| AMSA Report Recommendation | Implementation Lead | Status | Rationale for Update/Next Steps  |
| --- | --- | --- | --- |
| **THEME I - ENHANCING ARCTIC MARINE SAFETY** |
| **I(A) Linking with International Organizations** - "That the Arctic states decide, on a case by case base, **[TO CONTINUE TO]** identify areas of common interest and develop unified positions and approaches with respect to international [**AND REGIONAL BODIES]** **~~organizations such as the IMO, IHO, WMO and IMSO~~** **[WITH RECOGNIZED COMPETENCE, TO PROMOTE AND ADVANCE SAFE, SECURE, ENVIRONMENTALLY SOUND AND SUSTAINABLE]** 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." | Arctic States, PAME, EPPR (other AC Working Groups?) | **Ongoing**. Arctic States have submitted information papers on these and other relevant bodies to PAME consideration for consideration; PAME has invited these and other relevant bodies to submit papers to and make presentations at PAME meetings (e.g., IALA, ICES, ARHC, IICWG, ICS, ACGF, CLIA, NCM, NAMMCO, JCOMM, ETSI, AECO, etc.) to become involved in the Arctic Shipping Best Practices Information Forum (ASBPIF), established by PAME in 2017. Additional bodies with which PAME might pursue initiatives include: (1) the Arctic Coast Guard Forum; (2) the Tokyo and Paris Port State Control MOUs; (3) the International Labour Organization, which is responsible for the Maritime Labour Convention; (4) the Nautical Institute, which has contributed significantly to the knowledge of ice navigation; and (5) the International Transport Workers Federation (ITF), which has been instrumental in the protection of seafarers generally. | *Update Recommendation to encourage PAME to continue to reach out to other bodies with relevant recognized competence and, more specifically, explore areas of mutual interest that could form the basis of initiatives or projects that enhance Arctic marine shipping safety and sustainability.. Possible bodies with which PAME could explore new or updated initiatives include not only intergovernmental organizations, but industry and other non-governmental organizations as well.* |
| **I(B) IMO Measures for Arctic Shipping -** "That the Arctic states, in recognition of the unique environmental and navigational conditions in the Arctic, decide to [**CONTINUE TO]** cooperatively support efforts at the IMO 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**[ING OF]** global IMO ship safety and pollution prevention **[INSTRUMENTS]** ~~conventions~~ with specific mandatory requirements or other provisions for ship construction, design, equipment, **[COMMUNICATIONS]** crewing, training and operations, aimed at safety and **[ENVIRONMENTAL]** protection; **DEVELOP RECOMMENDATIONS AT THE REGIONAL LEVEL TO SUPPORT GLOBAL MEASURES ADOPTED BY IMO; AND REPORT PERIODICALLY REGARDING SUCH EFFORTS."** | Arctic States and PAME. | **Ongoing**. PAME adopted RoDs supporting timely conclusion of IMO Polar Code negotiations and undertook projects of relevance to, though not included within, the environmental chapter of the Polar Code (e.g., on HFO). PAME also took actions to encourage Arctic States to ratify the Ballast Water Management Convention, which entered into force in September 2017. See entry for Recommendation II(E). Possible initiatives here include PAME commission a report on implementation of and compliance with the Polar Code. | *Update Recommendation to encourage PAME to continue to support efforts at IMO to strengthen, harmonize and regularly update international standards for vessels operating in the Arctic, omitting reference to the Guidelines for Ships Operating in Arctic Ice-Covered Waters, which have been superseded by the Polar Code. AOR#3, AOR#5, AOR#7 and AMSP 7.3.5 could be integrated into this Recommendation.* *Addition of “Communications” suggested by the WMO, which noted the current limitations of the GMDSS in Arctic waters, and the challenge of providing universal access to meteorological and ice information to ships in these waters.**Additional Arctic shipping efforts at the IMO might address HFO, black carbon and/or other air emissions, gray water discharges, and anthropogenic underwater noise. Note IMO Strategic Plan (2018-2023) Output # 6.11- Development of measures to reduce risks of use and carriage of heavy fuel oil as fuel by ships in Arctic waters."* |
