Poles apart: Interview with Jillian Carson

Jillian Carson had an opportunity to assist with the development of the polar guidelines, which were a precursor to the Polar Code which is adopted by the IMO and is expected to enter into force on 1 January 2017.

After a number of years of experience out at sea and in various shore positions in the maritime field, she now works as a Technical Advisor to the Ministry of Transport of Cook Islands. From freezing Arctic conditions to being based at the balmy Cook Islands, we caught up with Jillian to find out what she has been up to.

Jillian Carson, Technical Advisor for Ministry of Transport of the Cook Islands

Q: Tell us about your work with Maritime Cook Islands (MCI).

I am currently providing technical maritime expertise to the Ministry of Transport of the Cook Islands. As such, I have interactions with MCI, with regards to regulatory oversight of the commercial flag.

Q: How did you get involved on the Polar Code?

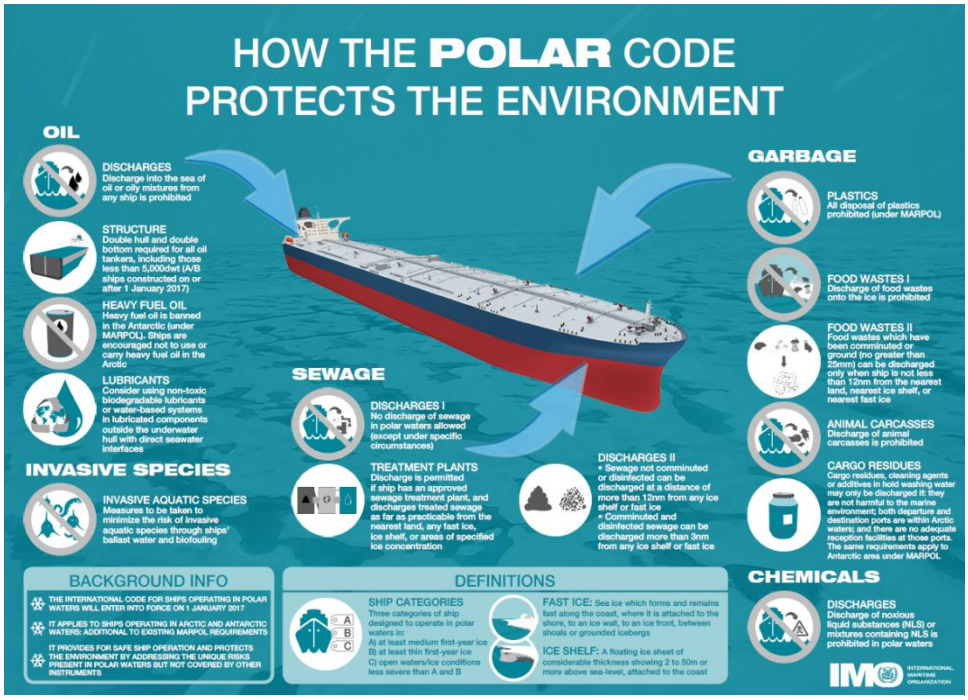
I worked for the Canadian Coast Guard for 22 years, starting as a Navigation Officer Cadet immediately after finishing high school.

I spent a fair bit of time on ice breakers – with my very first ship posting to an ice breaker based in Thunder Bay, Ontario in the middle of the Canadian winter. I did a number of trips on ice breakers to the Canadian Arctic, and have a strong appreciation for the unique challenges posed when navigating in such a remote area and hostile environment. Navigating was often challenging not only because of the ice ridges and the need to find leads through the ice, but also because of the scant charting, with many areas only showing depth marks along a specific track. When beset by ice or following a lead off these often narrow 'track soundings', there was no indication of depth.

