Meeting that the lead author would be Dr. Henry Huntington. The purpose of Chapter 4 is to explore the human dimensions of Arctic marine shipping with special emphasis on Indigenous communities. Contributing authors are representatives from Permanent Participants organizations.

The outline of Chapter 4 is as follows:

1. Introduction
2. Review Human Uses of the Arctic Marine Environment
3. Summary of Town Hall Meetings
4. Impacts of Marine Shipping on Arctic Communities
5. Discussion and Conclusions

This chapter was kick-started by convening a workshop on Indigenous Arctic Marine Use in Ottawa, Canada in March 2008.

Chapter 5: Scenarios and Futures – Dr. Lawson Brigham provided a status on this chapter and informed the Meeting that the scenario narratives of plausible futures or stories for Arctic marine activity in 2050 and 2020 were released last April and are now available on the PAME homepage. The scenarios are based on two successful scenario workshops held in San

San Francisco (April 2007) and Helsinki (July 2007). Also, an AMSA brochure on “Scenarios of the Future” has been published and is available on the PAME homepage. The scenario work illustrates that the two major drivers i.e. Governance and Resources & Trade and will be applied with the environmental issues. The Chapter 5 outline is as follows:

1. Approaches to Scenarios
2. Complexity of Issues & Driving Forces
3. AMSA Scenarios to 2050
4. Regional Case Studies to 2020
 - Bering Strait Region (US)
 - Canadian Arctic (Canada)
 - NW Russia / ARCOP (Finland)
 - Russian Arctic: NSR Commercial View (US & NSR Partnership)
5. Current & Future Arctic Marine Tourism
6. Arctic Sea Ice Futures & Marine Access
7. Findings
8. Research Agenda

Chapter 6: Environmental Impacts – Ms. Maya Gold/Canada provided a status on this chapter on behalf of the lead author, Dr. Hein Rune Skjoldal/Norway. The main challenges with this chapter are the need for additional chapter expert contributors, need for full representation of the circumpolar Arctic, and finally the timelines for completion and synthesis of this chapter are now tight.

A workshop was held in San Francisco Workshop 29-30 April 08 as a part of Chapter 6 planning with the following chapter outline:

1. Introduction
2. Types of Environmental Impacts from ships and effects of those impacts:
Air Emissions, Discharges, Disturbance, Accidental Release, Physical Impacts, Introduction of Invasive Species
3. Regional Case Studies
Barents and Kara Sea, Canadian Arctic, Bering and Chukchi Sea
4. Future Trends in Environmental Status and Impacts,
Governance, Technology, Climate Change, Land based/Port Development
5. Findings
6. Research Agenda

The next steps are a Chapter 6 “kick off” conference call 19th of June and completion of chapter subsections for a possible author workshop in the fall of 2008

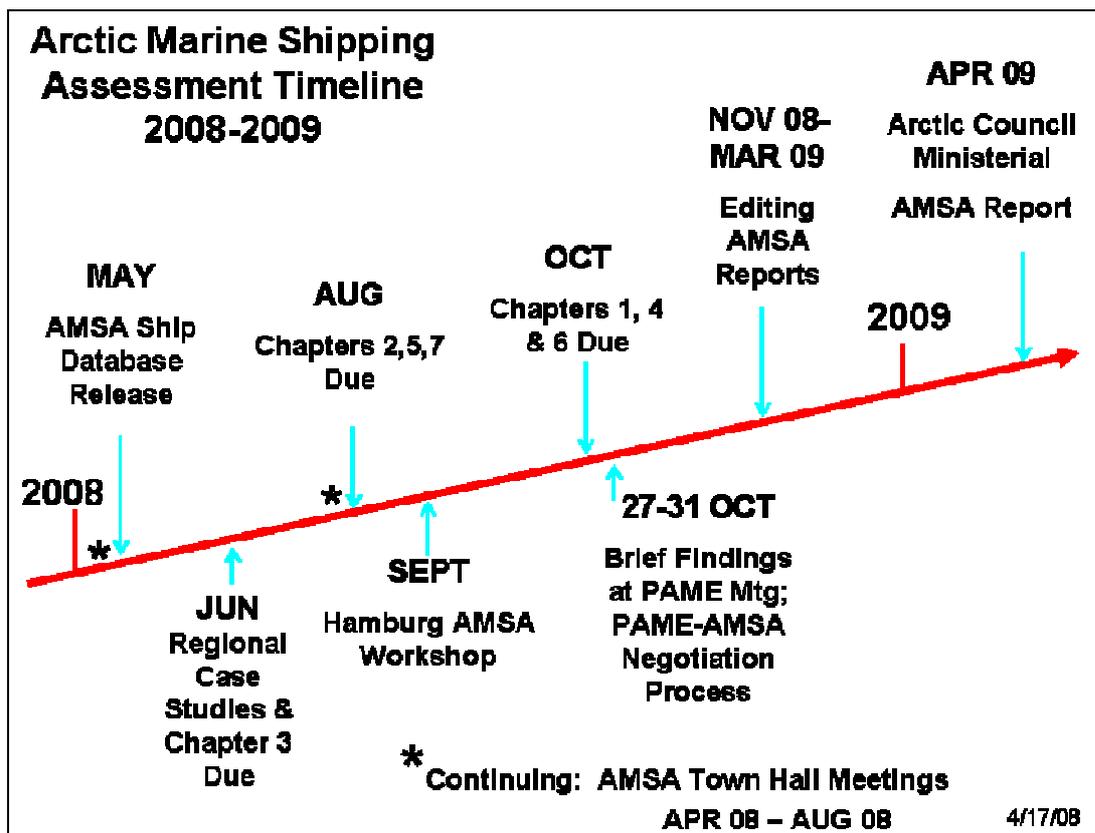
Chapter 7: Arctic Maritime Infrastructure – Mr. Kimmo Juurmaa/Finland provided a status on this chapter and informed the Meeting that two workshop had been convened as an input i.e. a workshop in Ottawa November 2007 and an Arctic Marine Incidents workshop held in New Hampshire March 2008. This Chapter will be based on case studies with Finland currently drafting a Baltic Sea Case Study.

Chapters 8 and 9: Integrated Findings and Research Agenda – Dr. Lawson Brigham noted that each Chapter will identify areas of research and findings and from there to recommendations. He introduced a number of possible AMSA themes that may be derived from the AMSA body of work several of which might evolve into recommendations to the Ministers. He also asked PAME Representatives to consider the marine expertise that might be required at the October 2008 PAME meeting.

AMSA process and deliverables for 2009 Ministerial meeting

The Meeting discussed the process relating to AMSA from October 2008 to the ministerial in April 2009 and the negotiation process for the final recommendations and timing to have recommendations included in any AMSA reports.

The proposed AMSA timeline is as follows:



The Meeting decided to categorise the AMSA information as follows:

- Commissioned studies (e.g. workshop reports, case studies, scenario report, governance report, etc.)
- AMSA Research Document (“1000 Page”)
- The Arctic Council AMSA Report (“100 Page”). This will require intergovernmental review.

Required AMSA Support

The required AMSA support includes the following:

- Arctic State Review & Confirmation of AMSA Database - 31 May - PAME Meeting
- Environmental Impacts Chapter ~ Contributing Authors
- Town Hall Meetings ~ Partnership: Permanent Participants, Arctic States (PAME) & AMSA Team
- Input by Arctic States to Chapter 7 (Infrastructure) - Charting, Hydrography, SAR, etc.
- Late Oct 08 PAME Meeting ~ Maritime Expert Involvement
- Funding for AMSA Publications ~ \$160-200K USD Editing, Mapping (GIS) & Publishing

Discussions on the AMSA Themes

The Meeting discussed potential AMSA themes introduced by the leads as follows (for possible future recommendations):

- IMO Arctic Ship Guidelines/ Future Polar Code
- International Arctic SAR Agreement
- Monitoring/ Observing the Environment (SAON/IPY Legacy)
- Use of Large Marine Ecosystems Concept
- International Arctic Environmental Response
- Protection & Marine Safety ~ Central Arctic Ocean
- Indigenous Marine Use ~ Multiple Use Management
- Surveillance of Arctic Marine Activity ~ Sharing Arctic Ship Information
- Arctic States & Global Cruise Ship Industry
- Enabling Maritime Infrastructure
- AMSA Communication to the Arctic & Global Maritime Communities
- Future Role & Responsibilities of EPPR

Many of the potential themes are practical issues dealing with multiple uses happening today and in the future. The leads noted following questions to think about when developing themes:

- How are we going to handle environmental response in the Arctic? (collaborative vs. regional)
- How will we deal with protection and marine safety issues? (Through PSSA? Others?)
- What should the regulatory scheme look like?
- How will we manage intersection of international traffic and indigenous use/arctic community use?
- How will we pass ship information within the Arctic Ocean? (Regional VTS? Information system?)
- Should cruise ships be mandated to have multiple ships in the region to assist with disasters?
- How will we enable infrastructure?
- How are we going to promote our information? We do not want to overwhelm or mask other efforts going on regarding marine safety and environmental protection (there are practical issues going on that we can address).

