

PAME Implementation of 2009 AMSA Report Recommendations

Executive Summary

The Arctic Marine Shipping Assessment (AMSA) Report was completed and approved by Arctic Council Ministers at their meeting in Tromsø, Norway in April 2009. The AMSA Report examines Arctic shipping from historical, legal, environmental, infrastructure and other perspectives and provides 17 recommendations to promote the safety and environmental awareness of current and future Arctic shipping activity.

Issuance of the AMSA report closely followed two years (2007, 2008) of the lowest levels of Arctic sea ice coverage in recorded history and increasing regional and global concern that improved marine access and a significant increase in Arctic marine activity, particularly transit shipping and cruise vessel traffic, was putting the Arctic marine environment at risk.

The AMSA report recommendations involve multiple stakeholders and apply at national, Arctic Regional, and international levels. The recommendations are aligned under three themes: Enhancing Arctic Marine Safety; Protecting Arctic People and the Environment; and Building the Arctic Marine Infrastructure. Some of the recommendations can be realized quickly while others are complex and long-term in nature, and require considerable resources to implement. Although each of the 17 recommendations deals with a particular issue or hazard, they need to be considered collectively in order to effectively address the potential impacts of increased Arctic shipping activity.

This progress report on the status of the implementation of the AMSA report's 17 recommendations is intended to acknowledge the successes and significant progress in several areas and, at the same time, draw attention to areas and recommendations where progress is limited and more work may be needed.

Arctic Council states, other governments, indigenous peoples, NGOs and other stakeholders can take note that significant progress is being made on implementing many of the recommendations. The commitment to address these 17 recommendations, in light of the potential future increase in Arctic shipping activity, will benefit the Arctic marine environment and residents of the Arctic as well as promote marine safety long into the future.

As this progress report highlights, safety of Arctic shipping and protection of the Arctic marine environment has drawn increased attention not only in the region but also globally. Arctic Council member governments, through the IMO and other fora, are working to enhance Arctic marine safety and environmental protection. For example, IMO adopted updated *Guidelines for Ships Operating in Polar Waters* in 2009 (Assembly resolution A.1024(26)), and a legally-binding Polar Code is under development therein. Arctic Council working groups are following up and making progress on many of the AMSA report recommendations. The Arctic Search and Rescue agreement is a clear indication that Arctic States are cooperating to resolve important issues and can work rapidly and effectively together.

At the same time, this progress report identifies areas for further cooperation and increased efforts to improve Arctic maritime safety and protection of the Arctic marine environment. For example, although significant progress has been made,

more work needs to be done to identify areas of heightened cultural or ecological significance within the Arctic and then craft appropriate measures as necessary to safeguard such areas. In addition, any identified Arctic marine areas of heightened ecological and cultural significance will, for example, be evaluated against the IMO PSSA criteria in order to improve marine safety and environmental protection in the Arctic. Arctic maritime domain awareness can be further enhanced, possibly through increased sharing of data among Arctic Council member governments. More effort is needed to prevent release of oil into the Arctic waters and to ensure that adequate spill response capacity is available across the Arctic. Furthermore, the Arctic states are encouraged to consider ratification of the International Convention for the Control and Management of Ships' Ballast Water and Sediments to promote the Convention coming into force.

Monitoring the implementation of the AMSA recommendations will be an ongoing part of the PAME agenda, including regular reports to the Arctic Council Ministers.

Status of Progress on Recommendations

THEME I – Enhancing Arctic Marine Safety

I(A). Linking with International Organizations

“That the Arctic states decide to, on a case by case basis, identify areas of common interest and develop unified positions and approaches with 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.”

Follow-up Actions

Cooperate as appropriate in the:
 International Maritime Organization (IMO);
 International Hydrographic Organization (IHO);
 World Meteorological Organization (WMO);
 International Maritime Satellite Organization (IMSO and,)
 Any other relevant organization.