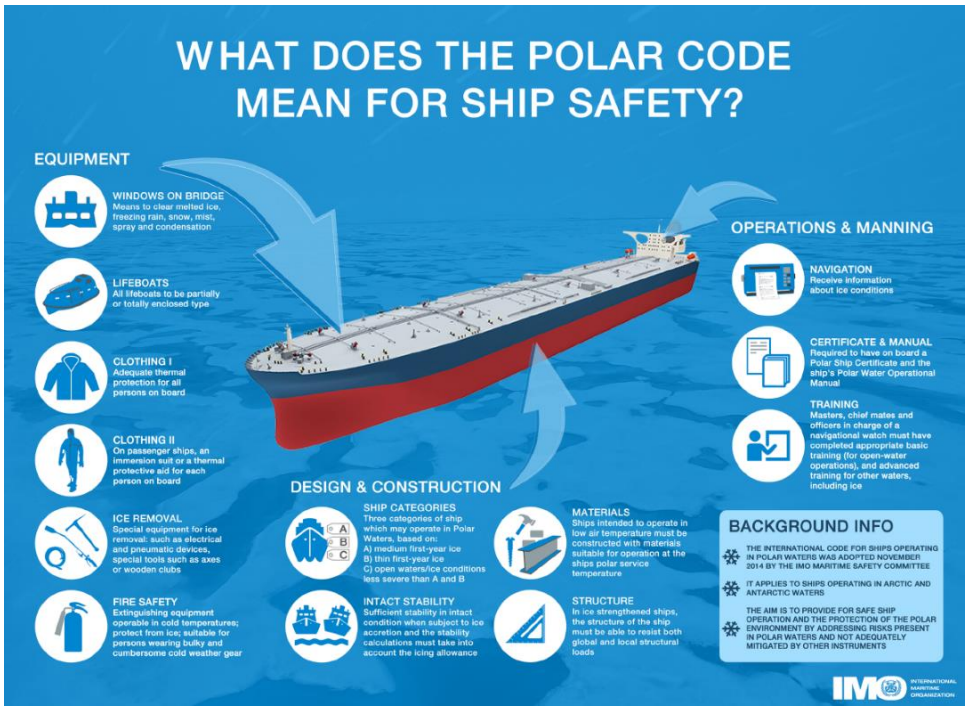
In the late 1980s, the unique challenges posed by polar regions were being discussed by International Maritime Organization (IMO). This ultimately led to IMO Assembly Resolution A.1024(26) – Guidelines for ships operating in polar waters (Dec. 2009).

Q: What is the latest progress of the Polar Code?

The International Code for Ships Operating in Polar Waters (POLAR Code), adopted by IMO, is expected to enter into force on 1 January 2017. This marks a historic milestone in the Organization's work to protect ships and people aboard them – both seafarers and passengers – in the harsh environment of the waters surrounding the two poles.



Infographic 1 illustrates the safety requirements of the Polar Code Source: IMO



Infographic 2 illustrates the environmental requirements of the Polar Code Source: IMO

Q: What do you hope the Polar Code will achieve?

The Polar Code will apply to ships operating in Antarctic and Arctic waters. It really is a step to recognizing the unique, vulnerable and harsh environment - covering aspects such as a Polar Water Operational Manual, ship structure requirements, stability and watertight/weathertight integrity, fire safety, life-saving appliances and arrangements, safety of navigation, voyage planning, and training aspects.

There is so much that needs to be taken into account when working in polar regions, and the Code cannot cover it all. A key achievement in the implementation of the Code is the formal recognition, and introduction to, the demanding nature of navigating in polar regions. In addition to the environmental sensitivities of the polar areas, the Code also acknowledges that the coastal communities of the Arctic could be vulnerable to human activities, such as shipping.

Q: What can we do to help?

Become familiar with the Code, and to recognize the unique polar environments. The Code provides some basic information and understanding, but there is opportunity to go further. Learning how to survive in the environment would be a good step – learning the importance of life-saving appliances and equipment, and preparing, as an individual to work in polar regions. The Code itself notes the difficulty in rescuing people in polar regions – equipment and systems that provide survival support are to be designed to recognize that expected time of rescue is likely to be longer than 5 days – so your personal and crew preparation is crucial to survival.