The purpose of the discussion is to have a dialogue with lead countries that may feed into this process. It was suggested participants think within the context of what our Ministers need to know and would like to hear and what PAME would want to give them as (to go into the next decade). Also we should be mindful of what the ocean's community will get out of the assessment.

Main discussion points:

- Question was raised on what basis such a list would be developed i.e. will it be made from Key Findings of the chapters or something else. The leads noted that this list is and will be derived from Lead Authors and the AMSA Team as to what they think the broad ideas may be.
- Procedural question on if AMSA makes recommendations to PAME was raised. The answer was that AMSA produces Findings for PAME and PAME makes the Recommendations. From a procedural perspective, AMSA will have 100's of Findings that the Team needs to narrow down to a manageable number. By placing the 100's of Findings into manageable themes, we can assist the PAME leads by providing our expertise to move the Findings to Recommendations. The idea of these potential themes is to come up with a cluster of possible Findings and Conclusions before the study is done due to time constraints and to allow room for thinking to begin to develop notions as to where the study is going.
- Concern was expressed over using LMEs in a maritime field as LME is not a concept for IMO.

- The Meeting discussed at what level these themes should be at and noted that there is no ice in any of these themes. Should ice be a separate theme or does it run through everything? The leads noted that this level of generality seems appropriate at present. A new theme may need to be added e.g. ice free versus ice covered.
- Concern was expressed over the need to place more emphasis on developing regulations for the high seas of the Arctic Ocean (at a shipbuilders Workshop in Japan, much talk focused on a possible market to build ice class ships to go straight over the top through the ice)
- It was suggested the themes be presented in hierarchy order with Marine Safety and Environmental Protection with the highest priority followed by subsets for SAR, etc.
- It was mentioned that the notion of sustainable shipping was missing from list and the leads noted that this was an important message to bring forward and was currently imbedded into some of the current themes
- Question was raised as to how the concerns from the Scenario Workshops will be reflected in the AMSA Themes i.e. we want to have governance in place before economic activity takes place. The leads noted that it may be argued that we are already behind on the governance issues as activities such as cruise ships are already taking place and yet, policy has not taken place.
- Concern was expressed that people are part of our mandate and not just Marine Safety and Environmental Protection i.e. how effective are international regimes in protecting people on all types of ships? It was argued that we may need some type of IMO pressure on this issue.
- The Baltic case study was taken as an example on how regional agreements have resolved some of the problems as it relates to our themes. But it was argued that such a study needs to be comparable with the Arctic region to be considered within the correct context. However, the value may be in that the Baltic area may look like what the Arctic will look like in the future. The situation in Baltic has not always been like this and a great deal of infrastructure development work has taken place.
- Comparison to the Antarctic region was also cautioned as the differences outweigh the similarities.
- The question if the arctic residents are adequately covered in the themes and what is included in this theme of Indigenous Use was raised. Maybe there is a need to look at these issues more closely. The leads noted that several subsets will need to be developed under Indigenous Use that may cover these concerns. A number of other socio-economic issues could/should be mentioned, via, disclaimer as to why they were not mentioned in detail (i.e. introduction of disease from ships).

The session was concluded with the reminder that the list of potential themes is not a comprehensive or exhaustive list but rather to stimulate discussions on this issue. More items will be added as progress on the assessment and main findings are teased out. In closing the

leads urged each Arctic state to bring particular expertise (for the range of issues mentioned) to the next PAME meeting in Helsinki to ensure that discussions can continue.

Record of Decisions and Follow-up Actions

The Meeting agreed to the following:

- *Further country input and confirmation of shipping data is due by 15 June 2008.*
- *Lead countries will consider using the terms “arctic communities” or “local residents” where applicable.*
- *Presentation materials (31 May 2008) will be made available as part of the PAME meeting record.*
- *Lead countries, in consultation with the PAME Chair, will characterize the different AMSA products i.e. which reports are to be defined as technical stand alone documents, background documents vs. the AMSA Report requiring intergovernmental review process.*
- *Lead countries will continue to use the “roundtable” forum and other expert fora to obtain input from Arctic countries, Permanent Participants and others. The PAME Chair stressed the need for non-lead countries to provide input to AMSA through these mechanisms.*
- *Lead countries will ensure that the maps showing accident scenarios are clearly identified as fictional and not historical facts in the Arctic Marine Incidents Workshop Report (25-27 March 2008).*
- *Lead countries to consider any submission by Arctic countries on their respective “arctic boundaries” for the shipping baseline data.*
- *Lead countries to set forth the draft AMSA findings in a way of prioritization.*
- *Proposed AMSA products, process and timeline subject to confirmation by lead countries:*

(NOTE: AMSA Lead Countries have noted concerns with the delivery of a preliminary report including draft findings and research agenda 30 days before the PAME-II meeting 28-30 October 2008 as per the PAME Chair’s discussions with the AMSA leads following this PAME meeting. The PAME Chair will seek guidance from PAME HODs and PPs at the mid Sep telephone conference call on how to deal with some AMSA information only being available a few days before the Oct 28-30 PAME meeting).

AMSA information categorised as follows:

- *Commissioned studies (e.g. workshop reports, case studies, scenario report, governance report, etc.)*
- *AMSA Research Document (“1000 Page”)*

- *The Arctic Council AMSA Report (“100 Page”). This will require intergovernmental review.*

Timeline and process for review and approval:

- *Lead countries to provide AMSA progress report on status and issues to PAME by late August 2008.*
- *PAME conference call scheduled for mid September with lead countries, HoD and PPs.*
- *Preliminary draft Arctic Council AMSA Report including draft findings and research agenda by 30 September 2008 in time for the PAME II-2008 meeting 28-30 October 2008 in Helsinki, Finland*
- *Report to SAOs addressing preliminary findings and possible recommendations by 8 November 2008.*
- *Presentation to the SAO meeting 18-20 November 2008.*
- *Possible special PAME meeting 21-22 November 2008.*
- *Final draft Arctic Council AMSA Report to SAOs 8 January 2009.*

Agenda Item 4: Information from the Chair and Secretariat

The PAME Chair reminded the Meeting of the main priorities and deliverables as identified in the PAME Work Plan 2006-2008 and emphasized that the aim of this Meeting was to start preparations for the 2009 Ministerial meeting and begin formulating the PAME Work Plan 2009-2011 based on AMSP and anticipated results of current work program and projects.

The PAME Chair informed the Meeting of the main outcomes of the SAO meeting 23-24 April 2008 in Svolvær, Norway and a draft SAO meeting report was distributed to participants. The SAO meeting agenda is being structure around themes and at the last SAO meeting PAME was given the opportunity to present progress on AMSA under the “Oceans” theme and the updating of the Offshore Oil and Gas Guidelines under the “Energy” theme. SAOs agreed that AMSA is seen as a major deliverable for the 2009 Ministerial meeting.

He informed the Meeting that PAME has been identified in the project on Snow, Water, Ice and Permafrost in the Arctic (SWIPA) and that an implementation plan for this project has been approved by SAOs. The Executive Summary and Recommendations of the Oil and Gas Assessment has been released and can be downloaded from the AMAP homepage at: www.amap.no.

He also informed the Meeting of current discussions among the SAOs on the need for guidance on standardizing production of reports and other products from Arctic Council working groups to the Arctic Council. The outcome of these discussions may affect the way in which PAME products are developed and submitted to the 2009 Ministerial. The Chair

will inform participants of outcomes of these discussions as soon as they become available and reminded the Meeting of the schedule of upcoming meetings and key milestones which affect the PAME process in finalizing PAME reports for the Ministerial meeting as detailed within Agenda Item 11.

The PAME Secretariat gave a summary of the 2007 and 2008 finances of the PAME International Secretariat as sent to PAME National Representative on 18th of February 2008. The PAME finances are in a much better shape than in the past, with the 2007 carry-forward in a surplus. PAME countries are asked to be mindful of expected increases in the printing costs for 2008 due to printing of documents for the spring 2009 Ministerial meeting.

Record of Decisions and Follow-up Actions

The Meeting agreed to the following actions:

Coordination with other Working Groups: PAME Chair to inform PAME representatives about any correspondence concerning collaboration with other working groups.

Agenda Item 5: Information from Arctic Council Working Groups

AMAP

The AMAP representative provided information on their ongoing work and informed the Meeting of the upcoming assessment reports on the following topics i.e. on Human Health (2009), POPs (2009), Radionuclides (2009), and Mercury (2011).

