



Arctic Council Recommendations PAME follow-up Matrix and Next Steps

Overview

PAME and other Arctic Council working groups have released a number of reports and assessments with recommendations which require follow-up activities based on respective mandates and priorities. The recommendations related to PAME are in Annex I. They are currently 77 and come from the following Arctic Council reports:

| Report | Recommendations | Comment |
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| The Arctic Ocean Review (AOR 2013) | 24 recommendations <i>Lines 1-24</i> | <i>PAME to lead follow-up as per PAMEs Work Plan 2013-2015, Objective II, Action 1.</i> |
| Arctic Biodiversity Assessment (ABA - 2013) | 17 recommendations <i>Lines 25-41</i> | <i>CAFF is currently developing an implementation plan for all 17 recommendations.</i> |
| Arctic Marine Shipping Assessment (AMSA – 2009) | 17 recommendations | <i>Follow-up ongoing and under revision and streamlining by the PAME shipping experts. (provided as a separate matrix) PAME Shipping Expert Group responsibility</i> |
| Ecosystem Based Management in the Arctic Expert Group (EBM – 2013) | 9 recommendations | <i>Provided as a separate document. Latest version from Oct 2014 as compiled from all Arctic Council working groups by the Arctic Council Secretariat EA Expert Group responsibility</i> |
| Task Force on Arctic marine oil pollution preparedness and response: recommended practices (RP3 Report - 2013) | 5 recommendations <i>Lines 59-63</i> | |
| The Snow, Water, Ice and Permafrost in the Arctic (SWIPA report – AMAP 2011) | 3 recommendations <i>Lines 73-75</i> | |
| The Arctic Ocean Acidification Assessment (AOA – AMAP 2013) | 2 recommendations <i>Lines 76-77</i> | |

Aim

- ✓ To have all PAME-related recommendations in one place to provide an overview of potential PAMEs future work.

- ✓ Record cross-references between recommendations of relevance and provide linkages/references to the work plan to demonstrate follow-up and implementation of these recommendations through activities/projects, either based on individual recommendation or combination of more than one recommendation.

Developing a Step-by-Step Approach

The aim is to develop a stepwise approach for PAME to systematically track **which** activities/recommendations can and will be followed up/implemented, **how** (e.g. through the development of specific projects or by outreach and communication with relevant regional/international organizations), by **whom** (identification and confirmation of leads) and **when** (order of priorities as per biennial work plans and ministerial mandates).

Prioritization

An examples of how these recommendations may be categories is provided in the table below. They are grouped into main themes - based on the current PAME expert/contact groups - i.e. the *shipping expert group*, the *oil and gas contact group* and the *PAME-led Ecosystem Approach expert group*.

These expert/contact groups have developed their own matrixes which form the bases for further development of priority recommendations which may be developed into projects for inclusion into the PAME Work Plan 2015-2017 (and beyond as relevant).

| Priority | Categories | Main Themes | Setting criteria by respective expert groups |
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| 1. | Actions to be followed up and carried out by PAME (current and future activities). | <ul style="list-style-type: none"> ✓ Arctic Marine Operations and Shipping ✓ Offshore Oil and Gas ✓ Ecosystem Approach ✓ Arctic Marine Governance – instruments, measures and arrangements (contribute to strengthening existing instruments) ✓ Other? | <ul style="list-style-type: none"> ✓ Is this recommendation being addressed by PAME? If so, how? ✓ What recent and/or ongoing Arctic Council work is related? ✓ What work external to Arctic Council is relevant? ✓ Is it based on the Arctic Council chairmanship priority? |
| 2. | Action to be followed up by PAME - but carried out by other organizations or other Arctic Council working groups and/or task forces (this applies to PAME-led reports such as the AOR Final Report). | <ul style="list-style-type: none"> ✓ Indigenous Peoples and Cultures ✓ Arctic Marine Operations and Shipping ✓ Marine Living Resources ✓ Arctic Offshore Oil and Gas ✓ Arctic Marine Pollution ✓ Ecosystem-based management in the Arctic ✓ Arctic Marine Science | |
| 3. | Actions to be followed up in internal/national implementation processes/policies. | | |

Implementation and Follow-up

These recommendations will be implemented/followed-up based on PAMEs ongoing and future work and priorities of the Arctic Council ministers. Project plan needs to be developed for new proposed PAME projects which will be annexed to the PAME Work Plan after its approval.

All new projects being incorporated in the *PAME Work Plan 2015-2017* and beyond will need to have confirmed lead(s) and a project work plan that references linkages and/or follow-up to relevant recommendations.

