

# Arctic Marine Shipping Assessment

Gunnar Sander, August 2011

<b>1. Project / publication</b>	<p>Project: <b>Arctic Marine Shipping Assessment (AMSA)</b></p> <p>Main report: Arctic Council (2009) <i>Arctic Marine Shipping Assessment 2009 Report</i>. Akureykri: PAME, 194 pages. Direct link to main report: <a href="http://pame.arcticportal.org/images/stories/PDF_Files/AMSA_2009_Report_2nd_print.pdf">http://pame.arcticportal.org/images/stories/PDF_Files/AMSA_2009_Report_2nd_print.pdf</a></p> <p>In the process of bringing together the AMSA 2009 report (here referred to as the main report), a large body of research was created, including a range of reports resulting from activities including 13 AMSA workshops, 14 AMSA town hall meetings, the AMSA Data Survey, special reports created by maritime experts, and reviews of AMSA topics drafted by lead and contributing authors. Documents can be found at: <a href="http://www.pame.is/amsa/amsa-background-research-documents">http://www.pame.is/amsa/amsa-background-research-documents</a></p> <p>One of these activities was the making of scenarios for 2020. Documents from the scenario making process, including reports from the two scenario workshops and the consultant's final report with the scenario narratives ("The future of Arctic marine navigation in Mid-Century. Scenario narratives"), the full regional case studies and a study on Arctic marine tourism: <a href="http://www.pame.is/amsa/amsa-background-research-documents/63-scenarios">http://www.pame.is/amsa/amsa-background-research-documents/63-scenarios</a> A brochure presenting the scenarios: <a href="http://www.institutenorth.org/assets/images/uploads/articles/AMSA_Scenarios_Brochure.pdf">http://www.institutenorth.org/assets/images/uploads/articles/AMSA_Scenarios_Brochure.pdf</a></p> <p>The most general questions in the rest of the template address AMSA as a whole, while the more specific questions deal with the scenarios.</p>
<b>2. Initiator</b>	<p>The Arctic Council Ministers in November 2004 in Reykjavik asked PAME to "conduct a comprehensive Arctic marine shipping assessment as outlined in the Arctic Marine Strategic Plan under the guidance of Canada, Finland and the United States as lead countries and in collaboration with the Emergency Prevention, Preparedness and Response (EPPR) working group of the Arctic Council and Permanent Participants as relevant."</p> <p>The AMSA project engaged a consultant to facilitate the work on scenarios, Global Business Network (GBN) from San Francisco. Support for the effort was provided by Aker Arctic Technology, BP Shipping, Finnish Ministry of Foreign Affairs, Institute of the North, Transport Canada, U.S. Arctic Research Commission, U.S. Department of State and U.S. National Oceanic &amp; Atmospheric Administration.</p>
<b>3. Objective</b>	<p>AMSA was a direct follow-up to the Arctic Marine Strategic Plan which was adopted by the Arctic Council Ministers in November 2004. Key Finding # 6 of the Arctic Climate Impact Assessment (ACIA), also released in November 2004, is furthermore a reason why the Arctic Council called for this assessment ("Reduced sea ice is very likely to increase marine transport and access to resources").</p> <p>Objectives of AMSA: to better understand how the marine activities will develop in the future and what impact any increased activity will have on the environment, economy, and society in the Arctic. Based on this understanding AMSA should develop recommendations for consideration by member states and international organizations respecting measures in support of sustainable development of the marine activities.</p> <p>The purpose of the scenario project, according to the final report from GBN, was to "(...) systematically consider the long-term social, technological, economic, environmental and political impacts on Arctic marine navigation of Key Finding #6 of the ACIA (...)".</p>

