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Summary of Recommendations

Navigating the North: An Assessment of the Environmental Risks of Arctic Vessel Traffic





As the Arctic experiences profound environmental changes, including a rapid decline in sea ice extent, thickness and duration, the region will also see an increase of vessel traffic and industrial activity. Vessel traffic in remote and challenging Arctic waters poses substantial safety and environmental risks, including possible impacts on the cultural practices and food security of Arctic indigenous peoples.

*The maritime community has already made significant strides toward addressing some of these challenges. For example, the International Maritime Organization's (IMO) Polar Code – which entered into effect in January 2017 – establishes a suite of new standards and practices designed to increase safety and environmental protection in high-latitude seas, including the Arctic Ocean. However, substantial gaps remain. Ocean Conservancy's report, **Navigating the North: An Assessment of the Environmental Risks of Arctic Vessel Traffic**, discusses these gaps and recommends additional protections to address potential adverse impacts of vessel traffic in Arctic waters. The full report can be found at www.oceanconservancy.org/arcticvesseltraffic.*

Recommendations

Mitigate specific environmental risks posed by Arctic vessel traffic

Not all threats to the Arctic marine environment posed by vessel traffic are addressed by existing governance mechanisms. Implementing targeted safeguards will help protect the integrity of the ecosystem, including those who rely on it for subsistence needs. The table on the following pages summarizes recommended actions to reduce specific environmental threats posed by vessel traffic in Arctic waters.

Some mitigation measures can address multiple threats. For example, switching from heavy fuel oil (HFO) to distillates or liquefied natural gas (LNG) will reduce both the adverse effects of oil spills and harmful sulfur and black carbon emissions. Spatial protection measures like areas to be avoided (ATBAs) can protect key areas from oil spills and other discharges, protect marine mammals from ship strikes and enhance mariner safety.

Some Arctic waters merit multiple types of specific protective measures. In such circumstances, Particularly Sensitive Sea Area (PSSA) designation may be warranted. For example, a PSSA might combine routing measures, vessel traffic monitoring requirements, fuel use and carriage restrictions, and emissions controls to reduce vessel-related impacts to sensitive marine environments. A 2013 analysis of possible Arctic PSSA designation concluded a core sea ice area in the central Arctic Ocean would likely be an effective and feasible measure for protecting the central Arctic Ocean ecosystem. While there is relatively little vessel traffic in the central Arctic Ocean at present, designation of a PSSA in that region could help ensure that vessel-related impacts do not cause irreparable harm as traffic increases in the years ahead.

Environmental Threat	Recommendations
<p>Oil spills</p>	<p>Establish routing measures to decrease the likelihood of ship groundings and other incidents and protect ecologically valuable or sensitive areas from oil spills.</p> <p>Amend MARPOL Annex 1 to phase out the use of HFO in the Arctic.</p> <p>Conduct a study on carriage of HFO and crude oil in the Arctic region to determine the amount of heavy and medium fuels carried as cargo in the region and explore possible mitigation measures.</p> <p>Determine the possible long-term environmental, economic and pragmatic aspects of constructing and operating LNG-operated vessels, bearing in mind both environmental benefits and drawbacks.</p> <p>Develop a long-term shipping fuel/propulsion option for vessels operating in the Arctic that mitigates the risk of spills and reduces reliance on fossil fuels.</p>
<p>Emissions</p>	<p>Pursue establishment of an Arctic Emission Control Area (ECA) to address the magnified warming impacts of black carbon in Arctic regions.</p> <p>Encourage the IMO to commit the shipping sector to expedited greenhouse gas reductions that align with the goals of the Paris Agreement.</p> <p>Amend MARPOL Annex 1 to phase out the use of HFO in the Arctic to mitigate its emissions impacts.</p> <p>Establish a long-term vision for fuels, and technical and operational measures used by vessels in the Arctic to reduce harmful emissions.</p>
<p>Discharges</p>	<p>Use future revisions to the Polar Code or other regulatory mechanisms to require treatment standards for graywater in the Polar Code region.</p> <p>Determine the costs, benefits and means of implementing more stringent requirements for sewage (and graywater) treatment in Arctic waters for passenger vessels traveling in the Polar Code region.</p> <p>Pursue creation of sewage and/or graywater no-discharge zones in relevant Arctic waters.</p> <p>Support the build-out of proper port reception facilities for wastewater in Arctic ports located in areas where waste management is feasible.</p> <p>Modify MARPOL Annex IV or explore another mechanisms to require sampling, monitoring and record-keeping of sewage (and graywater) discharges in Arctic waters.</p>