Status of Recommendation

Lead State And Partners	Status Response
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<p>Member states through IMO</p> <p>Canada, Denmark, Norway, Russian Federation, U.S.</p> <p>IMSO</p>	<p>PAME through its member governments has monitored and participated as appropriate in the activities of the IMO, IHO, WMO, and IMSO and other relevant organizations to advance the safety of Arctic marine shipping. Examples of such activities include:</p> <ol style="list-style-type: none"> 1) IMO in 2009 approved <i>Guidelines for Ships Operating in Polar Waters</i>. 2) IMO is developing a legally binding Polar Code as a high priority issue-.. 3) IMO, IHO and WMO established five new Arctic NAVAREAs/METAREAs as part of the expansion of the international service for broadcasting navigational and meteorological warnings and forecasts. The service will become fully operational in June 2011. 4) WMO established an Executive Council Panel on Polar Observations, Research and Services (EC PORS) that is working toward the development of a Polar Prediction System. This system will support marine traffic in the Arctic and Antarctic. 5) An IHO Arctic Regional Hydrographic Commission was established on 6 October 2010 by the five Arctic coastal States. The Commission will facilitate the exchange of hydrographic information, knowledge and data required for safe navigation and protection of the Arctic marine environment and has begun to develop a 'Mariners Routeing Guide for the Arctic' to provide mariners with essential information for safe navigation in the Arctic region. 6) 7) IMSO announced that ships operating in the Arctic need to make provision for using high frequency communications because Inmarsat satellites cannot cover the Arctic.
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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 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 Polar 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.”

Follow-up Actions

- 1) Update and as appropriate make mandatory the Guidelines for Ships Operating in Polar Waters,
- 2) Augment global IMO ship safety and pollution prevention conventions with specific mandatory requirements, or other provisions, aimed at safety and protection of the Arctic environment.
- 3) Especially consider the identification of, environmental risks and options for, avoiding or minimizing those risks regarding the use and carriage of heavy fuel oil, aiming at establishment of appropriate international regulations.

Status of Recommendation

Lead State And Partners	Status Response
IMO Norway U.S. Russia	<ol style="list-style-type: none"> 1) Through its member governments, PAME has monitored and supported IMO’s adoption of revised <i>Guidelines for Ships Operating in Polar Waters</i> (2009) and its development of a legally binding international code of safety for ships operating in polar waters. Once developed, the Polar Code will be sent to IMO Marine Safety Committee and to IMO Assembly for consideration and approval, followed by ratification and implementation. 2) Under the leadership of the Norway, Russia, and the United States, PAME has undertaken a study to identify risks associated with vessel use or carriage of heavy fuel oil (HFO) in the Arctic, effects on the environment of an HFO spill, and options for minimizing those risks, possibly including international regulations. Phase I of the study, which identified risks, was completed in January 2011. Phase II of the study began at PAME I-2011 with approval of a project proposal.

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 jurisdiction and uniform Arctic safety and environmental protection regulatory regimes, consistent with UNCLOS, that could provide a basis for protection measures in regions of the central Arctic Ocean beyond coastal state jurisdiction for consideration by the IMO.”

Follow-up Actions

Explore the possible harmonization of Arctic marine shipping regulatory regimes and uniform Arctic safety and environmental protection regulatory regimes, consistent with UNCLOS, that could provide a basis for protection measures in regions of the central Arctic Ocean beyond coastal state jurisdiction for consideration by the IMO.

Status of Recommendation

Lead State And Partners	Status Response
All	PAME through its member governments is monitoring and supporting as appropriate IMO's development of a legally-binding Polar Code. This Polar Code will contain both mandatory and recommendatory provisions focused on marine safety and marine environmental protection considerations.
Canada Denmark Norway Russia United States	After completion of the work on the IMO Polar Code, Arctic coastal states will need to determine whether additional marine safety and environmental protection measures are required for their Arctic waters and consider how these requirements might best be harmonized amongst the 5 coastal states.

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 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.”

Follow up Actions

- 1) Support the application of the IMO’s Enhanced Contingency Planning Guidance for Passenger Ships Operating in Areas Remote from SAR Facilities; and,
- 2) Strongly encourage tour operators to develop, implement and share their own best practices for operating in such conditions.