	<p>Further, the scenarios were “meant to summarize and communicate a set of plausible and different stories of the future in which critical uncertainties play out in ways that challenge planning decisions being made in the present.”(p2).</p> <p>The project leader of AMSA in a later presentation has highlighted the identification of key drivers and selection of the most influential ones as the key questions for the scenario process.</p>
<b>4. Geographical delimitation</b>	<p>The circumpolar marine Arctic.</p> <p>AMSA also made regional studies, particularly regional futures (part of the scenario project) and regional environmental case studies.</p>
<b>5. Time horizon</b>	<p>An introductory chapter of the main report describes the history of Arctic shipping, from the early explorations until today. The time-horizon for AMSA was defined in the mandate as 2020, which can be seen from the perspectives in the main report. Nevertheless, the scenario project considered a time span up to 2050. The narratives are divided in three periods: 2009-2020, 2020-2035 and 2035-2050.</p>
<b>6. Thematic focus</b>	<p>AMSA focuses on shipping in the Arctic. “Ships” include all types of marine transport except naval vessels. Infrastructure needs, impacts, marine safety, environmental protection and governance are main issues.</p>
<b>7. Images of the future</b>	<p>Four scenarios were made (see figure below). The basic framework for them is the result of the matrix created by the two framing factors considered to be most important and most uncertain: the level of demand for Arctic resources and the degree of stability of rules for marine use (see also q. 11 on methods). Overview of scenario content and full narratives can be found in the final report from GBN referred under q. 1.</p> <div style="text-align: center;"> <p><b>Diagram Description:</b></p> <p>The diagram is a 2x2 matrix with 'DEMAND' on the vertical axis and 'GOVERNANCE' on the horizontal axis.</p> <ul style="list-style-type: none"> <li><b>Vertical Axis (DEMAND):</b> <ul style="list-style-type: none"> <li>Top: MORE DEMAND</li> <li>Bottom: LESS DEMAND</li> </ul> </li> <li><b>Horizontal Axis (GOVERNANCE):</b> <ul style="list-style-type: none"> <li>Left: UNSTABLE &amp; AD HOC</li> <li>Right: STABLE &amp; RULES-BASED</li> </ul> </li> <li><b>Quadrants:</b> <ul style="list-style-type: none"> <li><b>Top-Left (Arctic Race):</b> High demand and unstable governance set the stage for a “no holds barred” rush for Arctic wealth and resources.</li> <li><b>Top-Right (Arctic Saga):</b> High demand and stable governance lead to a healthy rate of development that includes concern for the preservation of Arctic ecosystems and cultures.</li> <li><b>Bottom-Left (Polar Lows):</b> Low demand and unstable governance bring a murky and under-developed future for the Arctic.</li> <li><b>Bottom-Right (Polar Preserve):</b> Low demand and stable governance slow development in the regions while introducing an extensive eco-preserve with stringent “no-shipping zones.”</li> </ul> </li> </ul> </div> <p>In addition to these circumpolar scenarios, three regional studies were also undertaken for the Bering Strait region, the Canadian Arctic and NW Passage, and the Northern Sea Route and adjacent areas. The systematic forward-looking elements in these are variable; the Canadian study is clearest in analyzing expected growth in maritime traffic until 2020. Otherwise they contain overviews of today’s natural and social conditions and marine uses, assessments of infrastructure, services and governance, and feasibility studies (see main report p 106 – 120 and full text in the background documents). It should be added</p>

	<p>that on the scenario workshops, participants were asked to explore the implications of each of the circumpolar scenarios for particular regions.</p> <p>A special report on Arctic maritime tourism including its future prospects was also commissioned and summarized in the main report.</p> <p>While the scientific and technical documents in AMSA referred here were independent, the main report was an agreed text negotiated by the participating governments. The full scenario narratives were only presented in the final report from GBN. In the main report, the scenario making process, some drivers and uncertainties, the scenario framework and an overview of the scenarios were presented. The rest of the chapter on scenarios and futures discusses expected developments on tourism and challenges for trans-Arctic navigation, before the regional studies are presented. General conclusions are drawn in the chapter summary, most notably that natural resource development and regional trade are the key drivers for increased Arctic marine activity, and that Arctic voyages through 2020 will be overwhelmingly destinational.</p>
<p><b>8. Key driving forces</b></p>	<p>In the reports from the scenario workshops, the full range of framing factors (ap 120) with the participants’ assessment of their importance and the uncertainty related to their future development can be found. In the main report (p 93), it is summarized:</p> <p>“Among those factors deemed most important were: global trade dynamics and world trade patterns; climate change severity; global oil prices; the marine insurance industry; legal stability (governance) of marine use in the Arctic Ocean; the safety of other global trade routes (for example, the Suez and Panama canals); agreements on Arctic ship construction rules and global operational standards (International Maritime Organization); a major Arctic shipping disaster; limited windows of operation for Arctic shipping (the economics of seasonal versus year-round Arctic operations); the emergence of China, Japan and Korea as Arctic maritime nations; transit fees; conflicts between indigenous and commercial uses of Arctic waterways; new resource discoveries; an escalation of Arctic maritime disputes; a global shift to nuclear energy; and socio-economic impacts of global weather changes.”</p> <p>A separate text box at the same page summarizes “Key uncertainties from the AMSA Scenarios Effort  <i>Influences on the Future of Arctic Navigation</i></p> <ul style="list-style-type: none"> <li>• Stable legal climate</li> <li>• Radical change in global trade dynamics</li> <li>• Climate change is more disruptive sooner</li> <li>• Safety of other routes</li> <li>• Socio-economic impact of global weather changes</li> <li>• Oil prices (\$US55-60 to \$US100-150)</li> <li>• Major Arctic shipping disaster</li> <li>• Limited windows of operation (economics)</li> <li>• Global agreements on construction rules and standards</li> <li>• Rapid climate change</li> <li>• China, Japan and Korea become Arctic maritime nations</li> <li>• Transit fees</li> <li>• Conflict between indigenous and commercial use</li> <li>• Arctic maritime enforcement</li> <li>• Escalation of Arctic maritime disputes</li> <li>• Shift to nuclear energy</li> <li>• New resource discoveries</li> <li>• World trade patterns</li> <li>• Catastrophic loss of Suez or Panama canals</li> <li>• Maritime insurance industry engagement”</li> </ul>
<p><b>9. Uncertainties/wildcards</b></p>	<p>“Wild cards” were discussed as a separate topic at both the scenario workshops. The full list of key-words can be found in the reports from the workshops. The most important ones are listed in a separate section of the final report from GBN under the headings</p>

