



## Arctic Council Recommendations PAME follow-up Matrix and Next Steps

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### Overview

PAME and other Arctic Council working groups have released a number of reports and assessments which require follow-up activities based on respective mandates and priorities. This document is based on the *Record of Decision* from the PAME I-2014 meeting i.e.:

*PAME welcomes the paper from Canada and agrees to the need to consider the full range of Arctic Council reports, assessments and other recommendations of relevance to PAMEs work to focus future follow-up actions.*

The recommendations related to PAME are in Annex I. They are a total of 77 and come from the following recently released Arctic Council reports:

The Arctic Ocean Review (AOR - 2013) - (24 recommendations, lines 1-24): PAME to lead follow-up as per PAMEs Work Plan 2013-2015, Objective II, Action 1

Arctic Biodiversity Assessment (ABA - 2013) - (17 recommendations, lines 25-41). CAFF is currently developing an implementation plan for all 17 recommendations.

Arctic Marine Shipping Assessment (AMSA – 2009) - (17 recommendations, lines 42-58). Follow-up ongoing and under revision and streamlining by the PAME shipping experts.

Task Force on Arctic marine oil pollution preparedness and response: recommended practices (RP3 Report - 2013) - (5 recommendations, lines 59-63)

Ecosystem Based Management in the Arctic Expert Group (EBM – 2013) - (9 recommendations, lines 64-72)

The Snow, Water, Ice and Permafrost in the Arctic (SWIPA report – AMAP 2011) - (3 recommendations, lines 73-75)

The Arctic Ocean Acidification Assessment (AOA – AMAP 2013) - (2 recommendations, lines 76-77)

### 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).

## I. Prioritization

These recommendations will be implemented/followed-up based on the categories as per 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
1.	Actions to be followed up and carried out by PAME (current and future activities).	<ul style="list-style-type: none"> <li>✓ Arctic Marine Operations and Shipping</li> <li>✓ Offshore Oil and Gas</li> <li>✓ Ecosystem Approach</li> <li>✓ Arctic Marine Governance – instruments, measures and arrangements (contribute to strengthening existing instruments)</li> <li>✓ Other?</li> </ul>	<ul style="list-style-type: none"> <li>✓ Is this recommendation being addressed by PAME? If so, how?</li> <li>✓ What recent and/or ongoing Arctic Council work is related?</li> <li>✓ What work external to Arctic Council is relevant?</li> <li>✓ Is it based on the Arctic Council chairmanship priority?</li> </ul>
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"> <li>✓ Indigenous Peoples and Cultures</li> <li>✓ Arctic Marine Operations and Shipping</li> <li>✓ Marine Living Resources</li> <li>✓ Arctic Offshore Oil and Gas</li> <li>✓ Arctic Marine Pollution</li> <li>✓ Ecosystem-based management in the Arctic</li> <li>✓ Arctic Marine Science</li> </ul>	
3.	Actions to be followed up in internal/national implementation processes/policies.		

## II. Cross-Linkages between Recommendations

There are extensive cross-linkages between many of the recommendations which need to be identified. The matrix in Annex I will be used to identify which recommendations fit within each expert/contact group (e.g. by use of color coding).

### **III. Development of New Projects**

Development of new projects is based on ministerial mandates and the prioritization of ongoing activities and a project plan needs to be developed to be annexed to the PAME Work Plan.

#### **i. Outline for New Project Work Plans**

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.

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.