Status of Recommendation

Lead State And Partners	Status Response
Denmark	1) Denmark has monitored and provided updates to PAME on work underway at IMO on passenger ship safety. Denmark has also shared information on its national regulation of passenger ships in Arctic waters.
All	2) PAME has extended invitations to representatives of the cruise ship industry to speak at its meetings on cruise ship operations in Arctic waters. A representative of the Cruise Lines International Association spoke at PAME II-2010 and a representative of the Association of Arctic Expedition Cruise Operators spoke at PAME I-2011.
Denmark, U.S.	3) Denmark and the U.S. compiled existing international, national, industry and NGO standards and guidelines relevant to the operation

	<p>of cruise ships in Arctic waters. Denmark agreed to submit the information contained in the joint U.S./Denmark I(D) paper to IMO. PAME requested its Chair to invite representatives of the Arctic cruise tourism industry to develop new, or augment existing, best practices in light of information contained in the joint U.S./Denmark I(D) paper as well as any other relevant information.</p>
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I(E). Arctic Search and Rescue (SAR) Instrument

“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.”

Follow-up Actions

Establishment of a task force to develop and complete negotiation by the next Ministerial meeting in 2011 of an international instrument on cooperation on search and rescue operations in the Arctic.

Status of Recommendation

Lead State And Partners	Status Response
U.S., Russian Federation, all other Arctic States	1. Under the co-leadership of U.S. and the Russian Federation, a task force established by the Arctic Council Ministers at their 2009 meeting in Tromsø completed negotiations of an international instrument on cooperation on search and rescue operations in the Arctic.
Russian Federation, U.S.	2. EPPR’s pilot project “Arctic Automated Mutual Assistance Vessel Rescue Network” (AAMVERNet) project encourages Arctic nations to have their nationally flagged vessels enroll and report to the AMVER system and will encourage Arctic nations to share vessel position systems and information with the AMVER system. U.S. and the Russian Federation are partners in the AAMVERNet pilot project.

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 indigenous communities where gaps are identified to collect

communities (in particular during the planning phase of a new marine activity) to increase benefits and help reduce the impacts from shipping.

Status of Recommendation

Lead State And Partners	Status Response
U.S.	1) The U.S. actively engages with Alaska Native communities and continually works to strengthen communications with them. For example, the U.S. Coast Guard has developed guidance for tribal consultations based on the guiding principle that it can only be successful if interests of Alaska Natives are heard and addressed. The U.S. Coast Guard has also created a full-time civilian Tribal Liaison position to broaden consultations to include not only tribal governments but entire communities. President Obama recognized the importance of regular and meaningful consultation and collaboration with tribal officials in policy decisions that have tribal implications, in his 5 November 2009 Memorandum (see also Executive Order 13175).

II(C). Areas of Heightened Ecological and Cultural Significance

“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.”

Follow-up Actions

- 1) Identify areas of heightened ecological and cultural significance in light of changing climate conditions and increasing multiple marine use; and,
- 2) Where appropriate, encourage the implementation of measures to protect these areas from the impacts of Arctic marine shipping, in coordination with all stakeholders and consistent with international law.

Status of Recommendation

Lead State And Partners	Status Response
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<p>DK/Greenland</p> <p>Norway, Canada, Denmark/ Greenland & U.S.</p> <p>Canada</p> <p>Iceland</p> <p>Russian Federation</p>	<ol style="list-style-type: none"> 1) DK/Greenland has initiated a national process to identify and prioritize marine areas around Greenland vulnerable to shipping activities. Building on that DK/Greenland has also started a process with the aim to evaluate possible Associated Protective Measures (APM) to be used in possible designated Particularly Sensitive Sea Areas (PSSA) through IMO (IID). 2) An AMSA II(C) Draft Report was circulated November 17, 2010 for national review. A draft report was submitted to PAME on February 15, 2011 with a final report expected by the end of 2011. 3) Canada is developing an inventory of Marine Areas of Ecologically and Biologically Sensitivity for their Arctic coasts and waters. 4) The North Atlantic Sensitivity and Response Map (NASARM), currently under development, has as its aim the collection in one place of information about valuable areas that are sensitive to oil pollution incidents in the North Atlantic. 5) For the Arctic Russian sector, it is determined that special protected natural areas as well as environmentally sensitivity map are elaborated for the purpose of Oil Spill Contingency Plans. There are eight natural reserves, 2 wildlife sanctuaries, and 1 biosphere natural reserve.
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II(D). Specially Designated Arctic Marine Areas

“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.”

