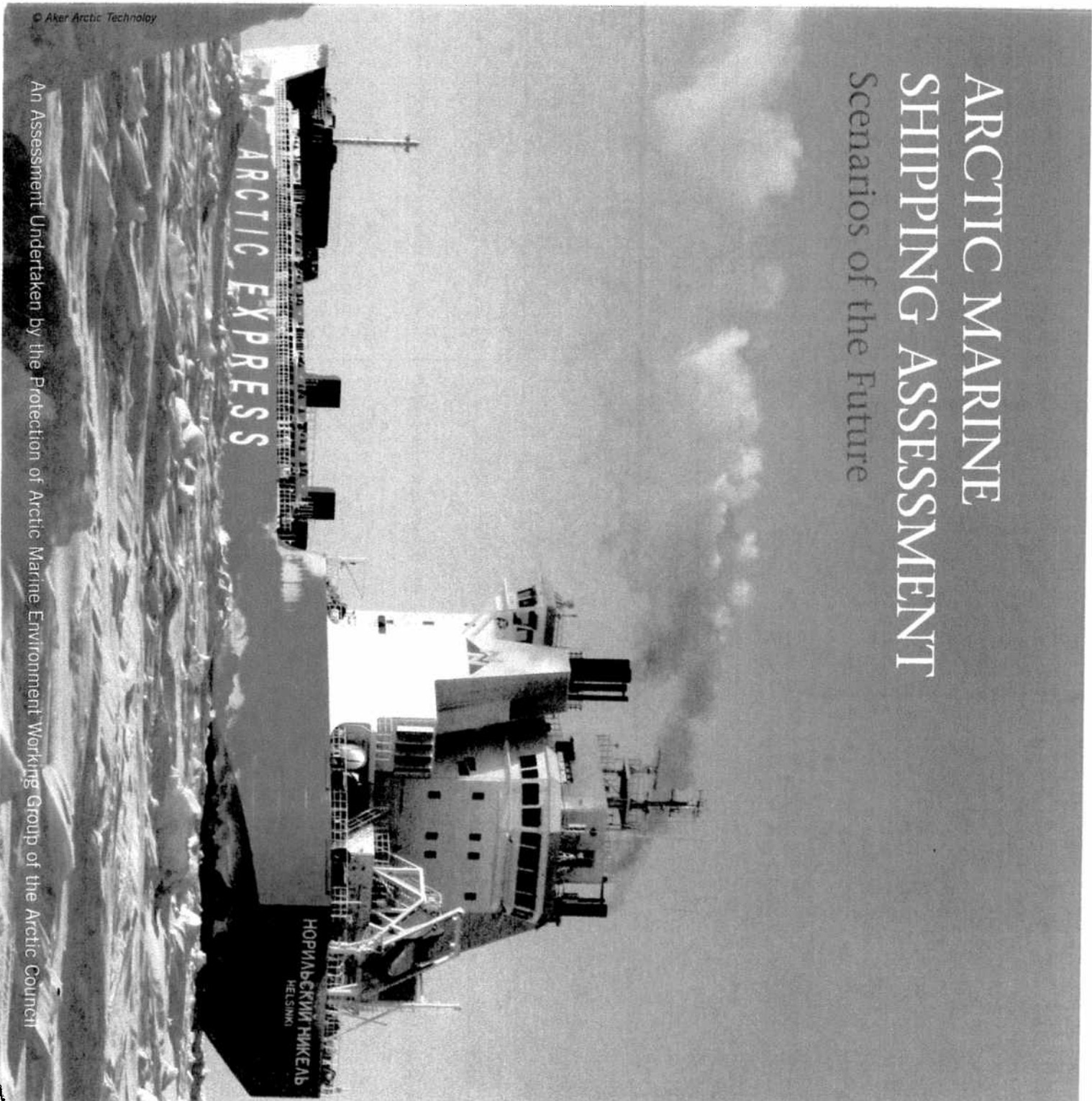


ARCTIC MARINE SHIPPING ASSESSMENT

Scenarios of the Future



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An Assessment Undertaken by the Protection of Arctic Marine Environment Working Group of the Arctic Council

Scenarios on the Future of Arctic Marine Navigation in 2050

Arctic Marine Shipping Assessment (AMSA)

The Arctic Council – an intergovernmental forum that addresses environmental protection and sustainable development issues, as well as challenges faced by the Arctic governments and people – is conducting an assessment of current and future Arctic marine activity. The lead countries for AMSA are Canada, Finland and the United States with the Arctic Council's working group on Protection of the Arctic Marine Environment (PAME) responsible for the assessment. A key element of AMSA is the creation of a set of scenarios, or plausible futures, for Arctic marine navigation.