#### **ii. 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.

#### **iii. 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).

#### **iv. Scope**

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

#### **v. 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.
- ✓ Include some type of analysis of risks – e.g. SWOT

##### **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.

**vi. Main outcomes**

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

**vii. 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.*

**IV. Implementation and Follow-up**

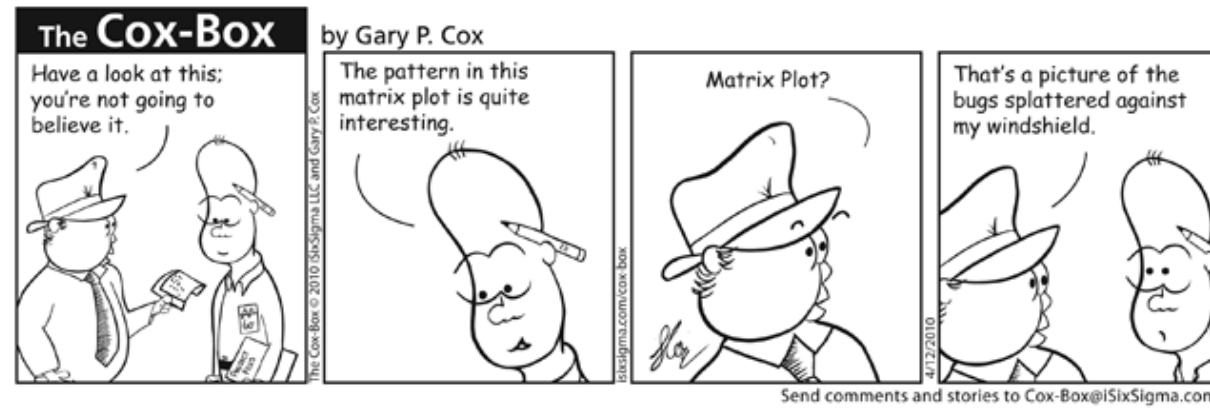
**V. Proposed Next Steps**

Following next steps are proposed for the PAME II-2014 meetings' attention:

The PAME Secretariat, in close coordination with the PAME expert/contact groups to further streamline 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 II-2014 and revise for PAME I-2015 meeting consideration.
- ✓ Identify new projects for inclusion into the PAME 2015-2017 Work Plan and reference relevant recommendation(s) from the Matrix and provide links to respective activities, as relevant, in an effort to make the Matrix more interactive.
- ✓ Attach the matrix to the PAME Work Plan 2015-2017.
- ✓ Continue to refine and modify based on the progress of ongoing and new activities.

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



Line #	AC Recommendations	Link to other AC Recommendations	PAME/Other AC WG Mandate	Current activities supporting this recommendation	Potential Future PAME Activities/Projects linked to this recommendation
<b>Arctic Ocean Review Final Report</b>					
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.	AMSA IIA – Survey of Indigenous Use ABA # 14- Integrating TK ABA#5C- Involvement of indigenous peoples in management	PAME SDWG	<ul style="list-style-type: none"> <li>SDWG TK Guiding Principles</li> </ul>	<ul style="list-style-type: none"> <li>New initiative to for survey of Indigenous marine use, incorporating TK</li> </ul>
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.		PAME SDWG	<ul style="list-style-type: none"> <li>SDWG TK Guiding Principles</li> </ul>	
3.	(3) The Arctic states should support work at the IMO and other international organizations with recognized competence to promote and advance safe, secure,	AMSA IB- Mandatory Polar Code	PAME	<ul style="list-style-type: none"> <li>Arctic Marine Tourism Project</li> <li>IMO Polar Code</li> </ul>	<ul style="list-style-type: none"> <li>Addressing safety of vessels not covered by the Polar Code</li> <li>New initiative on Black Carbon</li> </ul>

Line #	AC Recommendations	Link to other AC Recommendations	PAME/Other AC WG Mandate	Current activities supporting this recommendation	Potential Future PAME Activities/Projects linked to this recommendation
	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.	AMSA ID- Tourism AMSA IIE- Invasive Species AMSA IIIA- Infrastructure AMSA IIID- Investing in hydro/metereological data AMSA IIH- Emissions ABA # 1-Emissions ABA#6- Reducing impacts on sensitive areas ABA#9- Invasive Species/ballast water		finalization <ul style="list-style-type: none"> <li>• Establishment of ARHC</li> <li>• AC Task force on Black Carbon and Methane</li> <li>• AMSA IID report</li> <li>• HFO Phase 1 and 2 Reports</li> <li>• Continued ratification of ballast water convention</li> </ul>	and other shipping emissions
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	<ul style="list-style-type: none"> <li>• Arctic Marine Tourism Project (AMTP)</li> </ul>	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		PAME AC States		