Follow-up Actions

Explore the need for internationally designated areas for the purpose of environmental protection in regions of the Arctic Ocean. This could be done through the use of appropriate tools, such as “Special Areas” or Particularly Sensitive Sea Areas (PSSA) designation through the IMO and consistent with the existing international legal framework in the Arctic.

Status of Recommendation

<p>Lead State And Partners</p>	<p>Status Response</p>
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Iceland	1) An area off the Southern and Southwestern coast of Iceland has been internationally designated as an “Area To Be Avoided” (ATBA) for safety and environmental reasons.
DK/Greenland	2) DK/Greenland has initiated a national process to identify and prioritize marine areas around Greenland vulnerable to shipping activities. Building on that DK/Greenland has also started a process with the aim to evaluate possible Associated Protective Measures (APMs) to be used in possible designated Particularly Sensitive Sea Areas (PSSA) through IMO (IID).
CAFF, SDWG, AMAP	3) An AMSA II(C) Draft Report was submitted to PAME on February 15, 2011 with a final report expected by the end of 2011. The report partly evaluates the identified Arctic marine areas of heightened ecological and cultural significance against given PSSA criteria.
PAME	4) PAME I 2011 approved a II(D) project proposal, to be co-led by Finland, Norway, the Russian Federation and the United States.

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. Arctic states should also assess the risk of introducing invasive species through ballast water and other means so that adequate prevention measures can be implemented in waters under their jurisdiction.”

Follow-up Actions

- 1) Consider ratification of the IMO *International Convention for the Control and Management of Ships’ Ballast Water and Sediments*, as soon as practical; and,
- 2) Assess the risk of introducing invasive species through ballast water and other means so that adequate prevention measures can be implemented in waters under Arctic States’ jurisdiction.

Status of Recommendation

Lead State And Partners	Status Response
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Canada, Norway, Sweden	1) Canada, Norway, and Sweden have ratified the BWM Convention. As of 31 January 2011, 27 states representing 25.7% of the global merchant fleet have ratified. The BWM Convention will enter into force 12 months after 30 states representing 35% of the global merchant fleet have ratified.
Norway	2) Norway perceives the possible introduction of invasive species as a real threat and has implemented national regulations awaiting the BWM Convention to enter into force.
Iceland	3) Iceland adopted regulations that entered into force on 7 January 2010 banning the release of ballast water within the Icelandic jurisdiction. The regulation is based on and includes the same stipulations as the BWM Convention.

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.”

Follow up Actions

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 for environmental protection.

Status of Recommendation

Lead State And Partners	Status Response
U.S.	1) The U.S. is supporting research associated with operational safety and pollution prevention as well as oil spill response and cleanup capabilities (http://www.boemre.gov/tarphome/).
Iceland	2) Iceland promoted a cooperative project between Greenland, Faroe Islands, Norway and Iceland on the establishment of a combined North Atlantic Sensitivity and Response Map (NASARM) as a basis for responses to oil spills and accidents at sea. This project could be the basis for further cooperation with other Arctic Council countries.
Norway	3) A prohibition on the use and transport of heavy fuel oil in the large protected areas of East Svalbard has been established.
EPPR	4) EPPR has conducted two meetings with the oil industry to share knowledge on R&D activities and on other issues of mutual interest.
EPPR	5) EPPR is currently updating the Environmental Risk Analysis of Arctic Activities and the accompanying Risk Analysis Matrices.

