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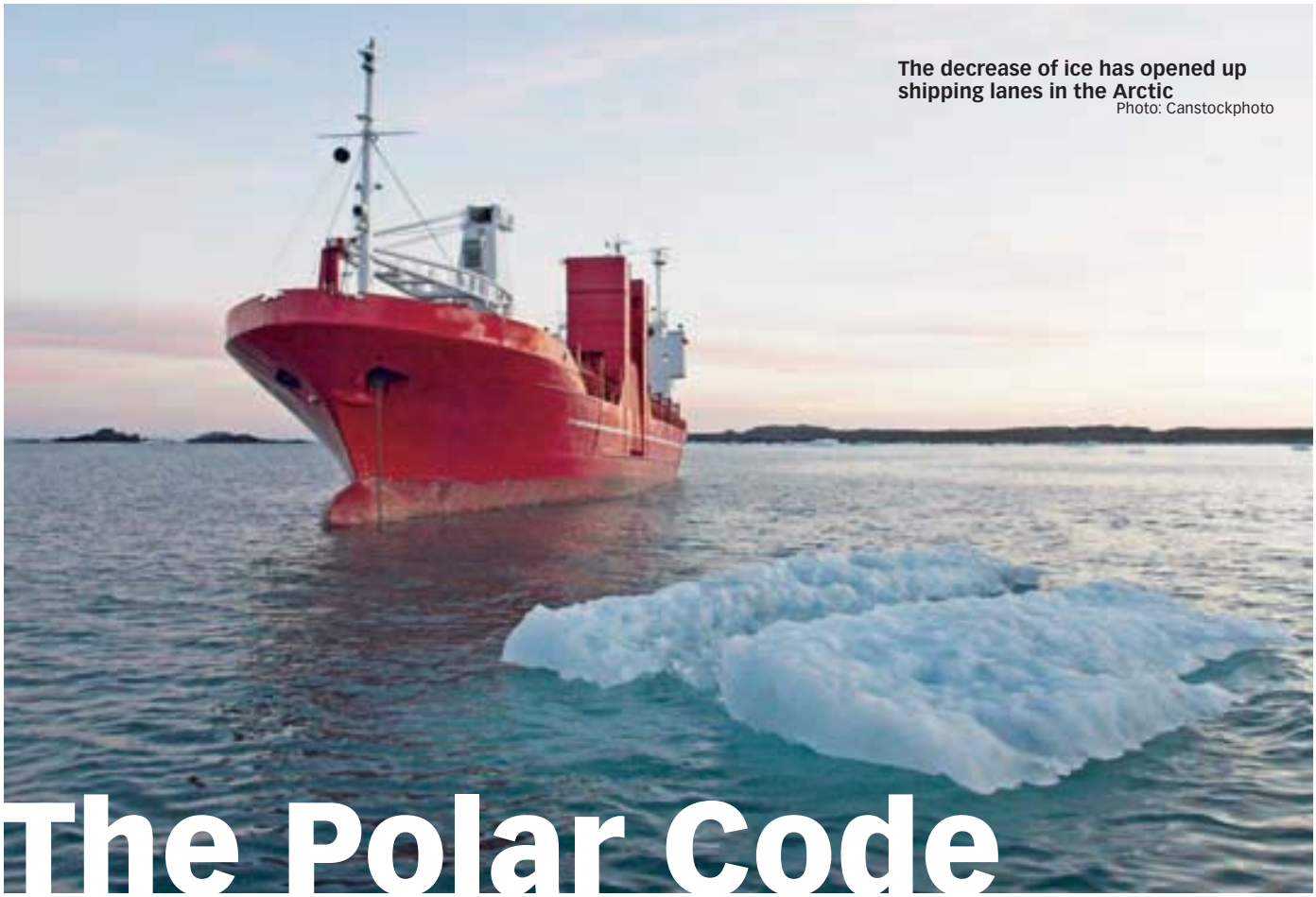


The decrease of ice has opened up shipping lanes in the Arctic
Photo: Canstockphoto

The Polar Code

SHIPPING TRAFFIC **The decrease of polar ice as the planet warms has opened up the Arctic region to a massive increase in shipping traffic, which now threatens to cause a proportionately greater environmental impact, writes David Phillips, editor of the Journal of Ship Hull Performance**

Due to greater human activity, the poles are under increasing threat. Those who are genuinely concerned about the sustainability of the planet would like to see this human activity managed to allow the poles to remain as unharmed as possible.