Line #	AC Recommendations	Link to other AC Recommendations	PAME/Other AC WG Mandate	Current activities supporting this recommendation	Potential Future PAME Activities/Projects linked to this recommendation
	and/or initiatives within existing port state arrangements				
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 IIH	PAME TFBCM	<ul style="list-style-type: none"> <li>AC Task Force on BC and Methane</li> </ul>	
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	<ul style="list-style-type: none"> <li>Arctic Marine Tourism Project</li> </ul>	
8.	<p><b><u>Fisheries Resources</u></b></p> <p>(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.</p>	ABA Rec # 10 a-c	AC States	<ul style="list-style-type: none"> <li>Arctic Coastal State proposed commercial fisheries moratorium for the high seas</li> </ul>	
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		
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	<ul style="list-style-type: none"> <li>Arctic Coastal State proposed commercial fisheries moratorium for the high seas</li> </ul>	



<p><b>11.</b></p>	<p><b><u>Marine Mammals and Seabirds</u></b>  <b>(11)</b> 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>	<p>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</p>	<p>PAME          CAFF</p>	<ul style="list-style-type: none"> <li>• IWC Arctic Impacts Workshop March 6-7 2014</li> <li>• AMSA IIC and IID reports</li> </ul>	<ul style="list-style-type: none"> <li>• AMSA IIC –next phase, protection measures</li> </ul>
<p><b>12.</b></p>	<p><b>(12)</b> 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 (<a href="http://cetsound.noaa.gov/index.html">http://cetsound.noaa.gov/index.html</a>) and CAFF’s CBird online tools for timely tracking of seabird populations (<a href="http://www.caff.is/seabirds-cbird/seabird-information-network">www.caff.is/seabirds-cbird/seabird-information-network</a>).</p>		<p>CAFF</p>	<ul style="list-style-type: none"> <li>• CAFF Migratory Bird Initiative</li> </ul>	
<p><b>13.</b></p>	<p><b>(13)</b> 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.</p>	<p>AMSA IID</p>	<p>PAME          AC Member States</p>	<ul style="list-style-type: none"> <li>• AMSA IID Report Follow up</li> </ul>	<ul style="list-style-type: none"> <li>• AMSA IIC/D –next phase, protection measures</li> </ul>



14.	<b>Arctic Offshore Oil and Gas</b> <b>(14)</b> 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.	AMSA IIF ABA #11 a and b	PAME EPPR	<ul style="list-style-type: none"> <li>• PAME AOOOG Update/Safety Systems report</li> <li>• AC Task Force on Oil Spill Pollution Prevention</li> </ul>	
15.	<b>(15)</b> 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.		AC States	<ul style="list-style-type: none"> <li>• AC Task Force on Oil Spill Pollution Prevention</li> </ul>	
16.	<b>(16)</b> 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.		PAME	<ul style="list-style-type: none"> <li>• PAME O&amp;G Contact group concept paper on engagement of Arctic and Indigenous communities in O&amp;G ops</li> </ul>	
17.	<b>(17)</b> 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.		PAME EPPR	<ul style="list-style-type: none"> <li>• Arctic Economic Council (O&amp;G group?)</li> <li>• PAMEs MRE project</li> <li>• AC Task Force on Oil Spill Pollution Prevention</li> </ul>	

<p><b>18.</b></p>	<p><b>Arctic Marine Pollution</b>  <b>(18)</b> Arctic states should continue to identify, monitor and assess the combined effects of multiple stressors – inter alia climate change, ocean 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.</p>	<p>ABA #1 and 2- Climate change          ABA #11 a-c Reducing pollutants          ABA #13-Knowledge gaps          ABA#16-Monntoring stressors</p>	<p>PAME          AMAP          CAFF</p>	<ul style="list-style-type: none"> <li>• AC Task force on BC and Methane</li> <li>• PAME HFO phase 1 and 2 reports</li> <li>• PAME Participation in AACA-A process?</li> <li>• PAME EBM expert group</li> </ul>	
<p><b>19.</b></p>	<p><b>(19)</b> Arctic states should reaffirm the importance of their engagement in the UNFCC 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</p>		<p>AMAP          CAFF</p>		
<p><b>20.</b></p>	<p><b>Ecosystem-based Management in the Arctic</b>  <b>(20)</b> 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</p>	<p>ABA #3-Advance EBM          ABA # 4 incorporate biodiversity obj. into AC work          All EBM Expert Group Recs</p>	<p>PAME-led EA-EG</p>	<ul style="list-style-type: none"> <li>• PAME-led EA expert group</li> </ul>	<p>PAME EA-EG Pilot project for EBM implementation</p>