EPPR	<p>Furthermore, a software program entitled “Automated Questionnaire for Assessing Spill response Preparedness” is available on the EPPR website for evaluation by interested parties</p>
EPPR	<p>6) EPPR’s pilot project “Arctic Region Oil Spill Response Resource and Logistics Guide” will survey the oil spill response resources and capabilities of the U.S. and Canada to respond to oil spills in Arctic waters, both near coastlines and on the high seas. Arctic States will decide on participation based on results of the pilot phase.</p>
Denmark, Finland and Sweden through European Maritime Safety Agency (EMSA)	<p>7) EPPR has produced two products that address the aftermath of a spill: the <i>Field Guide for Oil Spill Response in Arctic Waters</i> and <i>Guidelines and Strategies for Oily Waste Management in Arctic Regions</i>. The <i>Guidelines and Strategies for Oily Waste Management</i> includes a user’s guide, technical report and waste management calculator software.</p>
Russian Federation	<p>8) EMSA’s oil pollution response capacities (Oil Recovery Vessels and/or specialised equipment) can be made available to ENP/Third countries through the MIC (DG ECHO), given the consent from the EMSA contractor(s) (vessel/equipment owner) concerned.</p> <p>9) Russia is carrying out the revision of the Regional Oil Spill Contingency Plan for Western Sector of Arctic. The draft Regional Oil Spill Contingency Plan for Eastern Sector of Arctic has been elaborated. All industry activities may only be conducted after the investigation of the oil spill prevention and response matters, risk assessment and elaboration of plans for reducing such risks.</p>

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 in developing and implementing mitigation strategies.”

Follow-up Actions

- 1) Engage with relevant international organizations to further assess the effects on marine mammals due to ship noise, disturbance and strikes in Arctic waters; and,
- 2) Consider, where needed, to work with the IMO in developing and implementing mitigation strategies.

Status of Recommendation

Lead State And Partners	Status Response
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U.S.	1) The U.S. is chairing an IMO correspondence group on “Noise from commercial shipping and its adverse impacts on marine life.” The group’s mandate is to identify and address ways to minimize the introduction of incidental noise into the marine environment from commercial shipping and to pursue development of non-mandatory technical guidelines for quieting technologies as well as potential navigation and operational practices.
ISO	2) The International Organization for Standardization (ISO) is also working on this issue, in order to develop a draft standard on measurement and reporting of underwater sound radiated from ships.
IWC	3) The International Whaling Commission’s Standing Working Group on Environmental Concerns (EC) of the Scientific Committee (IWC/SC) endorsed the noise reduction goal advanced by the IMO’s Marine Environmental Protection Committee (MEPC) in 2008 (i.e., 3 dB in 10 years; 10 dB in 30 years). Further, in 2010, the EC strongly recommended that the MEPC include in its remit some method to report on progress towards this goal and that the IWC and IMO continue to work in concert to advance the goal of reduction of noise from commercial shipping when and where practicable.

II(H). Reducing Air Emissions

“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.”

Follow-up Actions

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.

Status of Recommendation

Lead State And Partners	Status Response
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IMO	
IMO	<p>At its July 2011 session, the MEPC will consider for adoption a draft regulation – in the form of an amendment to MARPOL Annex VI – establishing an Energy Efficiency Design Index (EEDI) for new ships built in the future. The EEDI contains provisions to ensure that the additional power needs of ships operating in the Arctic do not adversely affect the EEDI rating of polar-classed ships</p>
	<ol style="list-style-type: none"> 1) Finland has an operational maritime emission assessment system for the Baltic and is ready to extend the service to the Arctic when relevant traffic awareness information becomes available.
Finland	<ol style="list-style-type: none"> 2) The Russian Ministry of Transport is carrying out an investigation concerning the increasing energy efficiency of Russian commercial ships.
Russian Federation	

THEME III – Building the Arctic Marine Infrastructure

III(A). Addressing the infrastructure deficit

“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 for ship-generated waste; accurate and timely ice information (ice centers); places of refuge; and icebreakers to assist in response.”

Follow-Up Required:

Recognize that improvements in Arctic marine infrastructure are needed to enhance safety and environmental protection in support of sustainable development, including:

- ice navigation training; navigational charts; communications systems; port services, including reception facilities for ship-generated waste; accurate and timely ice information (ice centers); places of refuge; and, Icebreakers to assist in response.