Major new initiative led by AMAP is the cryosphere project proposal: Climate Change and the Cryosphere – Snow, Water, Ice and Permafrost in the Arctic (SWIPA) for the period 2008-2011 with PAME identified as one of its partners. The implementation plan for this project has been approved by SAOs and can be downloaded from the AMAP homepage: www.amap.no

The Sustaining Arctic Observing Networks (SAON) project purpose is to maintain and extend long-term monitoring of change in the Arctic, with a view to building a lasting legacy of the International Polar Year (IPY). AMAP, in collaboration with the International Arctic Science Committee (IASC) have convened two workshops with the 3rd workshop planned 15-17 October 2008 in Helsinki, Finland.

AMAP provided inputs to the updating of the RPA.

The United States asked for clarification on PAME's role in the SWIPA project. The PAME Chair noted that this project covers sea-ice and hence brings PAME in from the ocean angle and the PAME role should be set out in the 2009-2011 PAME Work Plan

EPPR

The EPPR representative gave a brief overview of their main activities (presentation as a separate file and on the PAME homepage) with particular focus on the AMAP; EPPR and

CAFF joint project proposal on harmonization of Arctic Council mapping/GIS activities and possible involvement of PAME.

Great deal of spatial data have been generated over the latest years with datasets distributed throughout many organizations causing difficulty in combining and using these datasets for analysis. Thus there is a need for a dedicated Arctic Spatial Data Infrastructure (ASDI) with the aim to create a common strategy for spatial data policy within the Arctic Council to ensure that relevant Arctic Council GIS/mapping activities are conducted in a way that is compatible with standards and procedures. Next steps include a survey of existing data available within the Arctic Council working groups develop detailed proposals for implementing a project to update the EPPR Circumpolar Map of Risk based upon information from AMSA, OGA, CBMP, and to develop a proposal for an Arctic Spatial Data Infrastructure (including standards and data policy) for SAOs consideration.

The United States reminded the Meeting of a similar proposal 15 years ago with great deal of work put into it without much success.

Other EPPR activities of relevance to PAME are their input to the Arctic Marine and Shipping Assessment.

The next meeting of the EPPR Working group will be held 19-21 August in 2008, Luleå, Sweden.

The Meeting agreed to the following:

- *PAME to determine if and how to contribute to the project on “Climate Change and the Cryosphere: Snow, Water, Ice and Permafrost in the Arctic” (SWIPA) in the 2009-2011 Work Plan and beyond.*
- *The PAME Chair and Secretary will distribute the project proposal as presented by EPPR on harmonization of Arctic Council mapping/GIS activities to PAME Member Countries for their comments by 15 July 2008 after which PAME Chair will send comments to EPPR.*

Agenda Item 6: Regional Programme of Action (RPA: Canada and Iceland)

Canada and Iceland as the lead countries in updating the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (RPA) gave an update of its status to date, the revision process and next steps to finalizing the update (presentation as a separate file and on the PAME homepage).

The leads informed the Meeting that technical updates (e.g. Table 1) were underway with assistance from AMAP and Russia, which will take into account new data that has become available since the RPA was originally drafted. These revisions will be considered for incorporation into the next draft of the RPA.

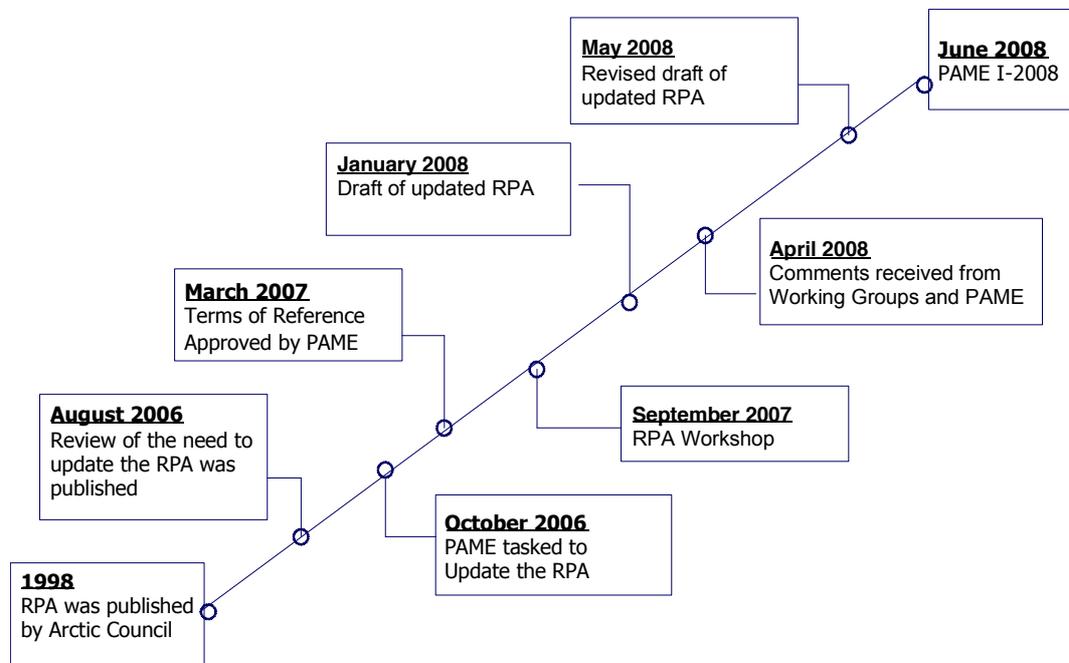
The leads noted the need for better coverage of the participation of Permanent Participation in the updating of the RPA. The AIA representative asked the leads to clarify how they would

like the PPs to participate. The Saami Council representative informed the Meeting that they had not been able to participate in this work due to lack of financial and human capacities and had focused their limited resources towards participation in AMSA and the updating of the Offshore Oil and Gas Guidelines.

The leads had proposed to use the May 14th version of the draft RPA as the point of departure for discussion at this Meeting. But due to confusion with the different versions of the draft RPA previously sent out to PAME National Representatives (March 25th version), 2008 and the fact that the 30 day deadline for distribution prior to Meeting as per the Arctic Council Rules of Procedures had not been met it was decided to use the March 25th version as a point of departure.

The RPA revision process up to this Meeting is illustrated below.

RPA REVISION PROCESS



The Meeting discussed the draft RPA section by section but the Appendices (1 and 2) and Annexes A and B where not discussed as proposed updates had not been received in time for participants to properly review prior to the Meeting. It was decided to delete Annex B. The AMAP representative gave an overview of AMAP’s suggested updates to the draft RPA, Annex A on Current Knowledge.

The leads will prepare a revised draft RPA taking into account feedback received at this Meeting as well as new information including from Russia on hot spots. The revised draft RPA will be distributed to participants no later than 1 August 2008 both as a clean copy of the document with text in brackets as appropriate which will be the negotiated document; and a marked-up copy of the document with notes on changes on non-agreed text.

The leads informed the Meeting of the proposed next steps as follows:

Proposed Next Steps

Revise updated RPA based on feedback received at PAME I-2008	June 2008
Complete update to annexes and technical information	June –July 2008
Distribute draft to PAME and Working Groups for comment	August 2008
Revisions to RPA due to lead countries	September 2008
Present draft to PAME II-2008 and address final comments	October 2008
Present draft of updated RPA to SAOs	November 2008
Address possible SAO comments	December 2008
Submit final draft of RPA to SAO	January 8, 2009
PAME Secretariat to prepare / print updated RPA	Winter 2009
Present updated RPA to SAOs and Ministers	April 2009

Record of Decisions and Follow-up Actions

The Meeting agreed to the following:

- *Lead countries noted the need for further updating of the technical information of the RPA. The Project Manager of the GEF Russian NPA-Arctic Project agreed to provide current description and associated map of the hot spots in Russia to replace Appendix 2 in the RPA document.*
- *Lead countries to provide a revised draft RPA taking into account feedback received at this Meeting as well as new information including from Russia on hot spots no later than 1 August 2008. Lead country to provide this revised draft RPA as a clean copy of the document with text in brackets as appropriate which will be the negotiated document; and a marked-up copy of the document with changes noted (“track changes”) and source of comments.*
- *Comments on the 1. August 2008 version of the updated RPA is due to lead countries by 1 September 2008. Lead countries to revise the draft RPA based on comments received for distribution by 30 September 2008.*

Agenda Item 7: Update of the GEF/Russian NPA-Arctic

Dr. Ivan N. Senchenya, Project Manager of the UNEP/GEF project - Russian Federation: Support to the National Programme of Action for the Protection of the Arctic Marine Environment summarised its status and relationship with the RPA and its updating process (presentation as a separate file and available on the PAME homepage).

The Strategic Action Programme (SAP-Arctic) of this Project is currently being reviewed by regional and federal authorities with a deadline for comments of May 15th 2008 after which the plan is to publish SAP-Arctic in Russian and English.

The pre-investment studies of the hot-spots are underway with current work on three demonstration projects. The map of hot-spots in the Russian Arctic will be updated and provided as an input to the updating of the RPA.

He informed the Meeting that the next steps would include round-table discussions, conferences, workshops in regions on different aspects of the SAP-Arctic and international discussion of the SAP-Arctic.