	ecosystem and managing human activities.				
21.	<p>(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:</p> <ul style="list-style-type: none"> <li>✓ share knowledge and experiences with respect to management and science across Large Marine Ecosystems; and review information on integrated assessments.</li> </ul>		AC Secretariat PAME-led EA-EG	EA work by PAME as per the 2013-2015 Work Plan	
22.	<p><b>Arctic Marine Science</b></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	<ul style="list-style-type: none"> <li>• AC Task force on scientific cooperation and data sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Identify knowledge gaps-AC wide</li> </ul>
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"> <li>✓ developing a network map that identifies the relationships of research/science organizations and governance organizations to Arctic-relevant instruments;</li> </ul>		PAME and all other AC WG's	<ul style="list-style-type: none"> <li>• AC Task Force on Scientific Cooperation and Data Sharing</li> </ul>	

	<ul style="list-style-type: none"> <li>✓ building on science, local and traditional knowledge, and other information gathered to fulfill reporting or assessment obligation.</li> <li>✓ Informing ecosystem based management approaches.</li> <li>✓ improving communication between science and policy arms of existing treaties; and, moving toward coordinates assessment, monitoring and reporting, where appropriate, and;</li> </ul> <p>improving data and information management, interoperability and accessibility through mechanisms such as the Arctic Spatial Infrastructure and Sustained Arctic Operating Network (SAON)</p>				
<b>Arctic Biodiversity Assessment (ABA)</b>					
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	<ul style="list-style-type: none"> <li>• AC Task Force on BC and Methane</li> </ul>	
26.	(2) Incorporate resilience and adaptation of biodiversity to climate change into plans for development in the Arctic.			<ul style="list-style-type: none"> <li>• Framework for an Arctic Marine Protected Areas network</li> <li>• Arctic Resilience Report (final in 2014/15)</li> </ul>	
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,	AOR # 20, 21 AMSA I(B)	PAME and Other WG's	<ul style="list-style-type: none"> <li>• Ecosystem Approach to Management project</li> <li>• Arctic Marine Strategic Plan: revision</li> <li>• Arctic Marine Tourism Project</li> </ul>	

	using the best available scientific and traditional ecological knowledge, following the best environmental practices, considering cumulative effects and adhering to international standards.			<ul style="list-style-type: none"> <li>• Framework for an Arctic MPA network</li> </ul>	
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	<ul style="list-style-type: none"> <li>• Arctic Ocean Review (AOR) follow up</li> <li>• Ecosystem Approach to Management project (EA)</li> <li>• AMSA II (D) Report</li> <li>• AMSA II (C) Report</li> <li>• Arctic Marine Tourism Project</li> <li>• Framework for an Arctic Marine Protected Areas (MPA) network</li> </ul>	
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>	AOR # 2, 11-13 AMSA IIC, IID	PAME	<ul style="list-style-type: none"> <li>• Framework for an Arctic Marine Protected Areas network</li> <li>• AMSA II (D) Report Follow up</li> </ul>	AMSA IIC- Next phase protection measures

	c. Promote the active involvement of indigenous peoples in the management and sustainable use of protected areas.				
30.	<b>(6) Develop guidelines and implement appropriate spatial and temporal measures where necessary to reduce human disturbance</b> 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.	AMSA IID AOR # 4, 11-13	PAME CAFF AC States	<ul style="list-style-type: none"> <li>• Framework for an Arctic Marine Protected Areas network</li> <li>• AMSA IIC/D Reports-Follow up</li> </ul>	
31.	<b>(7) Develop and implement mechanisms that best safeguard Arctic biodiversity</b> under changing environmental conditions, such as loss of sea ice, glaciers and permafrost.  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.  B. Maintain functional connectivity within and between protected areas in order to protect ecosystem resilience and facilitate adaptation to climate change.	AMSA IID AOR # 3,4, 11-13	PAME CAFF AC States	<ul style="list-style-type: none"> <li>• AMSA IID Follow up-protective measures for the Arctic high seas</li> </ul>	
32.	<b>(8) Reduce stressors on migratory species</b> range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways and other migration routes.  a. Pursue or strengthen formal migratory bird cooperation agreements and other specific actions on a flyway level between Arctic and non-Arctic states	AOR #11-13 AMSA IIG	CAFF	<ul style="list-style-type: none"> <li>• Framework for an Arctic Marine Protected Areas network</li> <li>• CAFF Migratory Birds Initiative</li> </ul>	