Status of Recommendation

Lead State And Partners	Status Response
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Arctic coastal States	1) An Arctic Regional Hydrographic Commission has been established. The Commission will promote technical cooperation in science, technology and chart making in order to establish and promote common standards and help to define the needs for new hydrographic products and services including surveys. Improved charting will help to improve safety of life at sea and will contribute to protecting the ecosystem and promote social and economic development in the North.
U.S.	2) The U.S. has established an interagency task force to inventory U.S. Arctic marine activities, define needs, and propose future actions including those for infrastructure development.
Iceland	3) The relevant Icelandic authorities (Environment Agency, Maritime Administration, and Coast Guard) are required to have a formal agreement concerning roles and responsibilities in the case of incidents, including designation of places of refuge. Cooperation among these authorities is constantly under improvement
Iceland	4) Icelandic regulations on reception facilities for ship-generated wastes are in place and in line with applicable requirements under MARPOL and EU legislation. .
Finland	5) The Finnish Ice Service is piloting remote sensing-based products for Arctic fairways.
Norway	6) Norwegian Coastal Administration has evaluated the suitability of potential Places of Refuge (PoR) in the Northern Norway and Svalbard. The PoR will be displayed in GIS maps for the decisions makers.
	7) Ice navigation training courses are established at the University of Tromsø. A simulator for Svalbard and ice-covered waters is also being developed with the purpose of enhancing the training.
	8) In support of NAVAREA XIX, a HF-NBDP transmitter is implemented at Svalbard
	9) The Norwegian Coastal Administration and the Norwegian Meteorological institute cooperate on ice forecast
	10) Norwegian Hydrographic Service Nautical Chart plan 2011-2015 covering mainland Norway and Spitsbergen.
	11) The Maritime Training Center of the Admiral Makarov Academy has offered ice navigation training since 2001 using the most advanced simulation complex, approved by the Maritime Administration of the Russian Federation and Det Norske Veritas.
Russian Federation	12) . 717 marine navigation charts and 1080 electronic charts of the Northern Sea Route have been issued.
	13) A route area survey of the Northern Sea Route has been conducted for guiding tankers with 15 m draught.

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 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. Research to discuss status of LRIT, discussion among Arctic states to share data.”

Follow-up Required

- 1) Support continued development of a comprehensive Arctic marine traffic awareness system to improve monitoring and tracking of marine activity; enhance data sharing in near real-time; and, augment vessel management service in order to reduce the risk of incidents, facilitate response and provide awareness of potential user conflict.

- 2) Encourage shipping companies to cooperate in the improvement and development of national monitoring

Status of Recommendation

Lead State And Partners	Status Response
All	1) Adoption, implementation and expansion of vessel monitoring and surveillance systems such as AIS and LRIT continue to improve national capabilities to track ships operating in the Arctic. The increasing data provided by these systems may be expected to encourage the development of consensus approaches to Arctic shipping governance.
Canada	2) Pursuant to Article 234 of UNCLOS, Canada has implemented a traffic reporting system in its Arctic waters and submitted it to the IMO for recognition. The purpose of the reporting system is to protect the marine environment by verifying that vessels are in suitable condition for safe Arctic navigation, to help marine service providers (e.g. icebreakers) and emergency responders better understand traffic patterns and prepare to respond to requests for assistance, and to allow for better and efficient pollution prevention response. ¹
US, Russian Federation	3) The US (US Coast Guard 17 th District) is carrying out a port access route study for the Bering Strait which may lead to an internationally approved vessel traffic routing system. The study process involves coordination with industry, Federal, State, Tribal, and Russian Federation interests. Ultimately, any vessel traffic routing system in the Bering Strait deemed necessary would have to be approved by the IMO.
US	4) The National Maritime Domain Awareness Coordination Office (www.gmsa.gov) has been spearheading efforts to expand use of the Maritime Safety and Security Information System (MSSIS). MSSIS allows for governments to share through a secure Internet connection AIS data that they collect on ships operating in their areas of jurisdiction with other governments participating in MSSIS. NATO countries (e.g., Iceland, Norway, Denmark, Canada, US) have participated in MSSIS for a number of years and it may be possible for MSSIS information to be shared more broadly.
Russian Federation	5) Vessel Monitoring System “Victoria” (http://victoria.marsat.ru/index_eng/manual/) is intended for near real-time automated monitoring of vessel positions provided vessels are fitted with the ship satellite communication systems Inmarsat-C or Inmarsat-D, and for delivering the collected position reports via the internet to remote users.
Russian Federation, Norway	6) The Russian Federation and Norway have nearly completed the development of a ship reporting system for the Barents Sea.
European Space	7) The European Space Agency (ESA) is undertaking an assessment of demands for and offers of communication services in the Arctic region in