Scenario Framework

The high-level scenario summaries were created at two AMSA/PAME Scenarios Workshops held in San Francisco (April 2007) and Helsinki (July 2007). The workshops were designed and facilitated by Global Business Network of San Francisco. Through brainstorming, work in small groups and spirited plenary discussion, workshop participants collectively agreed that the two factors detailed below – Governance and Resources & Trade – are the most important and uncertain in shaping the future of Arctic marine navigation in mid-century. By crossing these two critical uncertainties, participants formed the scenario matrix illustrated to the right. This framework also allows the incorporation of many of the uncertainties explored at the workshops, while still creating four different scenario spaces that are plausible and relevant to the range of Arctic stakeholders. When completed, the scenario stories will be posted on the PAME website, www.pame.is.

GOVERNANCE

This uncertainty axis describes the degree of relative *Governance stability*, both within the Arctic region and internationally.

← **Less stability** implies shortfalls in legal structure and transparency, as well as a propensity for stakeholders to work on a more unilateral basis rather than by collaborating in a cooperative, international fashion.

→ **More stability** implies not only efficiently operating legal and regulatory structures, but an international atmosphere more conducive to collaborative and cooperative development.

RESOURCES & TRADE

This uncertainty axis describes the level of demand for Arctic natural resources and trade. Framing this in a global context exposes the scenarios to a broader range of potential market developments, such as the rise of Asia or political instability in the Middle East.

↑ **More demand** implies exactly that – higher demand from more players and markets around the world – for natural resources and commerce in the Arctic.

↓ **Less demand** is also straight forward, with fewer global players interested in utilizing Arctic commerce and natural resources.

MORE DEMAND

RESOURCES & TRADE

STABLE & RULES-BASED

Arctic Race

High demand and unstable governance set the stage for a "no holds barred" rush for Arctic wealth and resources.

Arctic Saga

High demand and stable governance lead to a healthy rate of development that includes concern for the preservation of Arctic ecosystems and cultures.

Polar Lows

Low demand and unstable governance bring a murky and under-developed future for the Arctic.

Polar Preserve

Low demand and stable governance slow development in the regions while introducing an extensive eco-preserve with stringent 'no-shipping zones'.

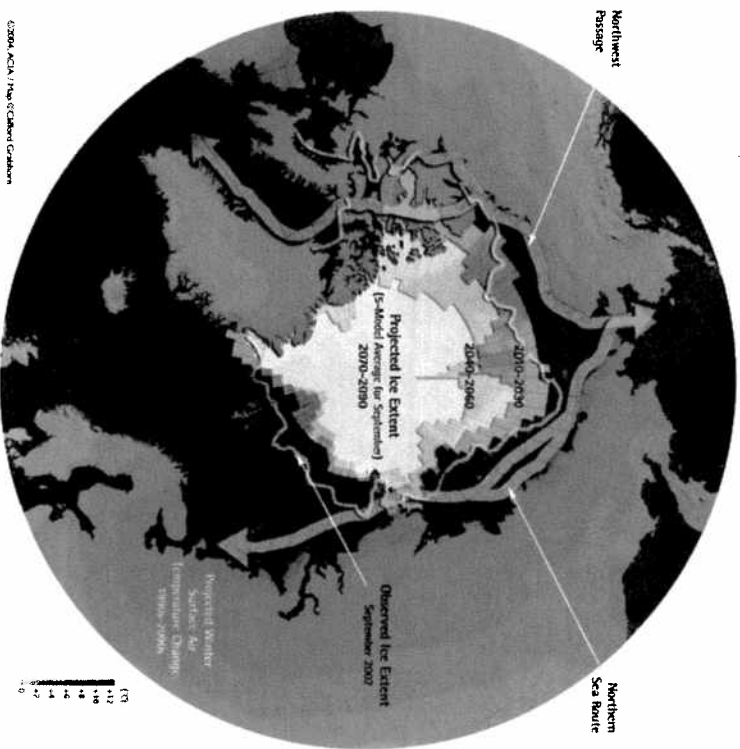
G O V E R N A N C E

LESS DEMAND

Development of the AMSA scenarios is being facilitated by Global Business Network of San Francisco. Support for this effort has been 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 & Atmospheric Administration.