	<p>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>				
33.	<p><b>(9) Reduce the threat of invasive alien/non-native species</b> 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>		
34.	<p><b>(10) Promote the sustainable management of the Arctic’s living resources and their habitat.</b></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</p>	<p>AOR# 8-10</p>	<p>CAFF (a) PAME/CAFF (b) AC States(c) CAFF (e )</p>	<ul style="list-style-type: none"> <li>• Arctic Coastal State proposed commercial fisheries moratorium for the high seas</li> </ul>	



	<p>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>35.</p>	<p><b>(11) Reduce the threat of pollutants to Arctic biodiversity.</b></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 IIH AMSA IIIA AMSA IIIC</p>	<p>AMAP PAME(b) EPPR(b) SDWG(c )</p>		

	<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>	AOR # 18-19			
36.	<p><b>(12) Biodiversity Services</b></p> <p>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>		CAFF		
37.	<p><b>(13) Addressing key gaps in Scientific Knowledge</b></p> <p>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>	AOR # 22-24	CAFF AC TF on Scientific Cooperation		
38.	<p><b>(14) Traditional Ecological Knowledge</b></p> <p>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</p>	AMSA IIA	All AC WG's	<ul style="list-style-type: none"> <li>SDWG TK Guiding Principles</li> </ul>	

	and their knowledge in the survey, monitoring and analysis of Arctic biodiversity				
39.	<b>(15) Public education and community based monitoring</b> Promote public training, education and community-based monitoring, where appropriate, as integral elements in conservation and management.	AMSA IIB	CAFF		
40.	<b>(16) Research and monitor stressors, individual and cumulative</b> Research and monitor individual and cumulative effects of stressors and drivers of relevance to biodiversity with a focus on stressors that are 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	AOR Rec. # 18-19	CAFF AMAP		
41.	<b>(17) Communication and outreach</b> Develop communication and outreach tools and methodologies to better convey the importance and value of Arctic biodiversity and the changes it is undergoing		CAFF		
<b>Arctic Marine Shipping Assessment (AMSA)</b>					
42.	<b>AMSA IA- Linking with International Organizations:</b> That the Arctic states decide to, on a case by case basis, identify areas of common interest and develop unified positions and approaches with		AC Member States PAME		

	<p>respect to international organizations such as: the International Maritime Organization (IMO), the International Hydrographic organization (IHO), the World Meteorological Organization (WMO) and the International Maritime Satellite Organization (IMSO) to advance the safety of Arctic marine shipping; and encourage meetings, as appropriate, of member state national maritime safety organizations to coordinate, harmonize and enhance the implementation of the Arctic maritime regulatory framework.</p>				
<p>43.</p>	<p><b>AMSA IB IMO Measures for Arctic Shipping:</b> That the Arctic states, in recognition of the unique environmental and navigational conditions in the Arctic, decide to cooperatively support efforts at the International Maritime Organization to strengthen, harmonize and regularly update international standards for vessels operating in the Arctic. These efforts include: ---Support the updating and the mandatory application of relevant parts of the Guidelines for Ships Operating in Arctic Ice-covered Waters (Arctic Guidelines); and, --Drawing from IMO instruments, in particular the Arctic Guidelines augment global IMO ship safety and pollution prevention conventions with specific mandatory requirements or other provisions for ship construction, design, equipment, crewing, training and operations, aimed at safety and protection of the Arctic environment.</p>	<p>AOR Rec. #3,5</p>	<p>AC Member States</p>	<ul style="list-style-type: none"> <li>• IMO Mandatory Polar Code</li> </ul>	
<p>44.</p>	<p><b>AMSA IC Uniformity of Arctic Shipping Governance:</b> That the Arctic states should explore the possible harmonization of Arctic marine shipping regulatory regimes within their own jurisdiction and uniform Arctic safety and environmental protection regulatory regimes, consistent with UNCLOS, that</p>		<p>Arctic States</p>		

