



Why polar code operations need a second line of defence

The case for owner/operators, insurers, vetting inspectors, and the industry supply chain to undertake independent risk assessment of polar operations as a compliment to the requirements of The International Code for Ships Operating in Polar Waters.

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Why polar code operations need a second line of defence

The case for owner/operators, insurers, vetting inspectors, and the industry supply chain to undertake independent risk assessment of polar operations as a compliment to the requirements of The Polar Code.

The Polar Regions: Understanding the Profit and the Peril!

The opening up of the polar routes offers new commercial possibilities to the maritime industry at large and the oil and gas and passenger vessel sectors in particular. These include dramatically reduced transit times and access to new markets.

In parallel with these new opportunities comes increased risk. These risks are magnified by virtue of the Polar Regions unique, diverse and remote geography and the industry's limited operational experience. All aspects of vessel operations – at sea and ashore – will need to be recalibrated to anticipate and mitigate the enhanced and novel risks now faced.

An important step in addressing these risks is of course The International Code for Ships Operating in Polar Waters (Polar Code) which entered into force on 1 January 2017. Vessels that are 500 tonnes and above transiting these regions must now comply with a swathe of new rules that cover everything from vessel design and construction, equipment carried, manning, operations, search and rescue and new training requirements. There are also rules covering the protection of the environment including the use of fuels and lubricants, ballast water and sewage discharge and disposal of chemicals.

The Code applies to new ships constructed on or after 1 January 2017. Ships constructed before that date will be required to meet the relevant requirements of the Polar Code by the first intermediate or renewal survey, whichever occurs first, after 1 January 2018.

Very good, but...

The Polar Code is an assessment piece of legislation. Its architects deserve credit for its ambitious intent. However there are limitations that pose clear and present safety risks. As with any new piece of legislation there is normally a requirement for consensus. Often this has the effect of diluting standards to achieve the points where everyone can agree. There is already debate around some of the Code's wording and calls to strengthen some of its provisions. For example, the structural requirements have been criticised for being too lax. As have the requirements for vessels engaged in single voyages and the lack of a requirement for a physical inspection of an oil tanker on a single voyage on a polar route, even if it is low or not ice classed [1]. The implementation of the Polar Code is likely to highlight 'grey areas' too. Application can be expected to vary and policing and enforcement questions will inevitably arise. These issues will only multiply as vessel traffic increases, new routes open and inexperienced vessel operators are drawn in by the commercial opportunities.



The challenges

The challenge for authorities, insurers, charterers, operators and those tasked with upholding, implementing and vetting safety standards in these regions will be monitoring and adapting to a changing situation. There is a lot that we do not understand and the industry should not expect standard solutions. Key questions that the industry needs to wrestle with include:

- Charterer and insurance industry concerns. Both communities are largely supportive of the development of Arctic shipping routes, but wary about incurring large, high profile losses. They need guidance on how to price the risk.
- The practicalities of observation based verification/compliance inspections, hurriedly requested through commercial necessity, may not always be expedient when it comes to getting to ports based in colder climates.
- Whether the industry has sufficiently skilled inspectors capable of vetting polar trades. And whether there is a pipeline of new talent ready to take over.
- Recruitment and retention of skilled seafarers, proficient in polar operations. Demand for their skills and services will increase. Crews with the relevant 'ice' skills will see their market value rise in relation to the industry as whole. Increased automation and operational pressures will see the emergence of smaller teams required to work under greater pressure.
- A newly introduced Polar Code.

Using the data to define the risk

In short, the industry will need to look at wider methods of evaluating their vessel risk to complete their risk assessments before embarking on a polar voyage. The ability to be able to research and analyse public domain data is critical.

An added layer of risk-based guidance capable of calculating risk on a case-by-case, voyage-by-voyage, basis, is imperative. This guidance needs to be rooted in hard data and compiled by skilled professionals with an affinity for ice class operations. The related question is who is best placed to deliver this?

Industry expertise

Russian and Baltic operators have decades of experience forged across the Baltic's seven recognised iced zones and Arctic trades. This experience has been boosted by the opening of new terminals in the Baltic Sea and the exploitation of natural gas resources in the Russian Arctic. To put this in perspective: The Russian Arctic is covered in ice 300 days of the year on average. The average Arctic winter ice coverage in recent years has been around the 15 million km².



It is from this pool of European and Russian talent that International Maritime Risk Rating Agency (IMRRA) has recruited its analytics team, alongside technical advisors in Greece, Russia and the UK.

IMRRA's experts are based in Greece, UK and Russia (Saint-Petersburg). IT support and the server are based in The Netherlands and run by Pharox, one of the marine industry's leading IT companies. The data aggregation team is based in Ukraine (Odessa). The team is specialist in interpreting data, statistical and quantitative analysis, and applying rules-based methods to bring new levels of insight to risk assessment and risk management.