These areas are also particularly sensitive to pollution. The ice in the polar zones also creates a hazardous and harsh environment for ships, which heightens the possibility of wrecks, spills and other forms of environmental damage.

Many feel the answer to the environmental impact of increased shipping traffic in the Arctic region includes a strict, mandatory "Polar Code" enacted at IMO level and covering safety and the environment. The drafting and adoption of such a code is proving to be frustratingly slow – too slow to keep up with the potential harm it is designed to prevent. The IMO Subcommittee on Ship Design and Equipment (DE), at its 56th session in February 2012, (DE 56), postponed action on the environmental section of the Polar Code for another year.

The development of special provisions for shipping operating in polar regions can be traced back to the early 1990s. In 2002, the IMO approved its voluntary "Guidelines for Ships Operating in Arctic Ice-Covered Waters", MSC/Circ.1065/MEPC/Circ.399. The Antarctic was included in the voluntary guidelines in 2010. For years, member states of the IMO with particular interests in the safety and environmental aspects of shipping in polar waters have been urging the development of a mandatory code covering these aspects. In 2009, the IMO's Maritime Safety Committee assigned the task of coordinating the development of a mandatory Polar Code to the DE Subcommittee.

Diminution of Arctic sea ice

The change in the world's climate is particularly noticeable in the Arctic, with temperatures rising almost twice as quickly as those in the rest of the world. Every year some 37,500km^2 of ice are lost. Thickness and extent are on the decline.

Projections for the disappearance of ice from the Arctic Ocean have changed drastically over the last few years. It is now expected that ice will be gone from the area in the summer months as soon as 2030-40.

Arctic shipping lanes – an economically inviting alternative

Recently, large areas of ice have been disappearing during the Arctic summer. This has resulted in an opening up of the shipping lanes in the region. In 2008 for the first time both the Northwest Passage through the Canadian Arctic, and the Northern Sea Route in the Russian Arctic were in operation. The Arctic route can reduce sailing distances by as much as 25 - 40% compared with routes via the Suez Canal or Panama Canal, depending on destinations.

Currently some 3,000 vessels operate in the Arctic Ocean, making about 15,000 voyages per year. These figures are predict-

ed to increase considerably in the next ten to 20 years.

Discovery of major natural resources
Large deposits of oil and natural gas are known to exist in the Arctic region. Other natural resources such as coal and various minerals abound in the area. This has prompted new interest in the zone, which portends a substantial increase in shipping for the purpose of exploration, exploitation and transport.

Cruise ships
The tourist industry has also greatly increased in the Arctic and promises to expand further. An increase in marine tourism means an increase in cruise ships in Arctic waters. Large cruise ships tend to use heavy fuel oil, which has a greater impact in terms of emissions and black carbon than lighter fuel oils. These vessels are also not usually designed or strengthened for ice, yet they may make trips into Arctic waters, tending to go as near to the shore as they can, and this poses risks.
These various factors all combine to make quite real the predictions of greatly increased shipping in Arctic waters in the near future.