| **I(C) Uniformity of Arctic Shipping Governance** - "That the Arctic states should~~explore the possible harmonization of Arctic marine shipping regulatory regimes within their own jurisdictions and uniform Arctic safety and environmental protection regulatory regimes~~ **[ENCOURAGE BROAD SUBSCRIPTION TO IMO INSTRUMENTS AND THEIR UNIFORM IMPLEMENTATION, IN PARTICULAR AS THEY RELATE TO SAFE, SECURE AND ENVIRONMENTAL SOUND ARCTIC SHIPPING]**, consistent with UNCLOS, **AND WHERE POSSIBLE STENGTHEN EFFORTS TO HARMONIZE IMPLEMENTATION AND ENFORCEMENT.]** ~~that could provide a basis for protection measures in regions of the central Arctic Ocean beyond coastal state jurisdiction for consideration by the IMO~~. ~~"~~ |   | PAME has supported ratification of IMO instruments such as the Ballast Water Management Convention and actively encouraged negotiation of the Polar Code and its effective and timely implementation. Further, PAME developed a regional reception facilities plan for submission by Arctic States to IMO to help Coastal states and ships meet their MARPOL obligations in the Arctic. | *Edits to this Recommendation are intended to refocus it on supporting IMO as the international organization with recognized global competence to regulate ship safety and environmental performance. In terms of implementation and enforcement, the Arctic Shipping Best Practices Information Forum (ASBPIF) was in large measure established to facilitate effective implementation of and compliance with the Polar Code. Similar efforts with respect to other IMO instruments, including through the Arctic Coast Guard Forum and the Paris and Tokyo Port State Control MOUs, seems desirable.* |
| **I(D) Strengthening Passenger Ship Safety in Arctic Waters** - "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 APPLY INTERATIONAL RULES AND STANDARDS ADOPTED BY THE IMO AS WELL AS CONTINUE TO] develop, implement and share their own best practices for operating in such conditions, including consideration of measures **TO FURTHER STRENGTHEN SHIP SAFETY AND ENVIRONMENTAL SUSTAINAILITY**  ~~such as timing voyages so that other ships are within rescue distance in case of emergency~~." | PAME? | **Ongoing.** PAME’s Arctic Shipping Best Practices Information Forum has provided a venue for a broad spectrum of Arctic shipping stakeholders, including cruise lines, to share information important to effective implementation of the Polar Code. Compliance with the Code will strengthen passenger ship safety in Arctic waters. PAME has also, pursuant to its Arctic Marine Tourism Project developed voluntary best practice guidelines (2015) available online at <http://bit.ly/2gk6prC>.PAME could consider hosting a conference and preparing (or commissioning) a survey of industry practices. | *Reference to the IMO Contingency Planning Guidance for Passenger Ships Operating in Areas Remote from SAR Facilities, while important, no longer needs to guide PAME's work and can be removed from the Recommendation. The Recommendation could be updated to identify the development -- in collaboration, coordination and/or consultation with industry -- of additional voluntary guidelines, e.g., for private yachts and pleasure craft analogous to those that have been developed for Antarctic cruises such as the Yachting Guidelines for Antarctic Cruises (available at* [*http://bit.ly/2m0pCxF*](http://bit.ly/2m0pCxF)*), or more broadly, a sustainable tourism initiative as reflected in AOR#4.**Note that last phrase would be dropped -- ship "pairing" is a concept that no longer appears supported by industry or maritime administrations in light of IMO passenger ship safety initiatives, guidance, and updates of relevant instruments. See, e.g., http://bit.ly/2BJAplT.* |
| **I(E) Arctic Search and Rescue (SAR) Agreement** - "That the Arctic states **[SHOULD ACTIVELY COOPERATE IN OPERATIONALIZING *THE AGREEMENT ON COOPERATION ON AERONAUTICAL AND MARITIME SEARCH AND RESCUE IN THE ARCTIC, 2011*, AND IN MAINTAINING A STATE OF READINESS TO RESPOND TO EMERGENCIES]** ~~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."~~ |   | **Completed.** Arctic States signed the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic in Nuuk, Greenland on May 12, 2011. The Agreement has entered into force. Tabletop and live exercises (e.g., SAREX) have and should continue to take place.  | *Modification of the text of the Recommendation recognizes that the “Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic” has come into force, and Arctic States should actively cooperate to operationalize the agreement and conduct drills to maintain a state of readiness.* |