Further information on this Project is at: <http://www.npa-arctic.ru/>

The Meeting welcomed the update on the GEF/UNEP Russian NPA-Arctic Project and noted the importance of this Project for the protection of the Arctic marine environment and the updating of the RPA.

Agenda Item 8: Evaluation and Update of the Arctic Offshore Oil and Gas Guidelines

The United States as the lead country in Updating the 2002 Arctic Offshore Oil and Gas Guidelines gave an update of its status and revision process to date. The draft of the 2002 Guidelines version March 13th had been intended to be used as the point of departure for this Meeting but as all participants had received the May 16th version of the draft Guidelines that showed all of the new comments the Meeting decided to use this version as the point of departure.

The PAME Chair reminded participants of the request from the last SAO meeting that PAME be mindful of the findings and recommendations of the Arctic Council Oil and Gas Assessment which is available on the AMAP homepage: www.amap.no

The lead will revise the draft Guidelines based on outcome from this Meeting and provide by 12 June with deadline for comments by 15 July. Further details on the timeline and next steps are in the Record of Decisions for this agenda item below.

The lead for the United States is Tom Laughlin and the staff contact person is Dennis Thurston, Department of Interior/Minerals Management Services (MMS). His contact information is: Dennis.Thurston@mms.gov or +1-907-334-5338 (Alaska).

Record of Decisions and Follow-up Actions

The Meeting agreed to the following timeline of the updating of the Offshore Oil and Gas Guidelines:

- *Lead country to revise the draft Guidelines based on outcome from this Meeting and provide 1) a clean copy of the document with text in brackets as appropriate which will be the negotiated document; and 2) a marked-up copy of the document with notes on changes on non-agreed text by 12 June.*
- *PAME to provide comments to the lead country by 15 July.*

- *Lead country to send out roll-up of comments received by 20 July*
- *Comments by countries to the lead country by 25 August.*
- *Lead country to send out roll-up of comments received by 4 September.*
- *Lead country to send out revised draft Guidelines to PAME prior to the next PAME Meeting (28-30 Oct 2008) by 30 September 2008.*
- *Lead country to send out new revised roll-up of final issues by 1 October.*

Agenda Item 9: Ecosystem Approach – Large Marine Ecosystems (LME)

Dr. Kenneth Sherman of the National Oceanic and Atmospheric Administration (NOAA) gave a general overview and update of the Large Marine Ecosystem Approach (LME) on behalf of the lead country (presentation as a separate file and on the PAME homepage). A detailed PAME progress report on the Ecosystem Approach is provided in Appendix IV.

The Meeting was informed about the outcome of the PAME Ecosystem Expert Group meeting in Montreal (May 13-14, 2008) where all meeting participants agreed to adopt the LME 5-module methodology to Arctic LMEs. This meeting was attended by representatives from CAFF and SDWG. The proposed work plan for the period 2008-2009 of the PAME Ecosystem Expert Group is as follows:

- Move forward with the planning and implementation of pilot LME projects based in the generic LME five-modular framework and indicator suites of (i) productivity; (ii) fish, fisheries, marine mammals, and marine birds; (iii) pollution and ecosystem health; (iv) socioeconomics; and (v) governance, for the West Bering Sea, the Beaufort Sea, and the Barents Sea LMEs
- In collaboration with the Russian Federation, complete the submission of a Project Information Form (PIF) Proposal on the West Bering Sea to the Global Environment Facility (GEF)
- US and Canada representatives to proceed with plans for initiating a Beaufort Sea LME project and Transboundary Diagnostic Analysis (TDA)
- Maintain liaison with Norway/Russian Federation plan for the Barents Sea LME Project
- Maintain liaison with:
 - CAFF activity to improve collaboration with the Circumpolar Biodiversity Monitoring Program (CBMP) Marine Expert Monitoring Group team in Norway (share resources and build more comprehensive program)
 - Arctic Marine Shipping Assessment (AMSA)
 - SDWG which provides an excellent source of socioeconomic information and data
- Maintain liaison with the Arctic Marine Shipping Assessment (AMSA) and the Sustainable Development Working Group (SDWG) which provides an excellent source of socioeconomic information and data.

- Maintain e-mail correspondence with all members of the Ecosystem Expert Group (the membership of the EEG is in Appendix IV).
- Prepare LME outreach information on the 5 modules and other outreach materials for distribution by the PAME Secretariat, including 2 DVDs and LME booklet entitled “Turning the Tide”.

Record of Decisions and Follow-up Actions

The Meeting agreed to the following:

- *Lead country will prepare a report on the LME work to date and an approach to future work on implementing the Ecosystem Approach as required by the AMSP for the 2009 Ministerial meeting. A preliminary draft of this report to be available by 30 September for the review at the next PAME meeting.*

Agenda Item 10: Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr)

Norway is the lead country on the Implementation of the project on Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr Project). This project is a joint PAME/SDWG effort and is based on one of the priorities of the Norwegian chairmanship from 2006 to spring 2009 i.e. integrated oceans management, and the mandate given on this issue at the 2006 Salekhard Ministerial meeting (presentation as a separate file and available on the PAME homepage).

An authors meeting was held in Washington D.C. in February 2008, after which the chapters were revised and both a draft technical report and Observed Best Practices (OBP) report prepared. The OBP report will be provided to PAME Representatives by the end of June.

The outputs for this project are as follows:

- A study of best practices in ecosystems based oceans management
- Identification of Observed Best Practices (OBPs) in ecosystems based oceans management
- University of the Arctic course in oceans management
- An international workshop where experiences will be shared

The United States reminded the Meeting of the review process i.e. the OBP report will need to go through intergovernmental negotiations and leads should be mindful of the time needed for such a process.

Record of Decisions and Follow-up Actions

The Meeting agreed to the following:

- *Lead country will produce two types of reports i.e. a technical report (not negotiated) and Observed Best Practices (OBPs) report which will require an intergovernmental review*

process by PAME and SDWG. The draft OBP report to be provide to PAME by end of June 2008.

- *PAME requested the lead country for more information on the nature and possible content of the proposed international workshop on the BePOMAr project and how the lead country intends to include PAME if such an international workshop is being planned.*

Agenda Item 11: Preparations and Deliverables to the 2009 Ministerial Meeting

The PAME Chair reminded the Meeting of the expected deliverables by PAME to the Next Ministerial Meeting 28-29 April 2009 as follows:

- Arctic Marine Shipping Assessment (AMSA)
- Updated version of the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (RPA)
- Update of the Arctic Offshore Oil and Gas Guidelines (2002)
- Status report on the progress on the LME approach as per PAME Work Plan, Objective II, Action 1
- Joint PAME/SDWG Project and report on Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr)

The PAME Chair informed the Meeting of current discussions between the SAOs on procedures and guidelines for the release of reports from the Arctic Council working groups. PAME will be informed when the SAOs have taken decision on this issue as it may affect the submission of PAME reports to the Ministerial meeting.

The Meeting discussed the PAME products, process and critical dates/timelines to ensure that deadlines as set by the Arctic Council be met. Below are the key dates which affect the PAME process in finalizing PAME reports for the Ministerial meeting.

Meeting of Arctic Council Chairs 8-9 October – location TBC

PAME II-2008 meeting (28-30 October 2008, Helsinki): PAME with leads on respective projects to develop preliminary findings and recommendations for SAO meeting in fall 2008 (Nov). Decide on what to table at the SAO meeting for approval.

SAO meeting in 18-20 Nov 2008, Kautokeino, Norway: Seek guidance/comments on findings/recommendations and Ministerial deliverables

Nov 2008 - Jan 2009: Finalize findings/recommendations and other Ministerial deliverables

8 Jan 2009: *Deadline for working group reports and work plans*

20 Jan 2009: 1st draft SAO Report to Ministers distributed

SAO Editing Session 10-11 February 2009: – location TBC (options for location are Copenhagen or Oslo)

Feb 2009 seek approval of submissions to ministerial, including recommendations

Feb–Apr 2009: Preparations and printing of Ministerial deliverables

Ministerial Meeting tentative for 28-29 April 2009, Tromso, Norway

Record of Decisions and Follow-up Actions

The Meeting agreed to the following:

- *PAME and respective lead countries to deliver the following products to the 2009 Ministerial Meeting*
 - *Arctic Marine Shipping Assessment (AMSA)*
 - *Updated version of the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (RPA)*
 - *Update of the Arctic Offshore Oil and Gas Guidelines (2002)*
 - *Status report on the progress on the LME approach as per PAME Work Plan, Objective II, Action 1*
 - *Joint PAME/SDWG Project and report on Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr)*
- *If required, a special PAME meeting scheduled 21-22 November 2008. The Danish Representative to explore the possibility of convening such a meeting in Copenhagen, Denmark.*

Agenda Item 12: PAME Work Plan 2009-2011

The PAME Chair reminded the Meeting of the need to start discussion on possible activities for consideration for the PAME Work Plan 2009-2011, both new and ongoing projects with particular attention given to the AMSP actions. Possible collaborations and contributions to work led by other Arctic Council Working groups should also be considered as it related to the PAME mandate.