Safety and the environment

The predicted increase in shipping activity in polar regions raises safety and environmental issues.
From a safety point of view, ships travelling in these zones are subjected to extremely harsh conditions. If they are not specially reinforced and equipped and their crews suitably trained, the chances of disaster are higher than in other regions. Ice is a great hazard, as history has shown. These risks are exacerbated by a greatly reduced infrastructure for rescue and help than in more travelled zones. Navigating polar waters offers unique challenges. Rescue in Arctic conditions is also a much more difficult and dangerous proposition. Spill response is limited. Mechanical clean-up after a spill in ice-covered water is almost impossible. Various other means of clean-up are greatly hampered by the conditions.
Environmentally, there are a number of aspects that make the polar regions particularly sensitive to pollution and environmental damage. The areas are much more pristine than more populated and travelled parts of the world. The non-indigenous species count is relatively low and new invasions would be particularly harmful. Black carbon, a component of the particulate matter (PM) emitted as a result of the partial combustion of various fuels, is considered responsible for 50% of Arctic warming. Harmful air emissions in general have a particularly harmful effect on polar regions.
The toxic leachates from biocidal antifouling hull paint on ships are a threat to all the oceans but particularly to the polar regions, which are still relatively unpolluted. Copper, heavy metals and a number of co-biocides are highly toxic and have varying permanence in the water column or sediment, thus posing a threat to the food chain and ultimately human health. Being fairly fragile, these paints are rapidly stripped off by the ice, leaving their full toxic footprint in the polar environment.
Another environmental hazard to polar waters is posed by the translocation of invasive, non-indigenous aquatic species in the form of hull-borne fouling organisms.
Distillate fuels, non-toxic hull coatings and fuel efficiency will all play a major part in keeping the polar environment as clean as possible despite an increase in ship traffic.

The Polar Code

The idea of a strict mandatory code for shipping in polar regions, agreed and enacted at IMO level, should have general ▶

appeal to the shipping industry as well as to the various governments and NGOs that have a strong interest in protecting the environment. Failure to generate and enact such a code in a timely manner at IMO level is likely to result in individual states enforcing their own regulations for shipping operating in their waters. They will undoubtedly vary from one state to another, making compliance unnecessarily complicated. A strong, uniform code enforced throughout the polar regions will in the end reduce confusion and help to bring about safe and sound maritime operations for all with due regard for these sensitive environmental zones.

The points that the Polar Code should address include the following:

- Ice strengthening of vessels to minimise disasters, including hull integrity, water tightness and general vessel fitness for sailing in polar conditions;
- Additional safety equipment required to cope with the harsh environment and reduced rescue infrastructure;
- Special local navigational considerations applicable to polar regions. Sufficient, accurate hydro-geographic information is required as a basic component to successful and safe sailing in these waters.
- Crewing of vessels and training of crews to prepare them for polar conditions;
- The mandatory use of distillate fuel and the banning of the use of heavy fuel oil;
- Stringent provision for the prevention of spillage or leakage of oil and other noxious liquids;
- Avoidance of discharge of sewage and greywater;
- Stringent regulations regarding the discharge of garbage;
- Measures to reduce the emission of black carbon, NOx, SOx and other air emissions, over and above those in force or being considered in non-polar regions. Reduction of fuel consumption and the type of fuel burned are key points;
- Reduction of underwater noise;
- Immediate enforcement of the Ballast Water Management Convention, which has not yet entered into force;
- A ban on the use of toxic antifouling systems that leach biocides or emit other highly toxic substances into the water;
- A cleaning regime ensuring that ships sailing in polar waters are cleaned of biofouling before voyaging into these areas in order to prevent the invasion of non-indigenous species.

The code will have different regulations for different classes of ship (depending on the degree of ice they have to deal with). The basic classes have not yet been agreed.

Holistic approach – safety and environment together

It can be seen that the safety and environmental measures that the Polar Code must address need to be considered all together. Otherwise safety measures and environmental measures may not work in harmony or, worse, may conflict and cancel each other out. For example, a measure taken to reduce fuel consumption may result in more underwater noise unless both factors are considered together. Or an antifouling system claiming to reduce fuel consumption may result in the discharge of a great deal of highly toxic material into polar waters. The ideal hull coating system for polar regions would be one that was not toxic, that would stand up to the harsh polar conditions and not be scraped off by contact with ice, and that also lent itself to easy removal of biofouling before any vessel ventured into polar waters. A holistic approach would take all these points into consideration.

