Arctic operations – the practicalities

➔ The November meeting of the London Branch, held on HQS *Wellington*, looked at the practicalities of operating ships in the Arctic. Chaired by Cdre David Squire FNI, a panel of speakers comprising Giovanni Biasutti AFNI, ice navigator with Martech, Michael Kingston, partner at DFW LLP, and Mika Mered, from PolaRisk, gave presentations on Arctic operations from different viewpoints.

What are the risks of sending your vessel into the Arctic region? Are these risks manageable and is a thorough risk assessment enough to allow passage through Arctic regions? We may get an answer next summer, when it is planned to send the cruise vessel *Crystal Serenity* on a voyage through the North West Passage, with 1,700 persons on board.

Practical navigation

With regard to the practical navigation aspect, Capt Biasutti noted that in the Canadian part of the North West Passage, icebreakers maintain a presence until early October, gradually retreating ahead of the advancing ice cover until the navigation season is closed in early November. Sending a vessel to the Arctic region requires responsible management and detailed risk assessment. This is a concern, as there is an increasing number of non ice-class cruise vessels operating in the region off Greenland.

In the North West Passage, a large number of vessels operate regularly without completing a full passage, providing support to local communities and usually employing one ice advisor. Search-and-rescue (SAR) capability is limited, although the icebreakers are very efficiently deployed – Canada has two heavy and four medium icebreakers, the USA has one heavy and one medium.

Most charts are not WGS84-compliant and there is an urgent need for charts of appropriate scale obtained with multi-beam sonar. Canadian charts have corridors where surveys are very good, but outside these corridors there is very little data. However, navigation in ice means following leads that may take the vessel outside these corridors.

In conclusion, Capt Biasutti said that if a vessel is to be sent into the Arctic region it should be provided with all the technology that could assist the mariner to conduct a safe operation. There should also be a fully certified and experienced ice navigator on board (not just someone with a couple of months' experience). At the same time, hydrographic offices should invest in surveying the routes with modern tools.

The insurer's view

In the absence of regulation, best practice standards must be achieved in order to protect industry and the huge investments involved. The insurance industry must be involved to prevent accidents and pollution and also to create certainty and ensure liabilities are covered when accidents occur, said Michael Kingston. New exploration in the Barents Sea, Alaska and Russia represents a paradigm shift in risk analysis as we move from clear water to ice management issues, and information about ice cover is critical. There is a fundamental requirement for voluntary cooperation in standards in order to protect everyone's best interests. The development of the Polar Code is an extraordinary achievement.

Operations in the polar region present many difficulties – extreme cold can cause engine problems; it is difficult or impossible to get equipment to work; navigational aids may offer only reduced coverage; charts may be inaccurate; magnetic compasses unreliable and salvage facilities almost non-existent. Under the present system, the default position for insurers is to turn risk away, adversely affecting operators who operate best practices.

A technical group has developed a decision-making tool known as POLARIS (Polar Operational Limit Assessment Risk Indexing) that can be used for voyage planning and on the bridge, using actual ice conditions, ice class and operational mode. It aims to provide a standard approach to evaluation of risk for the expected ice conditions in any geographical area the ship intends to transit. Insurers would be much happier about insuring vessels in polar regions if vessel operators were using POLARIS.

Future of the Arctic

PolaRisk's Mika Mered looked at possible scenarios in the Arctic in 2035, given that world GDP is estimated to triple in the next 20 years and the Arctic will be the key to sustained global growth. New materials and natural resources, including the presence of oil and gas in the Arctic, will have a major effect on shipping. However, there will be calculated political risks, particularly in territorial claims.

Forecasting that the Arctic will be clear of ice for most of the year, Mika spoke of future possible routes. One idea is to have a hub area somewhere in the Bering Strait, and one in the Iceland/Norway area with a route across the North Pole clear of the North West Passage and the Northern Sea Route. Non ice-class vessels would transport cargo to these hubs, with polar class vessels using the route over the Pole between hubs for transhipment. With increasing global growth, the Arctic route is likely to become complementary to the Suez and Panama Canals.

Polar Code

On completion of the presentations, the debate was opened to the floor. Concerns were raised about the application of the Polar Code, which comes into force on 1 January 2017. SOLAS applies only to vessels on international voyages, whereas most vessels operating in the polar region are not in transit, but leave and return to the same port without visiting other countries. These vessels need to be encouraged to adopt best practice that goes beyond regulation, and it is essential to educate operators, flag states, insurers, the finance industry and port state control to fully understand best practice. The insurance industry cannot be a universal

L to r: Giovanni Biasutti AFNI, Mika Mered and Michael Kingston

backstop; we need guidelines to identify what is and what is not a sensible approach.

Concerns were raised about cruise operators sending vessels to areas not designed for them and that do not provide enough lifeboat places for the numbers on board. One person suggested that, given the fragile hull of a lifeboat, you would probably be safer in a liferaft in icy waters, as there would be less risk of damage from ice. Before venturing into the Arctic, your Polar Waters Operating Manual must show you have catered for the worst possible scenario in the conditions that may occur, including sinking, SAR capability, etc. SAR in Greenland is sparse and in the summer months depends on a single local defence force vessel. Only one small hospital is available, so the rescue and treatment of large numbers from a ship in distress would be impossible.

A question was raised about the back-up to GNSS in the Arctic. It was noted that in the Canadian Arctic, paper charts for coastal navigation are adequate, but there are no suitable large-scale charts for the area where tourist vessels want to travel. If GNSS is lost it is difficult to determine the vessel's position in the traditional way, and in high latitudes GNSS does not have sufficient accuracy.

Summing up, Cdre David Squire said it was an enlightening seminar, highlighting potential opportunities for operating in the Arctic in the future, and the practical experience of navigating ships in the Arctic. The implications for insurance and the necessity to implement Polar Code shows there is still some way to go before regular operations in the Arctic become a reality. The biggest task is in education and mitigating human error.

Captain Harry Gale FNI