The PAME Chair introduced the following possible projects which might have some implications to PAMEs work and the need to explore if and how PAME might contribute:

- Vulnerability and Adaptation to Climate Change in the Arctic (VACC-Norway lead/SDWG)
- the AMAP led Cryosphere Project Proposal - Climate Change and the Cryosphere – Snow, Water, Ice and Permafrost in the Arctic (SWIPA)
- The SAON Project (Sustaining Arctic Observing Networks) as it may e.g. relate to RPA and AMSA.
- CAFF on 1) the Circumpolar Biodiversity Monitoring Programme (CBMP) which takes on ecosystem-based management approach and is considered to be the biodiversity component of SAON. Canada is the lead on CBMP and funds the CBMP Office in Canada. Norway leads the Marine Expert Monitoring Group of CBMP and is funding a

start-up workshop to be held in 2009 for the marine aspect of the CBMP. 2) Arctic Biodiversity Assessment (ABA).

Outcomes of venues such as the 8th Conference of Parliamentarians of the Arctic Region (CPAR) 12-14 August 2008 in Fairbanks, Alaska (Marine Policy) may also have some implications to PAMEs future work plan and will be reviewed as it becomes available.

The Meeting also discussed the strategic actions from the Arctic Marine Strategic Plan (AMSP) as potential areas of work for PAME in 2009-2011 (available in Appendix V). Strategic action 7.3.4 was considered as a potential overarching theme for future activities of PAME taking into account other AMSP strategic actions of relevance. The Chair and Secretary will prepare a concept paper on this as per the Record of Decision below.

The PAME Chair reiterated that projects without lead(s) can not be included in the PAME Work Plan and he urged countries to come forward with proposals on leading or co-leading future PAME projects.

AIA noted that no PPs organizations are currently leading or co-leading as per the current PAME Work Plan and the Chair asked that PPs to bring forward suggestions on their preferred focus and/or activity.

ICC and the Saami Council noted the need to inform local communities on the PAME activities and could be done so by a possible communication project with, for example, the development of course material for local universities such as the University in Nuuk.

The Meeting supported previous ideas of the PPs organizations and noted that PAME should be doing more work on communication. Standardized communication materials on PAME could be prepared to be used by PAME National Representatives and PPs in remote places in the Arctic. Canada informed the Meeting that they have some presentations on the PAME work which are being used in Northern Canada. Canada offered to work with the PPs to prepare generic presentations on PAME work that could be used to inform arctic residents about PAME and its activities. Such presentations could also be used by PAME National Representatives.

The United States informed the Meeting that the U.S. will be hosting a joint meeting of the Antarctic Treaty Parties and the Arctic Council during the 50th anniversary meeting of the Antarctic Treaty (XXXII ATCM) in April 2009. The joint meeting will have a science and policy interface focus.

Record of Decisions and Follow-up Actions

The Meeting agreed to the following:

- *PAME Chair and Secretary to prepare a concept paper on a proposed stepwise projects as a means of meeting the AMSP goals and the ocean agenda of the Arctic Council (see AMSP 7.3.4) by 31 July 2008. This concept paper is to take into account the following:*

- *2009-2011: Host a series of conferences, commission research papers and other PAME activities on the Arctic marine environment as a means of outreach and getting inputs from others and e.g. link to the IPY knowledge and possible new climate information. These would be based on AMSA, OGA, LME project etc.*
 - *2011-2015: To initiate a comprehensive review of the adequacy of existing measures (updating the 1996 PAME Report).*
 - *Bringing forward to the AC meeting in 2015 a comprehensive report on the adequacy of measures for protection of the marine environment from shipping, seabed developments, coastal zone development, ocean disposal and recommendations for improvements.*
- *Countries to explore possible future PAME-related activities they would prefer to lead and/or co-lead, such as:*
- *Canada to develop slide presentation for PAME outreach (explanation of activities, outputs, etc.) that can be used in Arctic communities or for press activities.*
 - *US to provide workplan items for action 7.4 in AMSP “Apply an Ecosystem Approach to Management”.*
- *PAME Chair and Secretary to prepare a draft 2009-2011 PAME Work Plan based on comments from this Meeting and inputs from countries and Permanent Participants over the summer. A draft to be ready by end of September 2008.*
- *PAME Chair and Secretary to prepare a draft text for the 2009 Ministerial report and declaration in consultation with countries and Permanent Participants by end of August 2008.*

Agenda Item 13: Summary of Meeting Decisions and Follow-up Actions

In *italics* at the end of each agenda item.

Agenda Item 14: Any Other Business and end of the Meeting

Finland informed the Meeting that they will host the next PAME meeting 28-30 October 2008 in Helsinki. Logistical information for this meeting will be sent out over the summer.

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APPENDIX II – LIST OF DOCUMENTS

Agenda Item 2 - Introduction and Adoption of the Agenda

- Draft agenda with a timeline

Agenda Item 3 - Arctic Marine Shipping Assessment (AMSA - Canada, Finland, USA)

- AMSA Update from SAO Meeting Apr 2008
- AMSA Critical Dates (Apr 5, 2008)

Agenda Item 4 - Information from the Chair and the Secretariat

- PAME Report to SAO meeting in April 2008
- PAME Finances 2007 and 2008

Agenda Item 5 - Information from other working groups representatives

Agenda Item 6 – Updating of the Regional Programme of Action (RPA: Canada and Iceland)

- Annotated agenda for the RPA session
- Agenda item 6 - RPA cover letter
- Revised draft RPA (Version 14 May 2008) - **this version will be the point of departure for discussion at PAME I-2008**
- Process and Timeline for the updating of the RPA to date

Background Information:

- January 22, 2008: Letters on collaboration and inputs to the process of updating the RPA was sent to the Chairs of the Arctic Council Working Groups asking for their inputs to the draft RPA (version January 16, 2008).
- February 25, 2008: This was followed by a letter to the Executive Secretaries of the Arctic Council Working Groups asking for inputs/comments/suggestions to the updating of the RPA (version January 16, 2008)
- March 2008: Comments received from AMAP, EPPR and SDWG
- March 25, 2008: Draft RPA version (January 16, 2008) sent to PAME National Representatives as per decision from the conference call on March 12th, 2008.
- April 7, 2008: Replies to comments received from AMAP, EPPR and SDWG sent out and a revised version of the draft RPA (version March 28, 2008)
- April 15, 2008: Comments received from the United States
- May 14, 2008: Reply to comments from the United States
- RPA (1998)

Agenda Item 7 – Update/Status of the UNEP/GEF Russian NPA-Arctic project (Russia)

- Update Status of UNEP/GEF NPA-Arctic Project

Agenda Item 8 - Evaluation and Update of the Arctic Offshore Oil and Gas Guidelines (USA)

- Arctic Guidelines 2009 version 16 May 2008 including all comments
- Revised Draft of the 2002 Guidelines (version 13 March 2008) - **this version will be the point of departure for discussion at PAME I-2008**
 - Comments on the revised draft Guidelines (version 13 March 2008) by Norway
 - Comments on the revised draft Guidelines (version 13 March 2008) by MMS

- Comments on the revised draft Guidelines (version 13 March 2008) by North Slope Borough
- Comments on the revised draft Guidelines (version 13 March 2008) by WWF
- Proposed timeline and next steps for the Guidelines review process

Background Information:

- 2002 Arctic Offshore Oil and Gas Guidelines
- Miami workshop Report 7-8 December 2007
- Summary of comments received October 2007
- Guidelines update - letter from lead country July 2007
- Arctic Council Oil and Gas Assessment: Executive Summary and Recommendations (final version 24 April 2008)

Agenda Item 9 – Ecosystem Approach (LMEs - USA)

- Progress Report on Ecosystem Approach May 21, 2008
- Cover note for the Ecosystem Approach agenda

Agenda Item 10 - Best Practices in Ecosystems-Based Ocean Management in the Arctic (BePOMAr) project (Norway – PAME/SDWG)

- Progress Report on Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr) – as presented to the SAO Meeting last April
- Revised Progress Report on Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr) – version 9 May 2008
- Revised Progress Report on Best Practices in Ecosystem-Based Ocean Management in the Arctic (BePOMAr) following SDWG meeting 19-22 May

Agenda Item 11 – Initial preparations and deliverables for the 2009 Ministerial meeting

- Agenda item 11: Proposed draft process for developing deliverables including PAME recommendations for 2009 Ministerial

Background Information:

- 2006 Ministerial Declaration
- SAO Report to Ministers 2006

Agenda Item 12 – PAME Work Plan 2009-2011

- Agenda item 12 – cover letter
- Discussion paper on activities for the PAME Work Plan 2009-2011
- PAME Work Plan 2006-2008