| **THEME II - PROTECTING ARCTIC PEOPLE AND THE ENVIRONMENT** |
| **II(A) Survey of Arctic Indigenous Marine Use** - That the Arctic states should consider conducting surveys on Arctic marine use by the indigenous communities where gaps are identified to collect information for establishing up-to-date baseline data to assess the impacts from Arctic shipping activities." | Arctic States, PPs. | **Ongoing.** | *Retain recommendation.* |
| **II(B) Engagement with Arctic Communities** - That the Arctic states decide to determine if effective communication mechanisms exist to ensure engagement of their Arctic coastal **[AND INDIGENOUS]** 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." | Arctic States, PPs.  | **Ongoing.** | *Retain Recommendation. Modify it as indicated to be consistent with the terminology of the Declaration on the Establishment of the Arctic Council, 1996 (the Ottawa Declaration), which observes that one of the purposes of the Arctic Council is to “provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of the Arctic indigenous communities and other Arctic inhabitants…”.* |
| **II(C) Areas of Heightened Ecological and Cultural Significance [MERITING SPECIAL PROTECTION] -** "That the Arctic states [**SHOULD, TAKING INTO ACCOUNT THE SPECIAL CHARACTERISTICS OF THE ARCTIC MARINE ENVIRONMENT** ~~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 **[ADOPTION]** ~~implementation~~ of measures [**RELATING TO]** ~~these~~ areas **[OF HEIGHTENED ECOLOGICAL OR CULTURAL SIGNIFICANCE THAT MERIT PROTECTION]** from the impacts of Arctic marine shipping, in coordination with all stakeholders and consistent with international law."  |   | **Ongoing.** In 2013, AMAP, CAFF and SDWG issued a report identifying the central Arctic Ocean beyond national jurisdiction as an area of heighted ecological importance. The report is available online at http://bit.ly/2iDYwOn. . In 2016, PAME requested that AMAP and CAFF identify particularly important areas within the Central Arctic Ocean (CAO) that may merit protection from international shipping activities by means of one or more IMO measures. The two WGs decided to await the outcome of the work of the ICES/PICES/PAME Working Group on Integrated Ecosystem Assessment (IEA) of the Central Arctic Ocean (WGICA). One of the components of the IEA is a "vulnerability assessment to shipping." Hein Rune Skjoldal expects WGICA to progress this item at its next meeting, 24-26 April 2018 in Newfoundland and hopes WGICA can respond to PAME in its report to PAME II-2018. | *This text as modified combines elements of AMSA Recommendations II(C) and II(D) to reflect how the two recommendations are inherently linked. If this proposal were adopted, AMSA Recommendation II(D) would be deleted.*  |
| **II(D) Specially Designated Arctic Marine Areas** - "That the Arctic states should, taking into account the special characteristics of the Arctic marine environment, **[CONTINUE TO]** explore the need for internationally designated areas for the purpose of environmental protection in regions of the Arctic Ocean." | Arctic States, PAME | **Suspended/postponed.** PAME commissioned a report from DNV titled Specially Designated Marine Areas in the Arctic High Seas (2013) that made a number of recommendations for possible measures that could be pursued. The report is available online at http://bit.ly/2wDy0uv. No action has been taken at this time. | *In 2016, PAME suspended action on implementing this recommendation pending receipt from AMAP and CAFF of information on areas in the central Arctic Ocean of particular environmental importance. See preceding entry for status update and the proposal to merge AMSA Recommendations II(C) and II(D) as suggested in the II(C) entry.* |