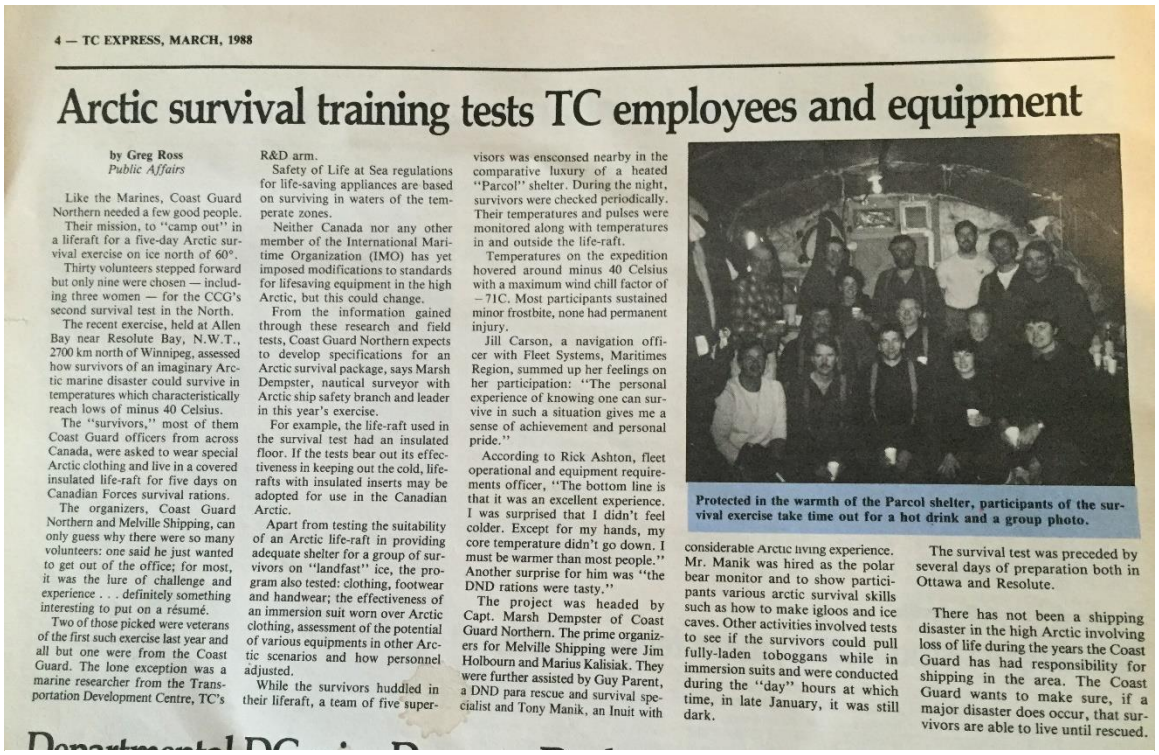
Q: Can you share with us an interesting story from your work on the Polar Code?

As part of the supporting research to the process that led to the initial polar guidelines, Canada sponsored an on-ice trial – whereby a number of 'survivors' were placed on the ice, north of the Arctic Circle, in harsh winter conditions to evaluate the effectiveness of various survival gear options. In addition, both the physical and mental effects of 'surviving' in Arctic conditions were monitored.

I was a participant in one of these events, 'surviving' on the ice of Resolute Bay, north of the Arctic Circle in the month of February – one of the months when the Sun never gets above the horizon in the Arctic (often called 24 hrs of darkness, but it isn't really 'dark' for all 24 hrs – not with all that ice and snow around!).

The trial ran for 5 days and nights on the ice of Allan Bay, new Resolute Bay, NWT (2700 km north of Winnipeg). The trial assessed how ‘survivors’ of an imaginary Arctic marine disaster could survive in the low temperatures (reaching as low as -71 degrees Celsius with wind chill, and regularly at -40 degrees Celsius). The article (below) that was in Transport Canada (TC) Express in March 1988 noted that the International Convention for the Safety of Life at Sea (SOLAS) regulations for life-saving appliances were based on surviving in the waters of temperate zones. Quoting from the article, “Neither Canada or any other member of the

International Maritime Organization (IMO) has yet imposed modifications to standards for lifesaving equipment in the high Arctic, but this could change."



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Arctic survival training tests TC employees and equipment

by Greg Ross
Public Affairs

Like the Marines, Coast Guard Northern needed a few good people.

Their mission, to "camp out" in a liferaft for a five-day Arctic survival exercise on ice north of 60°.

Thirty volunteers stepped forward but only nine were chosen — including three women — for the CCG's second survival test in the North.

The recent exercise, held at Allen Bay near Resolute Bay, N.W.T., 2700 km north of Winnipeg, assessed how survivors of an imaginary Arctic marine disaster could survive in temperatures which characteristically reach lows of minus 40 Celsius.

The "survivors," most of them Coast Guard officers from across Canada, were asked to wear special Arctic clothing and live in a covered insulated life-raft for five days on Canadian Forces survival rations.

The organizers, Coast Guard Northern and Melville Shipping, can only guess why there were so many volunteers: one said he just wanted to get out of the office; for most, it was the lure of challenge and experience . . . definitely something interesting to put on a résumé.