Below is an outline of possible main components of respective project work plans. Please note that these are only suggested steps in an effort to assist in this work and leads should use discretion e.g. the project work plan may include a separate section on involvement/contribution of Permanent Participants.

i. Project Title and Project Summary

- ✓ Include 2-3 short and precise paragraphs which summarize the project in a language suitable for possible public release/information on the PAME homepage.

ii. Key Objective(s)

- ✓ Develop key objectives and keep in mind the mandate of PAME, e.g. the implementation of the *Arctic Council's Arctic Marine Strategic Plan* (2004) and the nature of the product or outcome (ultimate approval/welcome/note processes).

iii. Scope

- ✓ The coverage and context of the project, relevance to other PAME activities, relevant recommendations and/or other Arctic Council projects/working groups' activities.

iv. Main Components and Implementation

List of Tasks/Activities:

- ✓ Describe the conceptual framework and provide step-by-step detail
- ✓ Identify themes and/or other issues
- ✓ Planned conferences/workshops/project meetings
- ✓ Inclusion/involvement/contribution by Permanent Participants
- ✓ Synergies and collaboration with activities of the other Arctic Council working groups and/or other partners and stakeholders.
- ✓ Outline plans for consultations and/or communicating the project findings and results; think of users and benefits as well. Name the interest groups, or type of reports, websites, etc.

Timeline and Major Milestones:

- ✓ Include a timeline that defines the proposed completion of all activities included in the project. List any milestones and/or critical decision points and plans for conferences and/or project specific meetings outside the biannual PAME Meetings.

Budget:

- ✓ To include financial considerations and a working budget for the required resources per project activity.

v. Main outcomes

- ✓ Interim products e.g. products of the milestones, if any and the final product.

vi. Project Team Structure/Lead Countries

- ✓ Include names, titles and contact information.

For larger projects – provide an outline of the project management and advisory structure and proposed roles.

Proposed Next Steps

The PAME Secretariat, in close coordination with the PAME expert/contact groups coordinate the tracking of the implementation status of the recommendations in the PAME matrix (Annex I) to include the following steps:

- ✓ Further refine and modify the Matrix based on discussions and comments received at PAME I-2015 meeting.
- ✓ Reference relevant recommendation(s) from the Matrix in new proposed projects for inclusion into the PAME 2015-2017 Work Plan as relevant and update the Matrix column “Future and Proposed Follow-up Actions”.
- ✓ Attach relevant parts of the matrix to the PAME Work Plan 2015-2017 i.e. AMSA and EA (and oil and gas?).
- ✓ Continue to refine and modify based on the progress of ongoing and new activities. Each relevant PAME expert group will update the recommendation matrix regularly based on progress.
- ✓ Consider this Matrix as an internal working document that will be continuously updated and new recommendations added based on new and agreed Arctic Council products of relevance to PAMEs mandate and work.

Annex I-Arctic Council Recommendations – PAME follow-up matrix

| Line # | Arctic Council Mandate | Link to other AC Mandate | Responsible for Implementation | Current Follow-up Action | Status | Future and Proposed Follow-up Actions |
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| Arctic Ocean Review Final Report | | | | | | |
| 1. | (1) The Arctic states in cooperation with the Arctic Council should assist, as appropriate, the Permanent Participants with the documentation of current and historical a) timing and geographical extent of local uses of the marine environment, and b) levels of traditional marine resources harvests, taking into account the differing documentation needs and capacities of Arctic states. | <ul style="list-style-type: none"> - AMSA IIA – Survey of Indigenous Use - ABA # 14- Integrating TK - ABA#5C- Involvement of indigenous peoples in management | <ul style="list-style-type: none"> - PAME - SDWG | - SDWG TK Guiding Principles | | - New initiative for survey of Indigenous marine use, incorporating TK |
| 2. | (2) The Arctic states should work with Arctic residents to identify and promote effective models for enabling inclusion of traditional knowledge and input into decision-making processes for marine development and sustainable resource management. | | <ul style="list-style-type: none"> - PAME - SDWG | - SDWG TK Guiding Principles | | |
| 3. | (3) The Arctic states should support work at the IMO and other international organizations with recognized competence to promote and advance safe, secure, reliable and environmentally sound shipping, including through: timely completion and implementation of the Polar Code; efforts regarding training requirements for officers and crew of ships operating in polar waters; adoption as appropriate of ship routing and reporting measures (including vessel traffic services); and discussions regarding enhancement of weather and ice forecasting and nautical charts to aid navigation. Arctic states should also encourage ratification to enable entry into force and implementation of the Ballast Water Management Convention and research into ballast water management systems that are effective in colder settings of polar regions. | <ul style="list-style-type: none"> - AMSA IB- Mandatory Polar Code - AMSA ID- Tourism - AMSA IIE- Invasive Species - AMSA IIIA- Infrastructure - AMSA IIID- Investing in hydro/meteorological data - AMSA IIH- Emissions - ABA # 1-Emissions - ABA#6- Reducing impacts on sensitive areas | - PAME | <ul style="list-style-type: none"> - Arctic Marine Tourism Project - IMO Polar Code finalization - Establishment of ARHC - AC Task force on Black Carbon and Methane - AMSA IID report - HFO Phase 1 and 2 Reports - Continued ratification of | | <ul style="list-style-type: none"> - Addressing safety of vessels not covered by the Polar Code - New initiative on Black Carbon and other shipping emissions |