| **II(E) Protection from Invasive Species -** "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~~ **[IMPLEMENT THE [REQUIREMENTS OF THE] IMO INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS BALLAST WATER AND SEDIMENTS IN A TIMELY AND EFFECTIVE MANNER.]** Arctic states should also assess the risk of introducing invasive species through ~~ballast water~~ **[BIOFOULING]** and other means so that THEY CAN IMPLEMENT adequate prevention measures ~~can be implemented~~ in waters under their **[RESPECTIVE]** jurisdiction**[S]**."  | Arctic States, PAME | **Ongoing.** PAME has encouraged ratification of the BWM Convention, the entry-into-force of which was triggered by Finland's ratification. The Convention entered into force on 8 September 2017. See also entry for Recommendation I(B). PAME also contributed to the development of the Arctic Invasive Alien Species Strategy and Action Plan (ARIAS) (2017), available online at http://bit.ly/2wDo441.  | *Update recommendation to encourage Arctic States to effectively implement the IMO Ballast Water Management Convention. Retain second sentence and update it to reflect the threat posed by biofouling for which IMO has adopted voluntary “Guidelines for the Control and Management of Ships’ Biofouling to Minimize the Transfer of Invasive Aquatic Species”,* [*MEPC.207(62) (15 July 2011).*](http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-%28MEPC%29/Documents/MEPC.207%2862%29.pdf) |
| **II(F) Oil Spill Prevention -** "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." | Arctic States, EPPR? | **Ongoing.** Arctic States signed the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic at Kiruna, Sweden on May 15, 2013. PAME has played a small role in implementing this Agreement. Reach out to EPPR for input with respect to further work under the Framework Plan for Cooperation on Prevention of Oil Pollution from Petroleum and Maritime Activities in the Marine Areas of the Arctic). Consider integrating EPPR's Pan-Arctic risk assessment of oil spills led by Norway into a new PAME or EPPR research agenda on oil spill prevention. | *Retain recommendation as it focuses on prevention - a topic not addressed by the Arctic Marine Oil Pollution Preparedness and Response instrument.*  |
| **II(G) Addressing Impacts on Marine Mammals -** "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 **[AND OTHER COMPETENT INTERNATIONAL AND REGIONAL ORGANIZATIONS SUCH AS IWC AND NAMMCO]** in developing and implementing mitigation strategies." | Arctic States, PAME, CAFF? | **Ongoing**. PAME has invited relevant international organizations such as IWC, NAMMCO and the International Quiet Ocean Experiment (IQOE) to submit papers and/or make presentations at PAME. Canada is currently leading a "state of the knowledge" report on underwater noise in the Arctic. | *The 2017 UN Ocean Conference addressed ocean noise governance in para. 13(g) of its "Call for Action" and, In 2018, the UN's Intergovernmental Consultative Process addressed underwater noise. Canada is leading a project on underwater noise at PAME since the 2017-2019 biennium. Note also that the Polar Code discusses marine mammal avoidance, and IMO's MEPC appointed the NCSR Subcommittee for further discussions. See MEPC 71/17 para 16.19-16.21 (available at http://bit.ly/2neLXJB) and & MSC 98/23 (available at http://bit.ly/2DwaMGL).* |
| **II(H) Reducing Air Emissions -** "That the Arctic states **[CONTINUE**] ~~decide~~ to support **IMO EFFORTS TO ADDRESS AIR EMISSIONS FROM SHIPS AS WELL AS]** 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)~~ **[BLACK CARBON AND OTHER PARTICULATE MATTER (PM)]** ~~taking into account~~the ~~relevant IMO regulations.~~" | Arctic States, AC Subsidiary Bodies, including the AC Expert Group on Black Carbon and Methane (EGBCM). | **Ongoing**. PAME has taken limited action on this Recommendation. The AC Task Force on Black Carbon and Methane (now the Expert Group on Black Carbon and Methane) has been active in this area. | *Revise this Recommendation, replacing "decide" with "continue" since a decision to support was already taken, and modify it to indicate explicit Arctic State support for work at IMO to address air emissions from ships. Consistency with IMO’s ongoing work on black carbon is achieved by replacing the reference to "Particulate Matter" with "black carbon and other Particulate Matter." (This fits within the Bond definition that MEPC decided for black carbon.) The words “taking into account…” are deleted for the following reason. At IMO, "taking into account" is usually paired with guidance of a recommendatory nature such as guidelines rather than binding regulations of a mandatory nature. The original formulation of this recommendation could inadvertently suggest that the IMO regulations on air emissions are recommendatory.*  |