¹ The United States and others have raised questions as to whether Canada’s vessel traffic reporting system has been established in accordance with international law including with respect to Article 234 of UNCLOS. At the 88th meeting of the Maritime Safety Committee at the International Maritime Organization (IMO), the United States and other states encouraged Canada to submit its system to the IMO for formal adoption in order to address their concerns about the legal basis of the system and whether the system enhances navigation safety.

Agency	the 2015-2020 time frame. A number of new low-earth orbit satellite communication systems will be operational in 2015 offering medium data rates, including a number of satellite systems dedicated to messaging. In addition, both Canada and Russia are designing their highly elliptical orbit satellite systems (PCW and ARKTIKA) for broadband communications and earth observation. The ArctiCOM study will provide an extensive inventory of the new services that will require satellite communications to support activities in the maritime, aeronautical, tourist, offshore, oil and gas and government areas. In addition, Arctic maritime safety and search and rescue services as well as communication needs for the Arctic community will be addressed. The study will put forward recommendations on how to fill possible gaps.
Norway	8) The Norwegian Coastal Administration has established traffic separation schemes and recommended ships' routes outside the Norwegian coast from the Russian border to Lofoten.
Norway	9) The Norwegian Coastal Administration has established monitoring of vessels of particularly high risk in the Norwegian EEZ and also monitoring of the traffic separation schemes and recommended ships' routes.
Norway	10) The Norwegian Coastal Administration in cooperation with EMSA has established a centre for coordination and exchange of regional monitoring data for the northern part of the North Atlantic and Barents Sea (North Atlantic Maritime Information Management Centre). The monitoring is based on data from the AIS satellite AISSAT-1.
Norway	11) A satellite AIS demonstrator was launched in July 2010 and is in operation. There are possibilities for sharing Arctic maritime data between Arctic nations.
Russian Federation, US	12) EPPR's pilot project "Arctic Automated Mutual Assistance Vessel Rescue Network" (AAMverNet) project encourages Arctic nations to have their nationally flagged vessels enroll and report to the AMVER system and will encourage Arctic nations to share vessel position systems and information with the AMVER system. The US and the Russian Federation are partners in the AAMverNet pilot project.

III.C (Circumpolar Environmental Response Capacity)

"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."

Follow-up required.

Continue to develop circumpolar environmental pollution response capabilities.