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| | | - ABA#9- Invasive Species/ballast water | | ballast water convention | | |
| 4. | (4) Arctic states should explore the possibility of developing voluntary guidelines and, if appropriate, best practices in implementing such guidelines for sustainable tourism. Moreover, that the role the cruise industry plays in facilitating tourism in the region and the impacts of this industry on Arctic peoples, ecosystems and the environment should be acknowledged. The Arctic Council should also give consideration towards the development of a broader sustainable tourism initiative. | - AMSA ID | - PAME - SDWG - AMAP - CAFF | - Arctic Marine Tourism Project (AMTP) | | - Sustainable Tourism Initiative (other elements besides AMTP) |
| 5. | (5) Arctic states should explore, within an appropriate time after the mandatory Polar Code has been adopted, collaborative approaches to encourage effective implementation of any future related IMO measures for the Arctic, including the possible development at IMO of port state control guidelines and/or initiatives within existing port state arrangements | - <u>AMSA IIIH</u> | - PAME - AC States | | | |
| 6. | (6) Arctic states should support ongoing work at the IMO to address black carbon emissions from international shipping in Arctic waters including considering amendments to MARPOL or other IMO instrument. | - AMSA IIIH | - PAME - TFBCM | - AC Task Force on BC and Methane | | |
| 7. | (7) Arctic States should consider approaches, including at IMO, to address safety and environmental concerns with respect to other types of vessels that, due to their size, routes, and nature of activity, may not be subject to the Polar Code | | - PAME | - Arctic Marine Tourism Project | | |
| 8. | <u>Fisheries Resources</u> (8) Fisheries resources should be managed in accordance with the law of the sea, relevant fisheries agreements and modern principles of fisheries management, including the precautionary and ecosystem approaches, also being mindful of the interests of the indigenous peoples of the Arctic. | - ABA Rec # 10 a-c | - AC States | - Arctic Coastal State proposed commercial fisheries moratorium for the high seas | | |
| 9. | (9) Fisheries resources should be managed based on the best scientific knowledge available, and necessary scientific understanding should be enhanced, including on changes in fish stocks. | - ABA Rec # 10 a-c | - AC States | | | |

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| 10. | (10) Fisheries resources in areas beyond national jurisdiction should be managed based on cooperation in accordance with international law to ensure long term sustainability of fish stocks and ecosystems. | - ABA Rec # 10 c | - AC States | Arctic Coastal State proposed commercial fisheries moratorium for the high seas | | |
| 11. | <p><u>Marine Mammals and Seabirds</u></p> <p>(11) The Arctic Council should increase collaboration with IMO, IWC and NAMMCO for information sharing and cooperation between their respective working groups and sub-groups on cetacean-related issues such as ocean noise and ship strikes and consider Ecosystem-based Management (EBM). Additionally, Arctic states should consider taking more proactive efforts in the IMO, IWC and NAMMCO on these issues such as by contributing to the IWC ship strike database.</p> | <ul style="list-style-type: none"> - AMSA IIG-impacts on marine mammals - AMSA IID (ref 13)' - AMSA IIC- - ABA #5-a-c protection of ecologically important areas - ABA #6-7 Preservation of habitat - ABA #8- Migratory species protection | <ul style="list-style-type: none"> - PAME - CAFF | <ul style="list-style-type: none"> - IWC Arctic Impacts Workshop March 6-7 2014 - AMSA IIC and IID reports | | - AMSA IIC –next phase, protection measures |
| 12. | (12) Arctic states, to the extent practicable, should continue to create and/or share seabird and marine mammal density and distribution maps, including through common databases such as the National Oceanic and Atmospheric Administration (NOAA) CetMap for Cetaceans (http://cetsound.noaa.gov/index.html) and CAFF's CBird online tools for timely tracking of seabird populations (www.caff.is/seabirds-cbird/seabird-information-network). | | - CAFF | - CAFF Migratory Bird Initiative | | |
| 13. | (13) Arctic states should advance conservation of Arctic marine ecosystems by considering management measures in ecologically significant areas of the Arctic Ocean that Arctic states might pursue at the IMO, building on the results of the AMSA Recommendation II(D) Report on Specially Designated Arctic Marine Areas. | - AMSA IID | <ul style="list-style-type: none"> - PAME - AC Member States | - AMSA IID Report Follow up | | - AMSA IIC/D –next phase, protection measures |