This combination of ice class operation experience and data analysis means IMRRA is uniquely placed to support the industry in mitigating risk as it traverses polar routes.

Making the case for intelligent data use

When preparing a vessel for trading in sub-zero temperatures the relevant industry agencies will confirm that the vessel hull meets ice class requirements, the engine has the required power, the lifesaving equipment is of the requisite standard, and the crew have the correct documentation.

However, most of these agencies focus on checking and verifying static factors and conditions. They do not consider variables connected to operational, geographical, or human factors. Such considerations fall squarely on the operator to check.

In other words:

- Elements that magnify in importance when trading in extreme environments.
- Elements that ordinarily might be regarded as routine or inconsequential.
- Elements that under commercial pressure and tight deadlines, can easily be overlooked.

Contextualising the risks

Equipment doesn't drive ships. People do. This places a special emphasis on crew competence and crew chemistry. Does the operator have the right blend of skills, competence and nationalities to deliver safe and effective operations? Does the operator know enough about the crew's ability to operate under stress for prolonged periods in extreme environments? Much of the polar waters is unchartered (uncharted for nautical expression?) territory, with unknown currents and unknown depths.

From the IMRRA case files:

On a charterers request, a vessel was assessed by IMRRA to determine its suitability for ice class operations. As part of its risk assessment, IMRRA identified the deck officers' lack of skills and experience as the biggest vulnerability and one of the two most important factors requiring immediate attention. The vessel's technical operator ignored the recommendations. Two months later, this very issue incurred the operator significant demurrage charges and a huge vessel repair bill. The loaded vessel, while altering her course from the recommended route by 0.6 nautical miles, struck an unknown object damaging the forepeak and ballast tank, which caused water ingress.



Winterisation

- A failure to check that the crew's personal protection equipment is winterised, risks key operational task(s?) being compromised. Consider the implications for mooring operations, dropping anchor, and vessel maintenance if the crew do not have adequate stores of the right winter clothing quantity. Examples include: reflective winter boilersuits, appropriate headgear and the right gloves.
- Consider the risks to a vessel that is not stocked with the appropriate winter greasing, winter hydraulic oil or antifreeze. Safe navigation is undermined (hydraulic oil lubricates the radar antenna gear); the anchor windlass is likely to seize (the remote control system requires hydraulic oil); and the inert gas deck seal and pressure/vacuum breaker is liable to stick (systems that are dependent on antifreeze). There are many other examples.

Understanding differing ice conditions

Ice varies markedly throughout the polar regions. This presents novel risks that require specific skillsets.

- Mooring and loading operations in fast ice presents unique and specific challenges. Are the crew up to the task?
- Ice salinity and ice formations are key considerations. The freezing temperature of saltwater is lower than fresh water; ocean temperatures must reach -1.8 degrees Celsius (28.8 degrees Fahrenheit) to freeze.

From the IMRRA case files:

IMRRA was asked to analyse the navigational and operational challenges connected to ice salinity on a particular route. The team evaluated the vessel's preparedness in the event of an oil or fuel spill and overall contingency planning for different locations and environments and at different times of the year. Personnel were assessed not only for their oil spill response capability but first aid and survival skills.

Getting in to the detail

IMRRA has a dedicated professional risk assessment team using open sourced data and research expertise which can inspect, analyse and supply a risk rating for the vessel/operator trading in Arctic conditions.

As part of the vessel rating risk assessments it undertakes, IMRRA homes in on these apparently trivial yet hugely consequential details. IMRRA is the only company to openly publish operator risk ratings. There is a risk rating for the operator and a fleet listing for individual ships. Vessels in a fleet can vary markedly and this information helps build the operator's risk rating profile. Is an operator cutting corners? Will a company only invest in certain vessels, on certain routes for certain charterers?



IMRRA supplements its data analytics with targeted vessel inspections and use of an extensive intelligence network. This is an excellent way of both corroborating data and also challenging any inconsistencies or grey areas.

In short, IMRRA's vessel and operator risk assessments are an independent and authoritative business information tool that support business decisions, operational efficiency and mitigate risks for vessels globally, and especially those trading or looking to trade in Polar climes.

About IMRRA

IMRRA is an independent not-for-profit business that was founded in July 2013 in response to oil major and wider industry request for an independent impartial risk rating for the hydrocarbon shipping industry. The focus is on increasing the interaction between oil companies, oil terminals, ports, tanker operators and related industry organizations with enhanced decision-making data. The expanding client base includes vessel operators, charterers/traders, vetting organisations, insurance companies and other parties looking to incorporate independent and impartial risk ratings as part of their risk assessment process.

[1] See: http://www.nsra.ru/en/pravila_plavaniya/