Arctic Climate Impact Assessment Key Finding #6:

"Reduced sea ice is very likely to increase marine transport and access to resources."



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Memorandum in support of funding for the Arctic Council's Arctic Marine Shipping Assessment

Background - The US is a lead country (along with Canada and Finland) in the Arctic Council's *Arctic Marine Shipping Assessment* (AMSA). The Arctic Ministers requested that the Council's Working Group PAME (Protection of the Arctic Marine Environment) organize & lead AMSA on behalf of all the Arctic States, Permanent Participants (Arctic indigenous groups) and observers. AMSA is to be a comprehensive and integrated Arctic marine shipping assessment planned for completion at the end of 2008. AMSA is a natural follow-on to two key Arctic Council reports: the Arctic Climate Impact Assessment (ACIA) and the Arctic Marine Strategic Plan (AMSP). More information can be found on the PAME web site [www.pame.is].

AMSA includes a number of key tasks: developing a baseline data base for all ships in the Arctic Ocean during the calendar year 2004; reviewing the geography & history of Arctic marine transportation; reviewing the indigenous uses of the Arctic Ocean; developing scenarios of future Arctic Ocean marine activity for 2020 and 2050; documenting the current & future environmental, social and economic impacts of Arctic marine activities; reviewing current Arctic infrastructure and anticipated needs (for example the need for ice information, environmental monitoring and oil spill response); and, providing the PAME representatives & Senior Arctic Officials with a robust list of key findings.

It is envisaged that the AMSA will contain the following approved chapters:

- 1-Introduction & Geography
 - 2-History & Governance of Arctic Marine Use
 - 3-Levels of Arctic Marine Traffic ~ Historic Snapshot/Ship Count
 - 4-Past & Recent Indigenous Community Arctic marine Use
 - 5-Scenarios and Futures of Arctic Marine Activity (2020 & 2050)
 - 6-Environmental Impacts of Arctic Marine Activity
 - 7-Social & Economic Impacts of Arctic Marine Activity
 - 8-Current Arctic Infrastructure and Anticipated Needs (Search & Rescue, Environmental Response, Ports, Ice Centers, Monitoring, Harbors of Refuge, Aids to Navigation, etc.)
 - 9-Assessment Findings (Recommendations to the Arctic Ministers)
- Appendix: AMSA Arctic Research Agenda

At present, most support for AMSA from the United States comes from the US Arctic Research Commission (USARC) through support of the US Chairmanship, travel support, and some direct expenses. Additional support, in-kind and direct, has come from the USDOT, NOAA and the Department of the Interior's MMS. Canada and Finland, the other co-chairs, have made some contributions and other contributions by Arctic states may be forthcoming.

The Institute of the North, now a contractor to USDOT for Arctic infrastructure studies, estimates that between \$500,000* and \$1.2 million in federal grants is needed for

AMSA-supported work. Funding could be provided through continuation of the existing contract, or as an agency contribution directly.

At a minimum request of \$500,000, we could fund the following:

Continued work on AMSA scenarios with Global Business Network	\$60,000
Fund US author on the Indigenous people (Chapter	\$80,000
Regional analysis of the Bering Strait region	\$60,000
Fund travel for US experts on Chapters 5, 6, 7 & 8	\$100,000
US contribution to editing and production of assessment document	<u>\$200,000</u>
Sub total	\$500,000

With additional funding:

Current Arctic Infrastructure and Anticipated Requirements	\$260,000
Potential Social and Economic Impacts of Current/Future Traffic	\$195,000
GIS for Integration of Data/Arctic Maps	<u>\$260,000</u>
Sub total	\$715,000

Total **\$1.2 million**

* Funds are shown without the 20% Institute of the North overhead to administer the grant