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| 14. | <p>Arctic Offshore Oil and Gas</p> <p>(14) The Arctic Council should urge its members to support, as appropriate, efforts in the ISO and other processes to develop standards relevant to Arctic oil and gas operations.</p> | <ul style="list-style-type: none"> - AMSA IIF - ABA #11 a and b | <ul style="list-style-type: none"> - PAME - EPPR | <ul style="list-style-type: none"> - PAME AOOOG Update/Safety Systems report - AC Task Force on Oil Spill Pollution Prevention | | |
| 15. | <p>(15) Arctic states should move toward circumpolar policy harmonization in discrete sectors such as, e.g., environmental monitoring based on existing studies such as the Arctic Council’s Arctic Offshore Oil and Gas Guidelines and the EPPR Recommended Prevention Practices report.</p> | | <ul style="list-style-type: none"> - AC States | <ul style="list-style-type: none"> - AC Task Force on Oil Spill Pollution Prevention | | |
| 16. | <p>(16) Arctic Council should promote interactions with the appropriate international treaty bodies on offshore oil and gas issues that address for example discharges, oil spill preparedness and response, and environmental monitoring. This could include coordinating information exchange on reporting, monitoring, assessment and/or other requirements under relevant entities, encouraging inclusion of science and traditional knowledge, and keeping abreast of Arctic-specific developments relevant to the appropriate instruments.</p> | | <ul style="list-style-type: none"> - PAME | <p>PAME O&G - - - -</p> <ul style="list-style-type: none"> -- Contact group concept paper on engagement of Arctic and Indigenous communities in O&G ops | | |
| 17. | <p>(17) Arctic states should further engage industry and regulator involvement, as appropriate, in PAME and EPPR initiatives on offshore oil and gas activity by utilizing existing industry forums, or by convening an Arctic-specific oil and gas dialog for industry and contractor groups.</p> | | <ul style="list-style-type: none"> - PAME - EPPR | <ul style="list-style-type: none"> - Arctic Economic Council (O&G group?) - PAMEs MRE project - AC Task Force on Oil Spill Pollution Prevention | | |
| 18. | <p>Arctic Marine Pollution</p> <p>(18) Arctic states should continue to identify, monitor and assess the combined effects of multiple stressors – inter alia climate change, ocean</p> | <ul style="list-style-type: none"> - ABA #1 and 2- Climate change | <ul style="list-style-type: none"> - PAME - AMAP - CAFF | <ul style="list-style-type: none"> - AC Task force on BC and Methane | | |

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| | acidification, shipping, living marine resource use, regional and long-range pollution, and offshore oil and gas exploration and extraction – on Arctic marine species and ecosystems. Support the on-going work under EBM, AMAP and CAFF including the initiative “Adaptation Actions for a Changing Arctic” to achieve this endeavor and strengthen the link between the current known status and future management of Arctic marine species and ecosystems. | <ul style="list-style-type: none"> - ABA #11 a-c Reducing pollutants - ABA #13-Knowledge gaps - ABA#16-Monntoring stressors | | <ul style="list-style-type: none"> - PAME HFO phase 1 and 2 reports - PAME Participation in AACA-A process? - PAME EBM expert group | | |
| 19. | (19) Arctic states should reaffirm the importance of their engagement in the UNFCCC to reduce global greenhouse gas emissions as a matter of urgency, recognizing the significant potential threats posed to Arctic marine ecosystems and Arctic biodiversity from climate change and ocean acidification identified by AMAP and CAFF. Arctic states should also increase their leadership role in the study of ocean acidification in Arctic waters | | <ul style="list-style-type: none"> - AMAP - CAFF | | | |
| 20. | Ecosystem-based Management in the Arctic (20) Arctic states should recognize, in accordance with the recommendations from the Arctic Council EBM Expert Group and the PAME lead Ecosystem Approach expert group, the importance of the following elements when implementing marine Ecosystem- based Management in the Arctic Council Working Groups: identification of the ecosystem, description of the ecosystem, setting ecological objectives, assessing the ecosystem, valuing the ecosystem and managing human activities. | <ul style="list-style-type: none"> - ABA #3-Advance EBM - ABA # 4 incorporate biodiversity obj. into AC work - All EBM Expert Group Recs | <ul style="list-style-type: none"> - PAME-led EA-EG | <ul style="list-style-type: none"> - PAME-led EA expert group | | <ul style="list-style-type: none"> - PAME EA-EG Pilot project for EBM implementation |
| 21. | (21) The Arctic Council should promote common understanding and the mutual exchange of lessons learned by periodically convening Arctic Council wide meetings on EBM to: | | <ul style="list-style-type: none"> - AC Secretariat - PAME-led EA-EG | <ul style="list-style-type: none"> - EA work by PAME as per the 2013-2015 Work Plan | | |