The Polar Code will set something of a precedent for IMO regulatory instruments in that it will cover a number of disciplines and areas of interest under one code. This is particularly important in polar regions, where safety and environmental concerns must be considered in harmony. It may also set a pattern for similar IMO initiatives in the future.

Quick solutions are needed

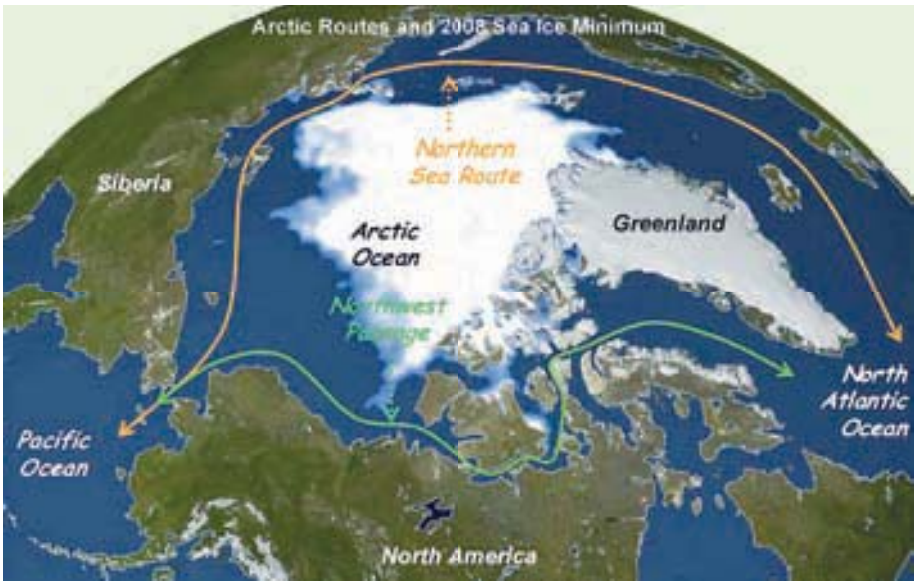
As outlined above, the various factors that make the Polar Code desirable and necessary have already come into being, yet the code is not complete. Failure to enact and ratify a strong Polar Code in a timely manner will most likely result in a fragmentary, state-by-state regulatory framework, which will prove much more burdensome to the shipping industry than a single international code covering all the major points in a uniform manner.

The drivers for increased traffic in these regions are not being postponed to cooperate with the slow progress of the Polar Code. This is why the arbitrary postponement of the code at DE 56, the intention to develop the safety measures in the code separately from the environmental measures and the lack of urgency with which the code was treated at DE 56 were particularly frustrating and disappointing to those who can clearly see the need for a strong, harmonious Polar Code ratified before the shipping traffic in the polar regions builds up significantly.

Following a unilateral decision by the DE chairperson that no decision about the environmental aspects of the code would be taken until the 57th session in early 2013 (DE 57) , it appears there will be no holistic approach as requested by many of the DE 56 delegates and no official further consideration of the environmental aspects until February 2013.

In addition to the Polar Code, other measures will be needed to protect these environments, including marine spatial planning in order to look at the larger ecosystem picture. The Polar Code will cover the shipping aspect but there are other factors such as how shipping affects oil and gas, how it affects fisheries, cumulative effects and the overall environmental picture. These points will need to be considered and environmental impact assessments undertaken.

The delays in the completion of the Polar Code need be set aside, the urgency due to the situation recognised and the whole process moved forward rapidly with due regard to the need for a holistic approach.



Map showing Arctic shipping routes Source: NOAA/National Ice Center