| **THEME III - BUILDING THE ARCTIC MARINE INFRASTRUCTURE** |
| **III(A) Addressing the Infrastructure Deficit -** "That the Arctic states should **[CONTINUE TO]** 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~~** **[REMAIN NECESSARY]** include: ice navigation training; navigational charts; communications systems; port services, including reception facilities for ship-generated waste; accurate and timely ice information (ice centers); **[METEOROLOGICAL FORECASTS]**; places of refuge; and icebreakers to assist in response." | Arctic States, PAME. | **Ongoing**. PAME's principal role has been in the Regional Reception Facilities Project and Plan, which was finalized at PAME I-2017. PAME is supporting consideration of the RRFP by Arctic State IMO delegations. PAME has also engaged in outreach with ARHC.  | *Retain Recommendation. Note that AMSP 7.3.11 is largely duplicative. Add “meteorological information” as an example of infrastructure where improvements remain necessary. It has been suggested that requirements for ships to report ice observations and iceberg locations in the Arctic could be strengthened to help with hazard notification.*  |
| **III(B) Arctic Marine Traffic System** - "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 **[delete: in near real-time],** and to augment vessel management service in order to reduce the risk of incidents, facilitate **[EMERGENCY]** response and provide awareness of potential user conflict. The Arctic states should encourage shipping companies **[AND OTHER MARITIME STAKEHOLDERS]** to cooperate in the improvement and development of national monitoring systems." | Arctic States, PAME through its Arctic Ship Traffic Data (ASTD) Framework and Project. | **Ongoing.** | *Operationalization of* [*PAME’s Arctic Ship Traffic Data (ASTD) system*](https://www.pame.is/index.php/projects/arctic-marine-shipping/astd) *is well underway and nearly 20 applications for access have been received since the system was launched in January 2019. The Arctic Shipping Best Practice Information Forum's web portal also includes links to authoritative information helpful to maritime administration, mariners, classification societies, insurance companies, port facilities and other stakeholders.* *AMSP 7.1.8 large duplicates this Recommendation.*  |
| **III(C) Circumpolar Environmental Response Capacity** - "That the Arctic States decide to continue to develop **[AND STRENGTHEN]** circumpolar environmental pollution response capabilities that are critical to protecting the unique Arctic ecosystem. This can be accomplished, for example, through **[EFFECTIVE IMPLEMENTATION and OPERATIONALIZATION OF THE *AGREEMENT ON COOPERATION ON MARINE OIL POLLUTION PREPAREDNESS AND RESPONSE, 2013,* ADDITIONAL]** circumpolar cooperation and agreement(s), as well as regional bilateral capacity agreements." | Arctic States and EPPR? | **Ongoing**. See Recommendation II(F). Arctic States signed the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic at Kiruna, Sweden on May 15, 2013. PAME played no role in the negotiation of this Agreement and only a very small role in its implementation. | *Update Recommendation to reflect the adoption in 2013 of the “Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic” and its entry into force in 2016.*  |
| **III(D) Investing in Hydrographic, Meteorological and Oceanographic Data -** "That the Arctic states should **[CONTINUE TO]** ~~significantly~~ improve, where appropriate, the level of and access to data and information in support of safe **[AND ENVIRONMENTALLY RESPONSIBLE]** navigation and voyage planning in Arctic waters. This would entail **[SUSTAINING AND CONTINUING TO]** increase~~d~~ efforts for: hydrographic surveys to bring Arctic navigation charts up to a level acceptable to support current and future safe, **AND ENVIRONMENTALLY RESPONSIBLE]** navigation; **[OBTAINING HYDROGRAPHIC DATA WHERE APPROPRIATE FROM INDUSTRY AND OTHER SOURCES;]** and systems to support **[AND IMPROVE THE TIMELY]**  ~~real-time~~ acquisition, analysis and transfer of meteorological, oceanographic, sea ice and iceberg **~~information~~ [OBSERVATIONS TO METEOROLOGICAL CENTRES]**." |  Arctic States, PAME, EPPR. | **Ongoing**. PAME's principal contribution has been the Arctic Ship Traffic Data (ASTD) project and the adoption by SAOs in May 2017 of the ASTD Framework. PAME has also engaged with the Arctic Regional Hydrographic Commission and Arctic States have contributed to the development of national Arctic Voyage Planning Guides (AVPG); improved/coordinated voyage planning is also a primary focus of the ASBPIF. Consideration could be given to lending additional support to the WMO [Voluntary Observing Ship (VOS) Scheme](https://www.wmo.int/pages/prog/amp/mmop/JCOMM/OPA/SOT/vos.html) and the WMO [Ship of Opportunity Program (SOOP)](https://www.wmo.int/pages/prog/amp/mmop/JCOMM/OPA/SOT/soop.html). In 2013, PAME developed a paper on the VOS Scheme in the Arctic that Canada, Iceland, Norway, Sweden and the USA subsequently submitted to IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 1/27/3, 25 April 2014) | *Retain recommendation. Some proposed new text added.**WMO suggested the clarification at the end of the Recommendation to emphasize the importance of transferring these observations to the meteorological centres to improve forecast and warning services.* |
| **PROPOSED NEW RECOMMENDATIONS** |   |   | **SOURCE OF RECOMMENDATION** |
| **Sweden Proposal** - That the Arctic States recognize the need to adapt Arctic marine infrastructure to climate change in order to maintain and improve the safety of ship navigation and minimize any adverse impacts of increased ship traffic on the environment and indigenous and local communities.  |   |   | *Proposed by Sweden. Explanation: the Arctic climate is changing (e.g., sea ice diminishment), which is likely to impact both how ships operate and the safety of navigation. To name a few possible implications - communities and existing infrastructure will be affected through land change, and as more ice melts, new shipping routes may become available which will likely lead to increased ship traffic, which in turn could have adverse impacts on the marine environment as well as indigenous and local communities.* |
| **AOR#3** - That 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. |   |   | *AOR Final Report Recommendation 3. Note that the 2013 Kiruna Ministerial Declaration "****welcome[d]*** *the Arctic Ocean Review report, undertaken to provide guidance to Arctic States on strengthening governance in the Arctic through a cooperative, coordinated and integrated approach to the management of the Arctic marine environment,* ***approve(d)*** *its recommendations and* ***request[ed]*** *appropriate follow-up actions, and report on progress at subsequent ministerial meetings." Related to AMSA Recommendations I(A), I(B), II(E), III(A), and III(B), Relevant to IMO Strategic Plan (2018-2023) Output # 43 - Consequential work related to the new International Code for Ships Operating in Polar Waters*  |
| **AOR#4** - Arctic states should explore the possibility of developing voluntary guidelines and, if appropriate, best practices in implementing such guidelines for sustainable tourism. Moreover, 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. |   |   | *AOR Final Report Recommendation 4.* |
| **AOR#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. |   |  *AMSA Recommendation I(B)* | *AOR Final Report Recommendation 5. Related to AMSA Recommendation IB).* |
| **AOR#6** - Arctic states should support ongoing work at IMO to address black carbon emissions from international shipping in Arctic waters including considering amendments to MARPOL or other IMO instruments. |   | *AMSA Recommendation II(H)* | *AOR Final Report Recommendation 6.Related to AMSA Recommendation II(H). Relevant to IMO Strategic Plan (2018-2023) Output #3.3 - Impact on the Arctic of emissions of black carbon from international shipping. Related to AMSA Recommendation II(H).* |
| **AOR#7** -- Arctic states could 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. |   |   | *AOR Final Report Recommendation 7. Relevant to IMO Strategic Plan (2018-2023) Output # OW40 - Safety measures for non-SOLAS ships operating in polar waters (2021).* |