General Information

- Draft List of Participants
- Draft List of Documents
- Logistics (meeting location and hotels)
- PAME Meeting Report II-2007 (26-27 September 2007)
- PAME Operating Guidelines

APPENDIX III – AGENDA

SATURDAY, May 31 – AMSA DAY

10:00-16:00

- Item 1:** Opening of the Meeting (TBD)
- Item 2:** Introduction and Adoption of the Agenda (PAME Chair)
- Item 3:** Arctic Marine Shipping Assessment (Canada/Finland/USA)
- Progress/status Report
 - Proposed timeline and milestones up to Ministerial
 - Discussions on preliminary findings and scope of recommendations
 - Tour de table and agreement on next steps
 - AMSA Roundtable discussion

MONDAY, June 2

09:00-09:30

- Item 4:** Information from the Chair and the Secretariat
- a. The SAO/Ministerial meeting in April 2008
 - b. Finances of the PAME Secretariat
- Item 5:** Information from other working Groups representatives

09:30-12:00

- Item 6:** Regional Programme of Action (RPA: Canada and Iceland)
- Review and agree on revisions to the RPA
 - Tour de table and agreement on next steps
- Item 7:** Update status of the GEF/Russian NPA-Arctic (Russia)

13:00-16:00

- Item 8:** Update of the Arctic Offshore Oil and Gas Guidelines (USA)
- Outcome of the Miami December 2007 Workshop
 - Review and agree on revisions to the Guidelines
 - Tour de table and agreement on next steps

16:00-17:00

- Item 9:** Ecosystem Approach (USA)
- Progress Report on the Ecosystem tasks
 - Tour de table and agreement on next steps
 - Ministerial text
- Item 10:** Best Practices in Ecosystems-Based Ocean Management in the Arctic (BePOMAr) project (Norway – PAME/SDWG)
- Outcome of Workshop in February 2008
 - Role of PAME in this Project
 - Progress Report and agreement on next steps

RECEPTION FROM 5:00PM – 6:00PM

TUESDAY, June 3

09:00-12:00

Item 8 cont.: Update of the Arctic Offshore Oil and Gas Guidelines (USA)

13:00-17:00

Item 6 cont.: Regional Programme of Action (RPA: Canada and Iceland)

- Review and agree on revisions to the RPA
- Tour de table and agreement on next steps

WEDNESDAY, June 4

09:00-13:00

Item 11: Initial preparations and deliverables to the 2009 Ministerial meeting

- Deliverables to the 2009 Arctic Council Ministerial meeting (initial thoughts on draft text into the Ministerial declaration)
- Discussions on timeline/milestones of actions up to 2009 Ministerial

Item 12: PAME Work Plan 2009-2011

- Tour de table on possible formulation/content of the PAME program of work for 2009-2011(e.g. based on the AMSP and anticipated results of current work program)

Item 13: Summary of Meeting Decisions and Follow up Actions (Chair & Secretariat)

- The PAME Progress Report to the SAO meeting in November 2008
- Next PAME meeting (Fall 2008 – timing and locations)

Item 14: Any other business and closing of the Meeting

APPENDIX IV

PAME Progress Report on the Ecosystem Approach – May 21, 2008

The US continued to provide background information on the 5-module Large Marine Ecosystem (LME) assessment methodology. The LME indicator approach was reviewed in meetings and conferences in Qingdao (September 2007), Tromso, Norway (September 2007), Trondheim, Norway (October 2008), Hanoi (April 2008), and at an Asia-Pacific Economic Cooperation Workshop (Qingdao, September 2007). The 5-module LME approach was introduced to new GEF-supported LME projects including the Agulhas-Somali Current, Canary Current, Caribbean Sea, Gulf of Mexico, and Sulu-Celebes Sea LMEs. A focus on adaptation to climate change and ice-melt in the Arctic regions was included in the 4th replenishment (2007-2010). With regard to the West Bering Sea, the most recent analysis of fish landings is showing a consistent decline over the past 25 years from 1.5 million metric tons in the early 1980s to 500,000 metric tons in 2005. Much of the catch is believed to be from Illegal, Unregulated and Unreported (IUU) fishing, underscoring the need for management actions leading to the recovery and sustainability of fish stocks in the LME.

Report of the Arctic Council's PAME Ecosystem Expert Group Meeting in Montreal (May 13-14, 2008)

In accordance with the Iceland meeting in Reykjavik on 26-27 September 2007, a meeting of the PAME Ecosystem Expert Group was held in Montreal on May 13 and 14, 2008. The principal topics of the meeting were (1) the LME indicator approach to marine resource assessment and management with specific application to the Arctic Region; (2) the collaboration with other Arctic Council Working Groups; and (3) the status of the 3 Arctic LME pilot projects.

Participants

The workshop was co-chaired by Dr Kenneth Sherman (US/NOAA) and Dr Robert Siron (Canada/DFO); the participants were Dr Jan Thulin (Senior Advisor for the International Council for the Exploitation of the Sea, former Baltic Sea LME Director, and LME Expert Group member from Sweden), Bernard Funston (Executive Secretary of the Arctic Council's Sustainable Development Working Group), Mike Gill (Chair, Circumpolar Biodiversity Monitoring Program), and Maya Gold (Arctic Marine Shipping Assessment project officer).

Overview and Summary

The meeting in Montreal was the first of the LME Expert Group. It followed a series of e-mail exchanges (Annex 1) that provided background material for comments on the 5-module generic approach, and linked suites of indicators of changing ecological conditions in Arctic LMEs. A list of membership of the LME Expert Group is given in Annex 2. The list of background documents distributed to each of the country representatives is appended as Annex 3 and the agenda of the meeting is provided in Annex 4. Following presentations and discussions around case studies and examples from ongoing LME projects, consensus was reached by the participants that the LME five module methodology and suites of indicators should be adopted as the framework for monitoring and assessing changing conditions of Arctic LMEs. Agreement was also reached to move ahead with three pilot assessment projects for the Barents Sea (Norway, Russia), Beaufort Sea (Canada/US), and West Bering Sea (Russia/US) LMEs. Contingent on approval by PAME, each country involved in the

candidate pilot LME projects will be expected to initiate discussions and workshops to move ahead with these pilots. The United States and Canada, and the United States and Russia, have already initiated discussions with support from the UNDP-Global Environment Facility funding process.

The upcoming PAME meeting in Newfoundland should provide the opportunity for an overview of the plans for the Barents Sea LME Project. Jan Thulin representing the Baltic Sea LME project provided useful advice on lessons learned in the Baltic Sea. The participants examined the 5 module indicator suites of ecosystem condition.

Three working groups were represented at the workshop: Mike Gill, of the Council's Conservation of Arctic Flora and Fauna (CAFF) Working Group, made a presentation on the Circumpolar Biodiversity Monitoring Program (CBMP) which will provide support to the Arctic Biodiversity Assessment. Bernard Funston, of the Sustainable Development Working Group, showed the relevance to the LME perspective of its sources of socio-economic information and data, including ArcticStat, which compiles statistics from all circumpolar countries, and the Survey of Living Conditions in the Arctic (SLICA). Maya Gold, representing the Arctic Marine Shipping Assessment (AMSA), linked the environmental impacts of shipping with LME indicators. The AMSA final report will include a study of the Beaufort Sea and other areas of heavy traffic in the Arctic region.

Workshop results

All workshop participants agreed to adopt the LME 5-module methodology to the Arctic LMEs, as they have proven useful for measuring changing conditions in other LMEs including in the US Northeast Continental Shelf LME, and the GEF supported LME projects in the Benguela Current, Baltic Sea, Guinea Current, and Yellow Sea LMEs. In the three pilot projects, a transboundary diagnostic analysis will identify the main issues and joint priorities of the two countries participating in the pilot project. The expert group meeting in Montreal also endorsed the provisional Map of Arctic LMEs.

Networking documents

The US is completing a report with UNEP on changing ecological conditions in the world's large marine ecosystems based on the 5-module methodology. The report includes the Arctic LMEs and should be ready for wide distribution in the mid-summer 2008. It includes summary chapters on the global condition of marine productivity, marine fisheries, nutrient over-enrichment, and accelerated LME warming.

Proposed 2008-2009 Work Plan

The Work Plan for introducing ecosystem-based assessments to the Arctic is presented for review by PAME. Included for the 2008-2009 period are the following initiatives:

- Move forward with the planning and implementation of pilot LME projects based in the generic LME five-modular framework and indicator suites of (i) productivity; (ii) fish, fisheries, marine mammals, and marine birds; (iii) pollution and ecosystem health; (iv) socioeconomics; and (v) governance, for the West Bering Sea, the Beaufort Sea, and the Barents Sea LMEs
- In collaboration with the Russian Federation, complete the submission of a Project Information Form (PIF) Proposal on the West Bering Sea to the Global Environment Facility (GEF)

- US and Canada representatives to proceed with plans for initiating a Beaufort Sea LME project and Transboundary Diagnostic Analysis (TDA)
- Initiate liaison with Norway/Russian Federation plan for the Barents Sea LME Project
- Initiate liaison with CAFF activity to improve collaboration with the Convention on Biological Diversity (CBMP) Marine Expert Monitoring Group team in Norway (share resources and build more comprehensive program)
- Maintain liaison with the Arctic Marine Shipping Assessment (AMSA) Working Group
- Maintain liaison with the Sustainable Development Working Group (SDWG) which provides an excellent source of socioeconomic information and data
- Maintain e-mail correspondence with all members of the Ecosystem Expert Group (the membership of the EEG is appended in Annex 2).
- Prepare LME outreach information on the 5 modules and other outreach materials for distribution by the PAME Secretariat, including 2 DVDs and LME booklet entitled “Turning the Tide”.