	could provide a basis for protection measures in regions of the central Arctic Ocean beyond coastal state jurisdiction for consideration by the IMO.				
45.	<b>AMSA ID Strengthening Passenger Ship Safety in Arctic Waters:</b> That the Arctic states should support the application of the IMO’s Enhanced Contingency Planning Guidance for Passenger Ships Operating in Areas Remote from SAR Facilities, given the extreme challenges associated with rescue operations in the remote and cold Arctic region; and strongly encourage cruise ship operators to develop, implement and share their own best practices for operating in such conditions, including consideration of measures such as timing voyages so that other ships are within rescue distance in case of emergency.	AOR # Rec 4	PAME	<ul style="list-style-type: none"> <li>Arctic Marine Tourism Project</li> </ul>	
46.	<b>AMSA IE Arctic Search and Rescue (SAR) Instrument:</b> That the Arctic states decide to support developing and implementing a comprehensive, multi-national Arctic Search and Rescue (SAR) instrument, including aeronautical and maritime SAR, among the eight Arctic nations and, if appropriate, with other interested parties in recognition of the remoteness and limited resources in the region.		AC Member States	<ul style="list-style-type: none"> <li>2011 Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic</li> </ul>	
47.	<b>AMSA IIA Survey of Arctic Indigenous Marine Use:</b> That the Arctic states should consider conducting surveys on Arctic marine use by indigenous communities where gaps are identified to collect information for establishing up-to-date baseline data to assess the impacts from Arctic shipping activities.	AOR Rec #1	AC Member States		

48.	<p><b>AMSA IIB Engagement with Arctic Communities:</b> That the Arctic states decide to determine if effective communication mechanisms exist to ensure engagement of their Arctic coastal communities and, where there are none, to develop their own mechanisms to engage and coordinate with the shipping industry, relevant economic activities and Arctic communities (in particular during the planning phase of a new marine activity) to increase benefits and help reduce the impacts from shipping.</p>	AOR Rec #2	PAME		
49.	<p><b>AMSA IIC Areas of Heightened Ecological and Cultural Significance:</b> That the Arctic states should identify areas of heightened ecological and cultural significance in light of changing climate conditions and increasing multiple marine use and, where appropriate, should encourage implementation of measures to protect these areas from the impacts of Arctic marine shipping, in coordination with all stakeholders and consistent with international law.</p>	AOR Rec #13 ABA Rec #5-6	AMAP SDWG	<ul style="list-style-type: none"> <li>• AMSA IIC Report Complete 2013</li> </ul>	
50.	<p><b>AMSA IID Specially Designated Arctic Marine Areas:</b> That the Arctic states should, taking into account the special characteristics of the Arctic marine environment, explore the need for internationally designated areas for the purpose of environmental protection in regions of the Arctic Ocean.</p>	AOR Rec #13 ABA Rec #5-7	AC Member States/SDWG	<ul style="list-style-type: none"> <li>• AMSA IID Report Complete 2014</li> </ul>	
51.	<p><b>AMSA IIE Protection from Invasive Species:</b> That the Arctic states should consider ratification of the IMO International Convention for the Control and Management of Ships Ballast Water and Sediments, as soon as practical. Arctic states should also assess the risk of introducing invasive species through ballast water and other means so that adequate</p>	AOR Rev #3 ABA Rec #9	AMAP/SDWG		