| **AMSP 7.1.8** -- Improve awareness of Arctic shipping activity and its impacts, promote expanded information sharing of ship traffic data among Arctic states and, as appropriate, other stakeholders, and update selected parts of the 2009 Arctic Marine Shipping Assessment (AMSA) Report, including those pertaining to the volume, composition and destination of Arctic shipping, shipping impacts, and key infrastructure needs such as hydrographic surveying and nautical charting.  |   |   | *AMSP (2015-2025) Strategic Action 7.18. Note that the 2015 Iqaluit Declaration "Approve[d] the Arctic Marine Strategic Plan for the period 2015-2025 as a framework to protect Arctic marine and coastal ecosystems and to promote sustainable development in the region."**WMO would suggest including the phrase “and risk exposure” after the words “and its impacts.” The Polar Code places a big emphasis on risk management and WMO provides its services as a risk management tool. The shipping industry and the environment have varying degrees of exposure to the risks related to meteorological and climate influences, and WMO recently introduced a Multi-hazard Early Warning Systems Checklist that incorporates the knowledge or risk exposures as an important pillar to any community or sector risk reduction strategy.*  |
| **AMSP 7.2.4** -- Encourage the Arctic states to implement appropriate measures, – or to pursue such measures at relevant international organizations to protect Arctic marine Areas of Heightened Ecological and Cultural Significance. Focus should be on species and ecosystems particularly at risk from climate change and cumulative impacts, including areas of refuge for ice-associated species that are, or are expected to become particularly important to Arctic marine biodiversity under future climate conditions. |   |  *AMSA Recommendation II(C)* | *AMSP (2015-2025) Strategic Action 7.2.4. Closely related to AMSA Recommendation II(C).*  |
| **AMSP 7.3.2** -- Improve the understanding of risks and risk reducing measures related to Arctic shipping and oil and gas exploration and development activities, including gap analysis and sharing of best practices related to oil spill prevention, preparedness and response to emergencies in the Arctic. | *EPPR?* |   | *AMSP (2015-2025) Strategic Action 7.3.2. None of the existing AMSA Recommendations addresses the big picture of maritime risks, including the possible cumulative impacts. It might be worth further studying this issue, including environmental, economic and social impacts.*  |
| **AMSP 7.3.3** -- Explore whether there are substances in addition to oil that would benefit from additional pollution preparedness and response cooperation among the Arctic states. | *EPPR?* |   | *AMSP (2015-2025) Strategic Action 7.3.3. This could be a new AMSA Recommendation that stands on its own or is linked to oil spills. The risk of spills of hazardous and noxious substances (HNS) is real.* |
| **AMSP 7.3.4** -- Support the research, development, andimplementation of oil spill detection, mitigation measures, and response technologies in ice-covered and ice-infestedwaters. | *EPPR?* |   | *AMSP (2015-2025) Strategic Action 7.3.4* |
| **AMSP 7.3.5** -- Develop recommendations for considerationby Arctic states to promote maritime safety and environmental protection with the objective of reducing risks related tointernational shipping activities in Arctic waters |   |   | *AMSP (2015-2025) Strategic Action 7.3.5* |
| **AMSP 7.3.10** -- Support ongoing work to examine and recommend actions to reduce black carbon emissions from activities in Arctic waters. Encourage research that advances technical definitions, measurement standards, and mitigation options with respect to the impact on the Arctic from black carbon. |  *EGBCM / AMAP Expert Group?* |   | *AMSP (2015-2025) Strategic Action 7.3.10. Related to AMSA Recommendation II(H).* |
| **AMSP 7.3.11** -- Promote cooperation to improve andexpand a) hydrographic and bathymetric data collection and b) Safety of Navigation services and products (including nauticalchart and publication production) to support safe and efficient marine shipping in the Arctic. |   |   | *AMSP (2015-2025) Strategic Action 7.3.11 Similar to AMSA Recommendation III(D).* |
|   |   |   |   |