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| | <ul style="list-style-type: none"> ✓ share knowledge and experiences with respect to management and science across Large Marine Ecosystems; and review information on integrated assessments. | | | | | |
| 22. | <p>Arctic Marine Science</p> <p>(22) The Arctic states should promote coordination and collaboration in providing for access to marine scientific research in their marine areas, and the Arctic states should consider developing an Arctic science instrument, inter alia, to facilitate marine scientific cooperation and promote data sharing</p> | - ABA #13- addressing knowledge gaps | - AC States | - AC Task force on scientific cooperation and data sharing | | - Identify knowledge gaps-AC wide |
| 23. | <p>(23) The Arctic Council could consider directing its working groups to collaborate to developing a list of research gaps and priorities, taking into account the knowledge and process needs for the Arctic EBM intersessional document as well as key global and regional instruments.</p> | - ABA #13- addressing knowledge gaps | - Task Force on Scientific Cooperation AMAP CAFF | | | |
| 24. | <p>(24) The Arctic states should improve scientific cooperation and coordination by increasing linkages with relevant organizations, sharing infrastructure and platforms, and facilitating the gathering and exchange of information under relevant agreements.</p> <p>The improvements could be supported by:</p> <ul style="list-style-type: none"> ✓ developing a network map that identifies the relationships of research/science organizations and governance organizations to Arctic-relevant instruments; ✓ building on science, local and traditional knowledge, and other information gathered to fulfill reporting or assessment obligation. ✓ Informing ecosystem based management approaches. ✓ improving communication between science and policy arms of existing treaties; and, moving toward coordinates assessment, monitoring and reporting, where appropriate, and; <p>improving data and information management, interoperability and accessibility through mechanisms such as the Arctic Spatial Infrastructure and Sustained Arctic Operating Network (SAON)</p> | | - PAME and all other AC WG's | - AC Task Force on Scientific Cooperation and Data Sharing | | |

| Arctic Biodiversity Assessment (ABA) | | | | | | |
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| 25. | (1) Actively support international efforts addressing climate change, both reducing stressors and implementing adaptation measures, as an urgent matter. Of specific importance are efforts to reduce greenhouse gas emissions and to reduce emissions of black carbon, methane and tropospheric ozone precursors. | - AOR #18,19 - AMSA I(H)- emissions | - AC States | - AC Task Force on BC and Methane | | |
| 26. | (2) Incorporate resilience and adaptation of biodiversity to climate change into plans for development in the Arctic. | | | - Framework for an Arctic Marine Protected Areas network - Arctic Resilience Report (final in 2014/15) | | |
| 27. | (3) Advance and advocate ecosystem-based management efforts in the Arctic as a framework for cooperation, planning and development. This includes an approach to development that proceeds cautiously, with sound short and long-term environmental risk assessment and management, using the best available scientific and traditional ecological knowledge, following the best environmental practices, considering cumulative effects and adhering to international standards. | - AOR # 20, 21 - AMSA I(B) | - PAME and Other WG's | - Ecosystem Approach to Management project - Arctic Marine Strategic Plan: revision - Arctic Marine Tourism Project - Framework for an Arctic MPA network | | |
| 28. | (4) Require the incorporation of biodiversity objectives and provisions into all Arctic Council work and encourage the same for on-going and future international standards, agreements, plans, operations and/or other tools specific to development in the Arctic. This should include, but not be restricted to, oil and gas development, shipping, fishing, tourism and mining. | | - All AC WG's | - Arctic Ocean Review (AOR) follow up - Ecosystem - Approach to Management project (EA) | | |