	prevention measures can be implemented in waters under their jurisdiction.				
52.	<b>AMSA IIF Oil Spill Prevention:</b> That the Arctic states decide to enhance the mutual cooperation in the field of oil spill prevention and, in collaboration with industry, support research and technology transfer to prevent release of oil into Arctic waters, since prevention of oil spills is the highest priority in the Arctic for environmental protection.	AOR Rec #16 RP3 Recommendations	PAME	<ul style="list-style-type: none"> <li>AC Task Force on Oil Spill Pollution Prevention</li> </ul>	
53.	<b>AMSA IIG Addressing Impacts on Marine Mammals:</b> That the Arctic states decide to engage with relevant international organizations to further assess the effects on marine mammals due to ship noise, disturbance and strikes in Arctic waters; and consider, where needed, to work with the IMO in developing and implementing mitigation strategies.	ABA Rec #3	AC Member States	<ul style="list-style-type: none"> <li>IWC Arctic Impacts Workshop March 6-7 2014</li> </ul>	
54.	<b>AMSA IIH Reducing Air Emissions:</b> That the Arctic states decide to support the development of improved practices and innovative technologies for ships in port and at sea to help reduce current and future emissions of greenhouse gases (GHGs), Nitrogen Oxides (NOx), Sulfur Oxides (SOx) and Particulate Matter (PM), taking into account the relevant IMO regulations.	AOR Rec #5	AC Member States	<ul style="list-style-type: none"> <li>AC Task Force on Black Carbon and Methane</li> </ul>	
55.	<b>AMSA IIIA Addressing the Infrastructure Deficit:</b> That the Arctic states should recognize that improvements in Arctic marine infrastructure are needed to enhance safety and environmental protection in support of sustainable development. Examples of infrastructure where critical improvements are needed include: ice navigation training; navigational charts; communications systems; port services, including reception facilities	RP3 Recs SWIPA Recs	PAME EPPR SDWG	<ul style="list-style-type: none"> <li>AMATII Database</li> </ul>	



	for ship-generated waste; accurate and timely ice information (ice centers); places of refuge; and icebreakers to assist in response.				
56.	<b>AMSA IIIB Arctic Marine Traffic System:</b> That the Arctic states should support continued development of a comprehensive Arctic marine traffic awareness system to improve monitoring and tracking of marine activity, to enhance data sharing in near real-time, and to augment vessel management service in order to reduce the risk of incidents, facilitate response and provide awareness of potential user conflict. The Arctic states should encourage shipping companies to cooperate in the improvement and development of national monitoring systems.	RP3 Recs	PAME	<ul style="list-style-type: none"> <li>AC Task Force on Oil Pollution Prevention</li> </ul>	
57.	<b>AMSA IIIC Circumpolar Environmental Response Capacity:</b> That the Arctic states decide to continue to develop circumpolar environmental pollution response capabilities that are critical to protecting the unique Arctic ecosystem. This can be accomplished, for example, through circumpolar cooperation and agreement(s), as well as regional bilateral capacity agreements.		PAME EPPR	<ul style="list-style-type: none"> <li>Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic 2013</li> </ul>	
58.	<b>AMSA IIID -Investing in Hydrographic, Meteorological and Oceanographic Data:</b> That the Arctic states should significantly improve, where appropriate, the level of and access to data and information in support of safe navigation and voyage planning in Arctic waters. This would entail increased efforts for: hydrographic surveys to bring Arctic navigation charts up to a level acceptable to support current and future safe navigation; and systems to support real time acquisition, analysis and transfer of meteorological, oceanographic, sea ice and iceberg information.	RP3 Rec.(Line # 59)	CAFF	<ul style="list-style-type: none"> <li>AC Task Force on Oil Pollution Prevention</li> <li>Arctic Regional Hydrographic Commission</li> </ul>	

Task Force on Arctic marine oil pollution preparedness and response: recommended practices (RP3 Report)					
59.	<b>Hazardous ice detection, forecasting and monitoring</b> - 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	<ul style="list-style-type: none"> <li>AMAP Report on Enabling Science Use of Unmanned Aircraft Systems for Arctic Environmental Monitoring (2012)</li> </ul>	
60.	<b>Standards for Arctic oil and gas activities</b> 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 opportunity to learn from practices in other jurisdictions and possibly apply them in their own region.	AOR Rec # 14-16	EPPR PAME	<ul style="list-style-type: none"> <li>AC Task Force on Oil Pollution Prevention</li> <li>PAMEs MRE web-based project</li> </ul>	
61.	<b>Circumpolar marine environmental risk assessment</b> - It is recommended that the Arctic Council inventory existing risk assessments in the Arctic, identify common elements and environmental		EPPR	<ul style="list-style-type: none"> <li>EPPR CMERA Workshop fall 2013</li> </ul>	