Environmental Threat	Recommendations
<p>Invasive Species</p>	<p>Enhance national and collaborative scientific monitoring and assessments of ballast water and hull fouling invasion risks.</p> <p>Develop an Arctic-specific regional plan to address and assess the risk of ballast water as a vector for species invasion and consider more stringent treatment and/or enforcement standards.</p> <p>Develop an Arctic-specific plan to assess and address hull fouling risk and mitigation measures considering possible mandatory regulations for Arctic ports or more stringent hull-cleaning requirements.</p> <p>Conduct a scientific review of available antifouling agents and rate their effectiveness in an Arctic context.</p>
<p>Ship Strikes and Noise</p>	<p>Work with indigenous communities and the scientific community to identify and map key habitat areas that could be particularly affected by marine noise or transiting vessels. Ensure the information generated by this effort is readily available to ship owners and operators.</p> <p>Ensure noise assessments address not only vessel traffic noise, but also the cumulative effect of all noise impacts, including seismic surveys and other relevant noise sources.</p> <p>Encourage development of a mechanism for compiling and distributing information to mariners regarding high concentrations of marine mammals to assist in compliance with Polar Code marine mammal regulations. This information should include both historic data and – whenever possible – real-time data.</p> <p>Implement speed limits and/or routing measures – such as traffic lanes or ATBAs – to decrease the probability of vessel strikes and to reduce noise in high-risk areas. These measures might be seasonal in nature depending on the habits of marine mammals. Compliance must be monitored and enforced.</p> <p>Ensure subsistence hunters and local communities have the ability to communicate with vessels in the region.</p> <p>Consider requiring vessels that intend to operate in polar waters – particularly new builds – to meet stringent ship-quieting standards.</p> <p>Determine how economic incentives – such as port fees and other measures – might be used to promote ship-quieting technologies in Arctic waters.</p>

Leverage broader governance mechanisms to reduce risk and strengthen environmental protections

The Polar Code is unquestionably a major step in the attempt to strengthen governance of Arctic vessel traffic. However, it is not a silver bullet: It does not and cannot directly target all the safety and environmental challenges related to Arctic vessel traffic, does not apply to all vessels that operate in the Arctic and does not fully address broader concerns about lack of infrastructure and information in the region. There are also challenges with respect to the interpretation and enforcement of the Polar Code.

There are many opportunities to fill gaps and strengthen measures designed to minimize the impacts of vessel traffic in the Arctic. For example, IMO processes could be used to develop Arctic-specific standards for vessels that are not subject to existing Polar Code provisions. Continued collaboration at international forums such as the IMO and Arctic Council provides opportunities to create or inform a variety of policy solutions that are international in scope. And the maritime industry itself can work collaboratively with other stakeholders to develop and implement additional safety and environmental protection measures. The cruise industry, for example, could build on existing efforts to establish best practices for tour vessels sailing in the Arctic. All these avenues — and others — offer opportunities to address possible safety and/or environmental concerns and enhance and harmonize governance of Arctic vessel traffic.