E-mail Correspondence, Ecosystem Expert Group

1) 13 March 2007 e-mail correspondence with LME experts

Included the paper, Large Marine Ecosystem Approach to Marine Resource Assessment and Management (Paper for Proceedings of 26-28 September 2006 Bergen Conference on implementing the ecosystem approach to fisheries (CIEAF)

We have received encouragement to move forward, based on the deliberations of the last PAME meeting. The purpose of this initial correspondence is to invite you, in recognition of your expertise and interest in PAME activities, to serve as a member of an expert study group of PAME and to participate in the deliberations for introducing an ecosystem-based approach to the assessment and management of Arctic LMEs.

While the task of selecting a suite of indicators to be used in monitoring changes in conditions of 17 LMEs is challenging, we can benefit from LME experiences where the indicator approach has been most useful. The case studies we can benefit from include 40 years of experience in management and assessment of changing states of the Northeast shelf LME, and in results forthcoming from applying this approach to the Benguela Current LME by Angola, Namibia and South Africa, and to the Guinea Current LME through the efforts of 16 countries in West Africa. In both of these cases, productivity and fish and fisheries measurements were taken during survey operations conducted aboard the Norwegian vessel *Nansen* with the assistance of Norwegian scientists and technicians. We now have the benefit of other start-up operations being conducted by Norway: one in the Bering Sea in cooperation with the Russian Federation, the other in the Norwegian Sea. In effect we have considerable experience and expertise to draw from within the group, including the activities underway in the Baltic Sea LME project that include application of all 5 modules: productivity; fish and fisheries; pollution and ecosystem health; socioeconomics; and governance. The reports to ICES from Iceland are indicative of long term assessments of the Iceland Shelf LME, and there are ICES reports from Canada, Denmark, Sweden, and Finland. Attached is a description of the generic broad-scale modules to the U.S. Northeast Shelf ecosystem (“The Large Marine Ecosystem Approach to Marine Resources Assessment and Management”). Insights into the kinds of assessments to be made on socioeconomics and governance can be found in the Handbook on Governance and Socioeconomics of Large Marine Ecosystems, that is based on a GEF-supported workshop that was conducted in March 2006, on the web at www.iwlearn.net/abt_iwlearn/pns/learning/lme-gov-

[handbook.pdf](#). Another handbook on indicators for integrated coastal and ocean management is available at the IOC website at <http://ioc3.unesco.org/icam/>.

From our experience to date, we would be dealing with 2 classes of indicators:

1) Those that are generic, broad-scale, and responsive to generic sources of stress, as identified by Jackson et al. in *Science* 293, 27 July 2001, where the authors highlight 5 principal causes of LME degradation: fishing, pollution, habitat destruction, introductions of non-indigenous species, and climate change, for this generic approach. The application of the 5 LME modules will provide the framework for the appropriate spatial and temporal measurements and assessments of changing ecosystem condition on the broad scale.

2) For the second class of indicators at the smaller scale within the LMEs, it is important to select specific indicators to address high priority stressors for specific LMEs. For example in the Baltic Sea LME, special emphasis will be placed on the effects of dioxins on fish resources as a significant pollution and ecosystem health issue for mitigation. Monitoring and assessment of persistent organic pollutants and persistent toxic substances would be a high priority for the Arctic LMEs with relation to sub-lethal toxic effects on humans, marine mammals and marine birds, whereas the reduction of ice cover and mass would be addressed principally in relation to large ecosystem-wide effects.

Within the context of this 2-level indicator strategy, it would be useful if we could reach consensus on large-scale generic measurements across all 17 LMEs to provide a common baseline, and specific indicators of LME condition at the smaller scale. Given our collective experience, I would envision pursuing these deliberations initially through correspondence, and in two months time discussing the results of these deliberations at a workshop to be convened over a 2 day period in late spring or early summer. Your views on this approach would be most welcome.

To the LME Expert Study Group of PAME:

To address the task of selecting a suite of indicators to be used in monitoring changes in conditions of the 17 Arctic LMEs, we are sending you references and websites for published results of applications of the LME 5-modular approach, for your review and comments. We ask your thoughts on whether you are willing to agree to this generic approach and how to suggest a way forward.

A key factor in reaching a determination on the status of ecosystem condition is the quantitative output from 5 modules of spatial and temporal indicators of ecosystem: productivity; fish and fisheries; pollution and ecosystem health; socioeconomics; and governance.

1) Productivity:

For this module, we recommend the book by Hein Rune Skjoldal, “The Norwegian Sea Ecosystem” (2004, Tapir Academic Press, Trondheim, 559p). Other examples of applications are the chapter on “Zooplankton-fish interactions in the Barents Sea”, by P. Dalpadado, B. Gostad, H. Gjosoeter, S. Mehl, and H.R. Skjoldal, in: “Large Marine Ecosystems of the North Atlantic—changing states and sustainability”, edited by Kenneth Sherman and Hein Rune Skjoldal (Elsevier 2002. 449 pages. 269-292). We have several examples of applications of time series data collected from ships, satellite remote sensing, and continuous plankton

recorder that have been used effectively, as depicted in the powerpoint presentation by Svein Sundby, “Marine ecosystems and fish stocks under climate variability and change” (electronic file available upon request), and in the paper by Astthorsson & Vilhjalmsón, “Iceland Shelf LME: Decadal Assessment and Resource Sustainability”, in “Large Marine Ecosystems of the North Atlantic—changing states and sustainability”, edited by Kenneth Sherman and Hein Rune Skjoldal (Elsevier 2002, 219-244). Also available in the same volume is a paper by K. Sherman, J. Kane, S. Murawski, W. Overholtz, and A. Solow on “The US Northeast Shelf Large Marine Ecosystem: Zooplankton Trends in Fish Biomass Recovery” (195-216). Should you not have access to the North Atlantic volume, we can provide electronic copies of the chapters of interest.

2) Fish and Fisheries:

On the application of the Fish and Fisheries module, we recommend the conduct of seasonal surveys of demersal and pelagic fish, following, once again, the Norwegian approach, and also the US Northeast Continental Shelf approach (the results of Northeast Shelf surveys are available at the Northeast Fisheries Science Center (NEFSC) at www.nefsc.noaa.gov/nefsclibrary/). We also recommend the presentation of data to be found in the annual publication of Our Living Oceans (available on the web at: www.st.nmfs.gov/LivingOceans.html), which takes into consideration several levels of quantification required for fish stock assessments. Fish stock assessments pertinent to an ecosystem-based approach are described on the websites of ICES, at: www.ices.dk, and of the Northeast Fisheries Science Center (SOS status of the stocks report, at: <http://www.nefsc.noaa.gov/sos/index.html>, and Northeast regional stock assessments (SAW/SARC), on the web at: www.nefsc.noaa.gov/nefsc/saw/).

3) Pollution and Ecosystem Health:

For this module, we recommend the application of the 5 indicator suites developed and described by the U.S. Environmental Protection Agency (EPA) in the National Coastal Condition Report 2, available at: <http://www.epa.gov/owow/oceans/nccr2/>.

4) and 5) Socioeconomics and Governance:

These are the least developed modules, presently best described in the Handbook on Governance and Socioeconomics of Large Marine Ecosystems, on the web at: www.iwlearn.net/abt_iwlearn/pns/learning/lme-gov/handbook.pdf.

With these 5 suites of indicators I believe it will be possible to provide assessments of the changing state of Arctic LMEs at the generic broad scale. Finer scale measurements will be contingent on more localized issues such as hotspots of persistent organic pollutants or persistent toxic substances (PTS). General descriptions of the context within which a GEF-supported LME project would apply these suites of indicators is attached. The International Waters (IW) focal area of the GEF Strategic Operational Guidance for the period 2007-2010 is focused around 3 themes: Fish and Fisheries and LMEs; Nutrient over-enrichment and LMEs; and Freshwater in relation to Drainage Basins. The 4th Theme is pertinent to our interest in ice melt and its effect on Arctic LMEs, and glacial ice melt in terrestrial ecosystems including the Himalayas and the Andes and the effects on their drainage basins. The GEF is allocating \$345 million to address the negative impacts that overfishing, nutrient over-enrichment, water conflicts and climate change/ice melt will have on the global economy of developing nations and those nations that are recipients of GEF grants. The

Russian Federation as a GEF-recipient country is eligible for funding to support the kinds of generic indicators under consideration by the LME Expert Study Group of PAME (LME ESG). Dr. Marie-Christine Aquarone will be assisting the LME ESG in our deliberations for reaching consensus. Dr. Aquarone will explore the possibility of holding at least one phone conference to discuss the way forward. We look forward to receiving your comments on the suggested “generic categories”.