	<p>environmental challenges, political tensions, the ice, technology breakthroughs and positive potentials. Some of them are included in the scenario storylines. There is no separate presentation with further elaboration of wildcards in the main report (except at page 140), but several are used in the discussion in the text.</p> <p>The project leader used wildcards frequently in his presentations and emphasized these:</p> <ol style="list-style-type: none"> <li>1. Multiple ocean use conflicts, highlighted by conflicts between whales and Arctic marine operations in the Bering Strait</li> <li>2. Unknown effects of ship emissions NO<sub>x</sub>, CO, soot etc in the Arctic and related new regulations (see main report at p. 140)</li> <li>3. Changes in sovereignty and jurisdiction over maritime space</li> <li>4. New resource discoveries</li> <li>5. New technologies e.g. on ship design</li> <li>6. Offshore terminal – onshore oil</li> <li>7. Arctic marine tourism growth</li> </ol>
<p><b>10. Accomplishment and collaboration</b></p>	<p>The scenario process was open for invited participants: experts from various disciplines and stakeholders that mostly represented the shipping industry (a few exceptions like WWF and Saami Council). At the first scenario creation workshop in San Francisco April 2007, there were 25 participants mostly from North America. The second workshop in Helsinki July 2007 was attended by 24 participants, a majority from Europe and Russia. In total, 40 individuals are acknowledged in the final GBN report, 60 in the main report.</p> <p>The scenarios are the result of the work of the participants. The basic logic came from the first workshop, while the second workshop mostly worked within this framework to refine the scenarios. The final storylines were written by the consultant, GBN, based upon material created by the participants at the workshops.</p>
<p><b>11. Method</b></p>	<p>The study used a classical scenario approach where scenarios are used as the basis for strategic thinking and planning (see consultant’s introduction in final project report).</p> <p>After identifying the issue to explore, it starts with identification of driving forces, and goes on discussing to which degree they are predetermined or uncertain, and their importance in framing future events. This analysis is the basis for creating the scenario framework, described in the main report (p 94): “The AMSA scenarios work created six potential matrices for framing a set of scenarios. Pairs of critical factors or uncertainties were chosen and crossed to produce candidate frameworks:</p> <ul style="list-style-type: none"> <li>• Indigenous Welfare <i>crossed with</i> Resource Exploitation</li> <li>• New Resource Development <i>crossed with</i> Maritime Disasters</li> <li>• Climate Change <i>crossed with</i> Level of Trade</li> <li>• Indigenous People <i>crossed with</i> Rise of Asia</li> <li>• Legal Regime <i>crossed with</i> Value of Natural Resources</li> <li>• New Resource Development <i>crossed with</i> Legal Regime</li> </ul> <p>The strengths, weaknesses and applicability to the Arctic of each of these matrices were discussed. Through brainstorming and plenary discussions, two primary drivers and key uncertainties were selected as the axes of uncertainty for the final AMSA matrix” (see illustration above)</p> <p>The final use of the scenarios, according to GBN’s presentation of their methodic approach, was to identify the implications of them for the issue under consideration, and work out options for action. At the workshops, this apparently was a part of the reflections over the scenarios and identification of research topics.</p>
<p><b>12. Sources of information</b></p>	<p>The scenario process as such was completely qualitative with no specific data underpinning it. Regarding AMSA as a whole, the survey undertaken of Arctic shipping 2004 is an important data source from the project (a database has been created).</p>
<p><b>13. Strengths</b></p>	<p>AMSA is a comprehensive report on Arctic shipping. It contains a lot of useful</p>