Include Arctic communities in decision-making processes

It is critical to include Arctic communities — particularly indigenous communities — as full participants in decision-making processes. Local and traditional knowledge provides vital information. Community input can help ensure that subsistence practices and other aspects of indigenous cultures are not exposed to undue risk from increasing vessel traffic or from ill-informed attempts to regulate that traffic. Although indigenous representatives have an established role at the Arctic Council, there is currently no Arctic indigenous representation at the IMO. Seeking input from indigenous communities with respect to better understanding and protecting marine mammals — whether via ATBAs, traffic lanes, speed limits, communications systems or other measures — can help protect the marine environment and food security, as well as reduce the risk of conflicts between subsistence hunters and other mariners.

Enhance Arctic maritime infrastructure

Enhancement of Arctic maritime infrastructure can improve safety, reduce user conflicts, prevent incidents and aid in more effective accident response. Key concerns include the lack of up-to-date charting and other information that aids safe navigation and the lack of physical and incident response infrastructure.

Expansion of physical and response infrastructure — such as new ports, search and rescue assets, icebreakers and tools to enhance incident prevention and response — is critical. Ensuring local communities have access to adequate prevention and response assets is particularly important. Development of better communication infrastructure and use of emerging technologies have the potential to greatly improve navigational safety, vessel monitoring systems and environmental protection in the Arctic. At the same time, it is necessary to consider limitations imposed by the Arctic environment. If a port community has no practical waste disposal options, development of vessel waste reception facilities may be impossible.

National development of Arctic maritime infrastructure is expensive and time-consuming, and will be weighed against competing national priorities. Future Arctic infrastructure projects will require close cooperation amongst Arctic countries and/or investment of government and private sector funds. In the meantime, industrial actors in the Arctic (e.g., tourism, oil and gas, or mining businesses) should supply the infrastructure necessary to support their operations.

As Arctic maritime infrastructure is developed and/or enhanced in the future, considerations of local indigenous communities and the environment must be addressed to ensure growth occurs in a safe and sustainable manner.

Continue to conduct vessel traffic studies of the region

Continuing study of Arctic vessel traffic will help illuminate trends as the environment and global economy change. Currently, most vessel traffic data is proprietary and expensive to obtain. Development of vessel traffic data-sharing initiatives like the Arctic Council's Arctic Ship Traffic Data project – which aims to share vessel traffic activity data among all Arctic Council nations – should be encouraged. This project will give Arctic Council nations easier access to previously costly data, which will benefit not only these nations but also all interested stakeholders.

At the same time, vessels should be encouraged to provide more accurate and refined automatic identification system (AIS) data. Currently, many vessels report out incomplete or incorrect data about their vessels. Relevant national government agencies should work with vessel operators to ensure vessels provide correct and complete data to facilitate a better understanding of vessel activity.

Support scientific study, observation and monitoring

In addition to further compiling, sharing and applying data that directly informs shipping, continued investment in scientific observation and monitoring must occur to better understand possible risks of shipping in a changing Arctic (e.g., invasive species pathways). This includes data that integrate indigenous knowledge and monitor variables relevant to subsistence uses. Expanded investment in science observations and monitoring helps address key questions related to the concerns of local communities, climate change and environmental impacts. It is also necessary to provide foundational data for planning and adaptive management, especially in this rapidly changing part of the world.

Address Arctic vessel traffic in the broader context

The commercial and industrial activities that drive growth in Arctic shipping will not occur in isolation. Instead, they often overlap in time and/or space, possibly resulting in cumulative effects generated from overlapping impacts. Resource extraction will create new infrastructure and may promote other types of industrial development. For example, a new oil and gas operation or mine may generate a new port facility, which would promote community growth and trigger the need for additional vessel support. In addition, local impacts from commercial and industrial operations co-occur with impacts from global climate change – including warming temperatures, diminishing sea ice and increasing ocean acidification. Understanding and minimizing adverse cumulative effects to Arctic communities and the Arctic ecosystem should be prioritized. Doing so will require coordinated and integrated planning and management.



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