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| | | | | <ul style="list-style-type: none"> - AMSA II (D) Report - AMSA II (C) Report - Arctic Marine Tourism Project - Framework for an Arctic Marine Protected Areas (MPA) network | | |
| 29. | <p>(5) Advance the protection of large areas of ecologically important marine, terrestrial and freshwater habitats, taking into account ecological resilience in a changing climate.</p> <p>a. Build upon existing and on-going domestic and international processes to complete the identification of ecologically and biologically important marine areas and implement appropriate measures for their conservation.</p> <p>b. Build upon existing networks of terrestrial protected areas, filling geographic gaps, including underrepresented areas, rare or unique habitats, particularly productive areas such as large river deltas, biodiversity hotspots, and areas with large aggregations of animals such as bird breeding colonies, seal whelping areas and caribou calving grounds.</p> <p>c. Promote the active involvement of indigenous peoples in the management and sustainable use of protected areas.</p> | <ul style="list-style-type: none"> - AOR # 2, 11-13 - AMSA IIC, IID | - PAME | <ul style="list-style-type: none"> - Framework for an Arctic Marine Protected Areas network - AMSA II (D) Report Follow up | | - AMSA IIC- Next phase protection measures |
| 30. | <p>(6) Develop guidelines and implement appropriate spatial and temporal measures where necessary to reduce human disturbance to areas critical for sensitive life stages of Arctic species that are outside protected areas, for example along transportation corridors. Such areas include calving grounds, den sites, feeding grounds, migration routes and moulting areas. This also means safeguarding important habitats such as wetlands and polynyas.</p> | <ul style="list-style-type: none"> - AMSA IID - AOR # 4, 11-13 | <ul style="list-style-type: none"> - PAME - CAFF - AC States | <ul style="list-style-type: none"> - Framework for an Arctic Marine Protected Areas network - AMSA IIC/D Reports-Follow up | | |

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| <p>31.</p> | <p>(7) Develop and implement mechanisms that best safeguard Arctic biodiversity under changing environmental conditions, such as loss of sea ice, glaciers and permafrost.</p> <p>A. Safeguard areas in the northern parts of the Arctic where high Arctic species have a relatively greater chance to survive for climatic or geographical reasons, such as certain islands and mountainous areas, which can act as a refuge for unique biodiversity.</p> <p>B. Maintain functional connectivity within and between protected areas in order to protect ecosystem resilience and facilitate adaptation to climate change.</p> | <p>- AMSA IID - AOR # 3,4, 11-13</p> | <p>- PAME - CAFF - AC States</p> | <p>- AMSA IID Follow up-protective measures for the Arctic high seas</p> | | |
| <p>32.</p> | <p>(8) Reduce stressors on migratory species range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways and other migration routes.</p> <p>a. Pursue or strengthen formal migratory bird cooperation agreements and other specific actions on a flyway level between Arctic and non-Arctic states with first priority given to the East Asian flyway.</p> <p>b. Collaborate with relevant international commissions, conventions, networks and other organizations sharing an interest in the conservation of Arctic migratory species to identify and implement appropriate conservation actions.</p> <p>c. Develop and implement joint management and recovery plans for threatened species with relevant non-Arctic states and entities.</p> <p>d. Identify and advance the conservation of key wintering and staging habitats for migratory birds, particularly wetlands.</p> | <p>- AOR #11-13 - AMSA IIG</p> | <p>- CAFF</p> | <p>- Framework for an Arctic Marine Protected Areas network - CAFF Migratory Birds Initiative</p> | | |
| <p>33.</p> | <p>(9) Reduce the threat of invasive alien/non-native species to the Arctic by developing and implementing common measures for early detection and reporting, identifying and blocking pathways of introduction, and sharing best practices and techniques for monitoring, eradication and control. This includes supporting international efforts currently underway, for example those of the International Maritime Organization to effectively treat ballast water to clean and treat ship hulls and drilling rigs.</p> | <p>- AMSA IIE - AOR #3</p> | <p>- PAME - CAFF - AC States</p> | | | |