	<p>information and is the result of a process involving a large scientific community, governments and stakeholders. The major test of its utility is probably the follow-up of the recommendations (see question 15).</p> <p>AMSA is the Arctic Council report with the clearest and most elaborated approach to explore the future of the topic under examination. The scenario process is transparent through the documentation from the workshops; it is possible to trace the initial ideas brought up by the participants and the choices made. This documentation makes it possible to revisit them and use the ideas in further work on the maritime future of the Arctic.</p> <p>Evaluating the scenarios, they managed to make different stories as a response to a relevant question about the future of the maritime Arctic. In this respect, they challenged creativity, could stimulate “out-of-the-box thinking” and invite to testing strategic futures. The four storylines are also reasonably consistent within the logic given by the framework.</p> <p>The advantage of having a negotiated text as the main report from the assessment as a whole, representing the views of the Arctic governments, is that it should ensure a better backing of the report and in particular its recommendations.</p>
<p><b>14. Weaknesses</b></p>	<p>When the scenarios were presented to the Senior Arctic Officials, this writer witnessed the Norwegian SAO raise strong criticism against the most conflict-oriented scenarios; should we believe in and adopt them?, he asked. This illustrated the tension between the scientific/technical and the political level in an assessment process. But it also can be seen as a result of low plausibility of the scenarios, resulting in them being disregarded as suited for strategic deliberations.</p> <p>The problem first of all was the understanding of the governance-axis that opened up for controversial content in the scenarios “Arctic race” and “Polar lows”. Particularly “Arctic race” completely disregards the UN LOSC and national sovereignty over maritime spaces and convey a diffuse idea about Arctic actors staking their claims as if there were no borders or rules of the game; the whole Arctic seems open for anyone to exploit, even accompanied by military forces. A European reader may also smile when reading about traditional “bad guys” in American foreign policy like international terrorism and North Korea creating problems in the Arctic. If the scenarios should have portrayed a more plausible conflict-oriented future, maybe even with military tensions, the storylines should have been developed differently to be plausible.</p> <p>In the subsequent years, more and more actors have rejected the idea of a race for the Arctic’s resources and argued that it is more likely that there will be an orderly development. This was also a view in 2008, ref. for example the Ilulissat declaration. On the other hand, one can speculate if scenarios like this may have contributed to convince more people that a peaceful an orderly development in the Arctic is necessary.</p> <p>The disadvantage of having a negotiated text is that it can limit the freedom of the participating experts and the reporting of their findings. The practices of the Arctic Council when it comes to organization of assessment processes and the role of scientists vs. policy makers vary between the working groups. ACIA is one of the clearest examples of how both have maintained their integrity; the assessment reports were made by scientists, while a separate policy document was negotiated and endorsed by the ministers.</p>
<p><b>15. Attention and significance</b></p>	<p>The study is remarkable in setting up a comprehensive study of shipping in the <i>whole</i> Arctic and has been referred to frequently.</p> <p>AMSA ended up with 17 recommendations for future actions, grouped under the headings Enhancing arctic marine safety, Protecting Arctic people and the environment and Building the Arctic marine infrastructure. The follow-up of these recommendations have been monitored carefully by PAME. A direct result of the recommendations is the negotiations and later adopted agreement on Search and rescue in the Arctic (2011) – the</p>

	<p>first free standing international treaty negotiated with the Arctic Council as the vehicle for negotiations. The report also has been instrumental in initiating the revision of the Polar Code in IMO, though more detailed research remains to be done on exactly how. These are the probably two most important results up till now.</p>
<p><b>16. Relevance for the Fram Centre</b></p>	<p>AMSA is highly relevant for the Fram Centre because of its thematic focus and as a source of information. The documentation of the scenario process is useful as a background for making new scenarios or for other work on the future of shipping in the Arctic.</p> <p>The written AMSA reports raise several questions on the utility of applying scenarios. The fact that the narratives were not presented in the main report, may indicate that they were somehow dismissed (controversial? poor quality?) – or not found useful. The question is what additional insights the future-looking scenarios then did bring to the process; would the discussions of major findings like lacking infrastructure and governance mechanisms have been the same without future-looking scenarios? Would a gap-analysis of today’s situation been enough? Exactly which scenario implications were brought forward to the main report, and which strategies and recommendations came specifically out of the scenario-process? This is hard to tell only from the documents and will require interviews with key participants to be answered.</p> <p>There are a large number of experts in many disciplines that can be useful contacts. This includes the co-ordinator, Lawson Brigham, who has a personal interest in future studies.</p>