	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.				
62.	<b>Facilitate oil spill prevention research and regulatory cooperation</b> -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	<ul style="list-style-type: none"> <li>AC Task Force on Oil Pollution Prevention</li> </ul>	
63.	<b>Ensure appropriate infrastructure is in place for emerging Arctic shipping lanes</b> -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	<ul style="list-style-type: none"> <li>Arctic Regional Hydrographic Commission</li> </ul>	

<b>Ecosystem Based Management in the Arctic- Expert Group Report to Senior Arctic Officials 2013</b>					
<b>64.</b>	1. Explore ways in which Arctic States can cooperate to advance conservation and management of biologically, ecologically, and culturally significant areas.		PAME	<ul style="list-style-type: none"> <li>• Framework for an Arctic Marine Protected Areas network</li> </ul>	
<b>65.</b>	2. Develop and adopt a policy and best practices for incorporating traditional knowledge into EBM activities as appropriate.		SDWG	<ul style="list-style-type: none"> <li>• SDWG TK Guiding Principles</li> </ul>	
<b>66.</b>	3. Encourage initiatives between two or more Arctic States to advance implementation of EBM in the Arctic and demonstrate how knowledge is collected, shared, processed and used to contribute to EBM in the Arctic.		PAME- EA-EG	<ul style="list-style-type: none"> <li>• EA-AG Pilot Project</li> </ul>	
<b>67.</b>	4. Review, update and adjust the Observed Best Practices in Ecosystem-based Ocean Management in the Arctic, endorsed by the 2009 Arctic Council Ministerial, to be applicable to all environments, including marine, coastal and terrestrial.		PAME		
<b>68.</b>	5. Encourage the use of the revised map of 17 Large Marine Ecosystems to inform EBM implementation; and explore the development of terrestrial assessment units (landscape equivalents to LMEs) based upon ecological criteria or existing ecoregions.		PAME CAFF	<ul style="list-style-type: none"> <li>• AMSA IIC Report</li> </ul>	
<b>69.</b>	6. Identify biologically, ecologically, and culturally significant areas in the coastal, marine and terrestrial environments, and consider EBM-related needs for these areas. Identify the coastal, marine and terrestrial areas most vulnerable to human impacts.		PAME CAFF AMAP	<ul style="list-style-type: none"> <li>• AMSA IIC Report</li> <li>• AMSA IID Report</li> </ul>	
<b>70.</b>	7. Assess the value of significant Arctic ecosystem services relevant to the well-being of local communities and regional economies, and those		PAME SDWG		

	of particular global significance				
71.	8. Enhance access to, and use of, the multidisciplinary data required for the implementation of EBM by building upon ongoing work in the Arctic Council to contribute to an Arctic Council data portal.		All AC WG's	<ul style="list-style-type: none"> <li>CAFF Arctic Spatial Data Infrastructure Project</li> </ul>	
72.	9. Exchange information and experiences with integrated assessments of ecosystem status, trends and pressures for coastal, marine, and terrestrial areas and provide guidance on approaches for integrating existing assessments.		PAME CAFF	<ul style="list-style-type: none"> <li>PAME EA-EG Annual workshop and pilot project</li> </ul>	
<b>Snow, Water, Ice and Permafrost in the Arctic (SWIPA) Report (not all recommendations listed-only PAME relevant )</b>					
73.	Upgrade the capacity for search and rescue operations and environmental hazard responses.	RP3 Recs AMSA IE, AMSA IIA	AC States EPPR PAME	<ul style="list-style-type: none"> <li>Arctic SAR Agreement</li> </ul>	
74.	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		
75.	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?	<ul style="list-style-type: none"> <li>AMAP AACA-C Regional Assessments</li> </ul>	
<b>Arctic Ocean Acidification Assessment (not all recommendations listed-only PAME relevant )</b>					
76.	It is recommended that the Arctic Council call for enhanced research and monitoring efforts that expand understanding of acidification processes and their		AMAP PAME(Effects)		

	effects on Arctic marine ecosystems and northern societies that depend on them.				
77.	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	<ul style="list-style-type: none"> <li>• AMAP AACA-C Assessments</li> <li>• SDWG Adaptation Exchange Portal</li> </ul>	