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| <p>34.</p> | <p>(10) Promote the sustainable management of the Arctic’s living resources and their habitat.</p> <p>a. Improve circumpolar cooperation in data gathering and assessment of populations and harvest and in the development of improved harvest methods, planning, and management. This includes improving the use and integration of traditional ecological knowledge and science in managing harvests and in improving the development and use of community-based monitoring as an important information source.</p> <p>b. Develop pan-Arctic conservation and management plans for shared species that are, or will potentially be, harvested or commercially exploited that incorporate common monitoring objectives, population assessments, harvesting regimes, guidelines for best practices in harvest methodology and consider maintenance of genetic viability and adaptation to climate change as guiding principles.</p> <p>c. Support efforts to plan and manage commercial fisheries in international waters under common international objectives that ensure long-term sustainability of species and ecosystems. Encourage precautionary, science-based management of fisheries in areas beyond national jurisdiction in accordance with international law to ensure the long-term sustainability of species and ecosystems.</p> <p>d. Support efforts to develop, improve and employ fishing technologies and practices that reduce bycatch of marine mammals, seabirds and non-target fish and avoid significant adverse impact to the seabed.</p> <p>e. Develop and implement, in cooperation with reindeer herders, management plans that ensure the sustainability of reindeer herding and the quality of habitat for grazing and calving.</p> | <p>- AOR# 8-10</p> | <p>- CAFF (a) - PAME/CAFF (b) - AC States(c) - CAFF (e)</p> | <p>- Arctic Coastal State proposed commercial fisheries moratorium for the high seas</p> | | |
| <p>35.</p> | <p>(11) Reduce the threat of pollutants to Arctic biodiversity.</p> <p>a. Support and enhance international efforts and cooperation to identify, assess and reduce existing and emerging harmful contaminants.</p> | <p>- AMSA IIF - AMSA IHH - AMSA IIIA</p> | <p>- AMAP - PAME(b) - EPPR(b)</p> | | | |

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| | <p>b. Support the development of appropriate prevention and clean up measures and technologies that are responsive to oil spills in the Arctic, especially in ice-filled waters, such that they are ready for implementation in advance of major oil and gas developments.</p> <p>c. Encourage local and national action to implement best practices for local wastes, enhance efforts to clean-up legacy contaminated sites and include contaminant reduction and reclamation plans in development projects.</p> | <p>- AMSA IIIC - AOR # 18-19</p> | <p>- SDWG(c)</p> | | | |
| 36. | <p>(12) Biodiversity Services Evaluate the range of services provided by Arctic biodiversity in order to determine the costs associated with biodiversity loss and the value of effective conservation in order to assess change and support improved decision making</p> | | <p>- CAFF</p> | | | |
| 37. | <p>(13) Addressing key gaps in Scientific Knowledge Increase and focus inventory, long-term monitoring and research efforts to address key gaps in scientific knowledge identified in this assessment to better facilitate the development and implementation of conservation and management strategies. Areas of particular concern identified through the ABA include components critical to ecosystem functions including important characteristics of invertebrates, microbes, parasites and pathogens</p> | <p>- AOR # 22-24</p> | <p>- CAFF - AC TF on Scientific Cooperation</p> | | | |
| 38. | <p>(14) Traditional Ecological Knowledge Recognize the value of traditional ecological knowledge and work to further integrate it into the assessment, planning, and management of Arctic biodiversity. This includes involving Arctic peoples and their knowledge in the survey, monitoring and analysis of Arctic biodiversity</p> | <p>- AMSA IIA</p> | <p>- All AC WG's</p> | <p>- SDWG TK Guiding Principles</p> | | |
| 39. | <p>(15) Public education and community based monitoring Promote public training, education and community-based monitoring, where appropriate, as integral elements in conservation and management.</p> | <p>- AMSA IIB</p> | <p>- CAFF</p> | | | |
| 40. | <p>(16) Research and monitor stressors, individual and cumulative Research and monitor individual and cumulative effects of stressors and drivers of relevance to biodiversity with a focus on stressors that are</p> | <p>- AOR Rec. # 18-19</p> | <p>- CAFF - AMAP</p> | | | |

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| | expected to have rapid and significant impacts and issues where knowledge is lacking. This should include, but not be limited to, modeling potential future species range changes as a result of these stressors; developing knowledge of and identifying tipping points, thresholds and cumulative effects for Arctic biodiversity; and developing robust quantitative indicators for stressors through the CBMP | | | | | |
| 41. | (17) Communication and outreach Develop communication and outreach tools and methodologies to better convey the importance and value of Arctic biodiversity and the changes it is undergoing | | - CAFF | | | |
| Arctic Marine Shipping Assessment (AMSA) – as a separate matrix by the PAME shipping expert group | | | | | | |
| Ecosystem Based Management in the Arctic- Report to Senior Arctic Officials 2013 (9 recommendations) – as a separate document. EA expert group responsibility | | | | | | |
| Task Force on Arctic marine oil pollution preparedness and response: recommended practices (RP3 Report) | | | | | | |
| 42. | Hazardous ice detection, forecasting and monitoring - In order to improve the detection and forecasting of hazardous sea ice in areas of offshore oil and gas operations and shipping, it is recommended that Arctic Council states cooperate to improve the hazardous ice detection and monitoring programs for Arctic waters. This includes satellite services, and the production and dissemination of ice maps in real time. It is also recommended that the Arctic Council expand the investigation into the use of Unmanned Aerial Vehicles (UAV) in the Arctic to include monitoring ice conditions in major Arctic shipping lanes and providing operational support for oil spill response. | - AMSA IIIB and IIID - SWIPA Recs | - PAME - AMAP | - AMAP Report on Enabling Science Use of Unmanned Aircraft Systems for Arctic Environmental Monitoring (2012) | | |
| 43. | Standards for Arctic oil and gas activities International standards bring social and economic benefits by fostering the harmonization of specifications and practices. Standards are relevant to Arctic operations as the Arctic Council jurisdictions share similar operating environments. It is recommended that the Arctic Council catalog all applicable oil and gas standards for Arctic activities (e.g.: facilities, ice management, escape route and drills, training, logistics, security) and highlight differences in the standards. This will provide states an | - AOR Rec # 14-16 | - EPPR - PAME | - AC Task Force on Oil Pollution Prevention - PAMEs MRE web-based project | | |