Membership of the Ecosystem Expert Group

Denmark: O. Vestergaard, osv@difres.dk

Sweden: Jan Thulin, jan@ices.dk

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Norway: Hein Rune Skjoldal, hein.rune.skjoldal@imr.no, and Stein Rosenberg, Stein.Rosenberg@mfa.no

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Finland: Maija Pietarinen, and Hermanni Kaartokallio, Hermann.Kaartokallio@fimr.fi

USA: Ken Sherman: Kenneth.Sherman@noaa.gov

APPENDIX V

Considerations for the PAME Work Plan 2009-2011: Discussion Paper

Below are some possible inputs and considerations for the PAME Work Plan 2009-2011:

- Vulnerability and Adaptation to Climate Change in the Arctic (VACC – Norway lead) - (SDWG): Workshop in Tromso 22-23 October 2008 (in conjunction with the fall SDWG) should provide information and/or inputs to the PAME Work Plan 2009-2011.
- The AMAP led Cryosphere Project Proposal - Climate Change and the Cryosphere – Snow, Water, Ice and Permafrost in the Arctic – SWIPA will need a PAME contribution – what type of contribution?
- How PAME will work with AMAP on the SAON Project (Sustaining Arctic Observing Networks) as it may e.g. relate to RPA and AMSA.
- How PAME will work with CAFF on *1) the Circumpolar Biodiversity Monitoring Programme (CBMP)* which takes on ecosystem-based management approach and is considered to be the biodiversity component of SAON. Canada is the lead on CBMP and funds the CBMP Office in Canada. Norway leads the Marine Expert Monitoring Group of CBMP and is funding a start-up workshop to be held in 2009 for the marine aspect of the CBMP. *2) Arctic Biodiversity Assessment (ABA).*
- The 8th Conference of Parliamentarians of the Arctic Region (CPAR) 12-14 August 2008 in Fairbanks, Alaska – Marine Policy

Following is the list of the strategic actions from the Arctic Marine Strategic Plan (AMSP). Please note that the working groups identified in parenthesis following each action are only for the purpose of guidance and possible follow-up in implementation of the AMSP.

Actions highlighted in **yellow** are those detailed in the PAME Work Plan 2006-2008.

7.1 Improve Knowledge and Understanding of the Marine Environment

- 7.1.1 Integrate and enhance research and monitoring activities for the observation and conservation of the Arctic marine and coastal ecosystem, including application of monitoring systems with adequate circumpolar coverage, representing all seasons of the year, *in situ* and satellite methodology, coordination of activities between working groups, and development of new databases where necessary. **(CAFF, AMAP)**
- 7.1.2 Evaluate and incorporate, as appropriate, traditional ecological knowledge and community-based scientific monitoring in marine research, assessments and reports; involve indigenous and local people and consult communities in the distribution and use of the information. **(CAFF, AMAP)**
- 7.1.3 Improve the knowledge and understanding of the quality and safety of marine food and its benefits for human health; communicate this information to Arctic inhabitants. **(AMAP)**

- 7.1.4 Provide a regional contribution to the UN Global Marine Assessment as recommended by the Johannesburg Plan of Implementation. (CAFF, AMAP)
- 7.1.5 Conduct a comprehensive assessment of Arctic marine shipping at current and projected levels. (PAME; EPPR) – PAME Work Plan 2006-2008: Obj. I Action 1

7.2 Respond to Emerging Knowledge

- 7.2.1 Develop procedures, guidelines and other actions in response to the ACIA findings and recommendations, including those related to information gaps. (PAME; CAFF,AMAP) - PAME Work Plan 2006-2008: Obj. I Action 2
- 7.2.2 Review the assessment of Arctic marine shipping (see 7.1.5) and, based on the findings, develop recommendations to the International Maritime Organization (IMO) and others, as appropriate, to guide the management of Arctic marine shipping. (PAME; EPPR)
- 7.2.3 Examine the adequacy of Arctic Council guidelines related to the prevention of environmental impacts of oil and gas activities in light of the Council's *Assessment of Potential Impacts of Oil and Gas Activities in the Arctic* and in keeping with the review cycle approved by the Council. (PAME, EPPR)
- 7.2.4 Develop guidelines and procedures for port reception facilities for ship-generated waste and cargo residues for consideration by member states. (PAME) - PAME Work Plan 2006-2008: Obj. I Action 4
- 7.2.5 Improve capabilities for responding to marine emergency situations, including those resulting from climatic variability. (EPPR)
- 7.2.6 Identify potential areas, as appropriate, where new guidelines and codes of practice for the marine environment are needed. (PAME, CAFF; EPPR)

7.3 Implement and Comply with Applicable International/Regional Commitments

- 7.3.1 Promote the implementation of and compliance with relevant international/regional agreements. (ALL WORKING GROUPS)
- 7.3.2 Promote WSSD actions related to the marine and coastal environment, including the application of an ecosystem approach and establishment of marine protected areas, including representative networks. (ALL WORKING GROUPS) - PAME Work Plan 2006-2008: Obj. II Action 1
- 7.3.3 Consider broadening the Arctic Council Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-Based Activities to address other source categories. (PAME) - PAME Work Plan 2006-2008: Obj. II Action 2
- 7.3.4 Periodically review the status and adequacy of international/regional agreements and standards that have application in the Arctic marine environment, new scientific knowledge of emerging substances of concern, and analyze the applicability of a regional seas agreement to the Arctic. (PAME)

- 7.3.5 Promote, where appropriate, the implementation of contaminant-related conventions/agreements and programs, noting in particular the Stockholm Convention; and possible additional global and regional action on mercury and emerging substances of concern. **(AMAP)**
- 7.4 Apply an Ecosystem Approach to Management
- 7.4.1 Identify the large marine ecosystems of the Arctic based on the best available ecological information. **(PAME, CAFF, AMAP)**
- 7.4.2 Identify elements that can serve as key environmental and socio-economic indicators of the state of Arctic marine ecosystems and thus guide effective decision-making. **(PAME, CAFF, AMAP)**
- 7.4.3 Promote pilot projects that demonstrate the application of an ecosystem approach to management. **(PAME, CAFF) - PAME Work Plan 2006-2008: Obj. II Action 1**
- 7.5 Facilitate Partnerships and Technical Co-operation
- 7.5.1 Foster partnerships among governments and indigenous peoples' organizations (IPOs), communities, industry, international bodies, non-governmental organizations (NGOs) and academia to advance the goals of this Strategic Plan, employing such mechanisms as partnership conferences and workshops. **(ALL WORKING GROUPS)**
- 7.5.2 Increase cooperation and collaboration with international/regional organizations, such as international fisheries organizations, and with the organizing bodies of marine-related conventions/agreements, by, e.g., convening Arctic Marine Strategic Plan workshops. **(ALL WORKING GROUPS) - PAME Work Plan 2006-2008: Obj. III Action 1**
- 7.5.3 Encourage and facilitate technical cooperation for the Russian Federation's activities aimed at protecting the Arctic marine environment. **(ALL WORKING GROUPS)**
- 7.6 Build the Capacity and Engagement of Arctic Inhabitants
- 7.6.1 Promote oceans education through appropriate institutions and organizations, such as the University of the Arctic; **(AMAP; CAFF)** encourage training related to best operating practices. **(PAME, CAFF, EPPR)**
- 7.6.2 Encourage the development of mechanisms to enhance local involvement in the collection of marine information and monitoring. **(ARCTIC COUNCIL STATES)**
- 7.6.3 Encourage improved communication by ensuring that the latest scientific, human development and economic information is available in forms appropriate for communities; **(ARCTIC COUNCIL STATES)** improve two-way communication and access to information (e.g., through websites), and develop protocols for the sharing of information. **(AMAP, CAFF)**

7.6.4 Encourage coastal community pilot projects related to integrated ocean management. **(ARCTIC COUNCIL STATES)**

7.7 Support Communication, Reporting and Outreach

7.7.1 Periodically assess and report to the Arctic Council on the implementation and effectiveness of this Strategic Plan, as appropriate. **(PAME)**

7.7.2 Disseminate information about this Strategic Plan, including updates on related activities, through various channels such as the Arctic Council, the Global Programme of Action review (2006 and 2012), International Polar Year (2007/2008) and the Rio+20 review (2012). **(PAME)**

7.7.3 Promote a marine and coastal component in the International Polar Year (2007/2008) programme. **(PAME, CAFF, AMAP)**

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