Status of Recommendation

Lead State And Partners	Status Response
EPPR	1) EPPR is finalizing the report: <i>Behavior of Oil and other Hazardous Substances in Arctic Waters</i> (BoHaSa) which synthesizes knowledge and expertise on the behavior of oil and other hazardous substances in Arctic waters. The report promotes the development and use of technologies and working methods that improve the capability to respond to accidents involving these substances.
EPPR	2) EPPR is revising its Analysis of the Adequacy and Effectiveness of Existing Arrangements and Agreements (2000) in direct response to the 2009 AMSA Report recommendations that which address existing international agreements and other arrangements in the Arctic in the areas of emergency preparedness and response to environmental emergencies.
EPPR	3) EPPR is concurrently updating the Environmental Risk Analysis of Arctic Activities, which identifies risks and analyzes potential threats and impacts of discharges.
EPPR	4) EPPR's pilot project <i>Arctic Region Oil Spill Response Resource and Logistics Guide</i> will display the location of and describe available resources for oil spill response in the Arctic Region. Since much of the available equipment is not stored locally, the project will also note the location of airports and docking facilities that could be used in event of a spill, noting their capabilities.
Iceland	5) The North Atlantic Sensitivity and Response Map (NASARM) will provide a necessary basis for such work.
Russia, U.S.	6) The U.S. and Russia participate in the Russian-American Joint Planning Group Meeting that last featured scenarios for the Chukchi and Bering seas.
U.S., Canada	7) The Beaufort Sea Operational Supplement to the <i>Canada-United States Joint Marine Pollution Contingency Plan</i> (known as the CANUSNORTH Annex) provides a process whereby the U.S. Coast Guard and Canadian Coast Guard communicate, consult, and coordinate responses to discharges or threats of discharges of pollutants into the contiguous waters between Alaska and the Yukon Territory in the Beaufort Sea.
Canada, U.S.	8) A supplemental Reference Guide will provide additional details about each location, the type of oil spill equipment available in the vicinity, and the process for requesting the equipment in an emergency situation. Wherever possible the Reference Guide will include equipment specifications and indicate compatibility with that of neighbouring Arctic countries. U.S. and Canada are collaborating in the current pilot phase.
Canada	9) In 2010 Canada purchased additional oil spill response equipment and stockpiled the equipment in Arctic communities in order to increase response capability.

Norway	10) A system to prioritize environmental sensitive areas in case of acute pollution at Svalbard is under development. The system will be implemented and displayed in GIS maps within the end of 2011.
	11) Norway has established a governmental ETV service in the Northern Norway. The system is established due to the fact that there is no commercial ETV service in the area.
Russian Federation	12) There are two Salvage Departments: Murmansk, with responsibility for the Barents Sea, White Sea, and West and Arctic basins, and Sakhalin Salvage Department, with responsibility for the East and Arctic basins. The program/plans concerning the establishment of new branches of the above salvage departments in the Arctic are being developed.
Greenland	13) A west Greenland oil spill sensitivity atlas has been developed-

III(D). Investing in Hydrographic, Meteorological and Oceanographic Data

“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.”

Follow-up Actions

Significantly improve, where appropriate, the level of and access to data and information in support of safe navigation and voyage planning in Arctic waters.

Status of Recommendation

Lead State And Partners	Status Response
Finland	1) The Finnish Meteorological Institute (FMI) is increasing its commitment to the Argo programme north of the Polar Circle. FMI is an active contributor to the WMO Executive Council PORS (Polar Observations, Research & Services) working group identifying services for the Arctic. FMI is also piloting the extension of its remote sensing based ice services for Arctic shelf areas.
All	2) IMO, IHO and WMO established five new Arctic NAVAREAs / METAREAs as part of the expansion of the IMO/IHO World-Wide Navigational Warning Service into Arctic waters. An international service for broadcasting navigational warnings and meteorological warnings and forecasts was initiated in July 2010 and will become fully operational in June 2011.
Canada, Denmark, Norway,	3) The five Arctic coastal States established an IHO Arctic Regional Hydrographic Commission on 6 October 2010. The Commission will facilitate the exchange of hydrographic information, knowledge and

<p>Russian Federation, U.S.</p>	<p>data required for safe navigation and protection of the Arctic marine environment and has begun to develop a 'Mariners Routeing Guide for the Arctic' to provide mariners with essential information for safe navigation in the Arctic region.</p>
<p>Canada</p>	<p>4) The Canadian Hydrographic Service is implementing a data management system, which improves the accessibility of hydrographic data. This system will promote safe navigation and voyage planning in Arctic Waters by supporting more efficient development and maintenance processes for navigational charts and related publications.</p>
<p>Russian Federation</p>	<p>5) An analysis of the system of navigational aids for the Northern Sea Route was conducted in 2010. A draft of the book "Lights and Signs of the Northern Sea Route" in support of hydrographic services was developed. Navigational charts have been developed and are continuously being updated. Navigational data, including ice information, is being shared for NAVAREA XX and XXI.</p>