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| | opportunity to learn from practices in other jurisdictions and possibly apply them in their own region. | | | | | |
| 44. | Circumpolar marine environmental risk assessment- It is recommended that the Arctic Council inventory existing risk assessments in the Arctic, identify common elements and environmental differences, as well as methodologies for undertaking these activities, and conduct a circumpolar marine environment risk assessment, if appropriate, in order to better link the sensitivities of the Arctic marine environment with scientific calculations on risks caused by shipping and offshore oil and gas activities in the Arctic Ocean both presently and in the future. | | - EPPR | - EPPR CMERA Workshop fall 2013 | | |
| 45. | Facilitate oil spill prevention research and regulatory cooperation -It is recommended that the Arctic Council establish a mechanism whereby regulators are able to share information on best practices, processes, regulatory approaches as well as compliance and operational information (e.g. near-miss data). Analysis of identified trends can be undertaken and various data collection done in an effort to identify Arctic specific prevention practices while fostering circumpolar collaboration through the pooling of resources. The initial results of this initiative could include the creation of a joint database and regular meetings of regulators. Over time, it has the potential to develop into an Arctic Oil Pollution Prevention Centre of Excellence. Ensure appropriate infrastructure is in place for emerging Arctic shipping lanes. | - AOR Rec # 16-17 - ABA Rec 11 a-b - SWIPA Recs | - PAME - EPPR | - AC Task Force on Oil Pollution Prevention | | |
| 46. | Ensure appropriate infrastructure is in place for emerging Arctic shipping lanes -To ensure safe development and mapping of emerging Arctic shipping lanes in order to prevent oil pollution incidents, it is recommended that the Arctic Council conduct an analysis of existing and emerging shipping lanes, identify gaps in infrastructure and mapping, and work towards enhancing the safety of Arctic shipping lanes. | - AMSA IIIA | - PAME - AC States | - Arctic Regional Hydrographic Commission | | |
| Snow, Water, Ice and Permafrost in the Arctic (SWIPA) Report (not all recommendations listed-only PAME relevant) | | | | | | |
| 47. | Upgrade the capacity for search and rescue operations and environmental hazard responses. | - RP3 Recs - AMSA IE, AMSA IIA | - AC States - EPPR - PAME | - Arctic SAR Agreement | | |

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| 48. | Facilitate measures to increase the accuracy of forecasting for ice, weather, and sea conditions, and make forecasts accessible to all Arctic residents and organizations. | - RP3 Recs - AMSA IIIA AMSA IIID | - AC Member States - PAME | | | |
| 49. | Governments and institutions at all levels should increase co-operation and co-ordinate efforts to respond to the challenges and opportunities associated with cryospheric change. The Arctic Council should conduct an integrated assessment of the combined impacts of change in the Arctic, focused on how to minimize environmental damage and enhance human well-being. | | - AMAP? | - AMAP AACA-C Regional Assessments | | |
| Arctic Ocean Acidification Assessment (not all recommendations listed-only PAME relevant) | | | | | | |
| 50. | It is recommended that the Arctic Council call for enhanced research and monitoring efforts that expand understanding of acidification processes and their effects on Arctic marine ecosystems and northern societies that depend on them. | | - AMAP - PAME(Effects) | | | |
| 51. | It is recommended that the Arctic Council urge its Member States to implement adaptation strategies that address all aspects of Arctic change, including ocean acidification, tailored to local and societal needs. | | - AC Member States | - AMAP AACA-C Assessments - SDWG Adaptation Exchange Portal | | |