Two of those picked were veterans of the first such exercise last year and all but one were from the Coast Guard. The lone exception was a marine researcher from the Transportation Development Centre, TC's R&D arm.

Safety of Life at Sea regulations for life-saving appliances are based on surviving in waters of the temperate zones.

Neither Canada nor any other member of the International Maritime Organization (IMO) has yet imposed modifications to standards for lifesaving equipment in the high Arctic, but this could change.

From the information gained through these research and field tests, Coast Guard Northern expects to develop specifications for an Arctic survival package, says Marsh Dempster, nautical surveyor with Arctic ship safety branch and leader in this year's exercise.

For example, the life-raft used in the survival test had an insulated floor. If the tests bear out its effectiveness in keeping out the cold, life-rafts with insulated inserts may be adopted for use in the Canadian Arctic.

Apart from testing the suitability of an Arctic life-raft in providing adequate shelter for a group of survivors on "landfast" ice, the program also tested: clothing, footwear and handwear; the effectiveness of an immersion suit worn over Arctic clothing, assessment of the potential of various equipments in other Arctic scenarios and how personnel adjusted.

While the survivors huddled in their liferaft, a team of five supervisors was ensconsed nearby in the comparative luxury of a heated "Parcol" shelter. During the night, survivors were checked periodically. Their temperatures and pulses were monitored along with temperatures in and outside the life-raft.

Temperatures on the expedition hovered around minus 40 Celsius with a maximum wind chill factor of −71C. Most participants sustained minor frostbite, none had permanent injury.

Jill Carson, a navigation officer with Fleet Systems, Maritimes Region, summed up her feelings on her participation: "The personal experience of knowing one can survive in such a situation gives me a sense of achievement and personal pride."

According to Rick Ashton, fleet operational and equipment requirements officer, "The bottom line is that it was an excellent experience. I was surprised that I didn't feel colder. Except for my hands, my core temperature didn't go down. I must be warmer than most people." Another surprise for him was "the DND rations were tasty."

The project was headed by Capt. Marsh Dempster of Coast Guard Northern. The prime organizers for Melville Shipping were Jim Holbourn and Marius Kalisiak. They were further assisted by Guy Parent, a DND para rescue and survival specialist and Tony Manik, an Inuit with considerable Arctic living experience. Mr. Manik was hired as the polar bear monitor and to show participants various arctic survival skills such as how to make igloos and ice caves. Other activities involved tests to see if the survivors could pull fully-laden toboggans while in immersion suits and were conducted during the "day" hours at which time, in late January, it was still dark.

Protected in the warmth of the Parcol shelter, participants of the survival exercise take time out for a hot drink and a group photo.

The survival test was preceded by several days of preparation both in Ottawa and Resolute.

There has not been a shipping disaster in the high Arctic involving loss of life during the years the Coast Guard has had responsibility for shipping in the area. The Coast Guard wants to make sure, if a major disaster does occur, that survivors are able to live until rescued.

Article in TC Express in March 1988

The program tested life rafts, clothing, footwear and hand gear, as well as how survivors adjusted. This included monitoring temperature, including core temperature, and assessing psychomotor and mental capacity throughout the trial. The 9 'survivors' were monitored by 5 supervisors, including an Inuit to look out for polar bears and demonstrate Arctic survival skills to participants. This included how to make an igloo and construct ice caves. Other tests included pulling fully-laden toboggans and testing different cooking facilities. Of the 9 participants, two were pulled out before the end of the trial as their core temperatures fell below the identified threshold; in other words, in a real survival situation they would have died from the cold. They joined the 'survivors' for the daytime activities, but were taken to the 'parclo' where the supervisors slept in relative warmth while the rest of the 'survivors' went back to the life raft or igloo.

I have many memories from the experience – waking up and finding my eyelashes frozen together that I could not open my eyes until I thawed them. And another memory of walking for about an hour or so, to warm up enough to go to the bathroom.

(Jillian joked that it was so much easier for the guys – who 'wrote' their names on the snow)

I was familiar with winter camping, so I made a foam toilet seat to help with the necessities (someone brought along a travel magazine for the Bahamas, and a thermometer). We also had to keep ourselves busy ('surviving' can be boring work!). I brought along a nerf ball which I painted in dayglow orange paint (so that it is visible in the 24-hour night) which helped a bit for the first two days, but over time, it became difficult to manage the throws and catches. We worked on a polar bear

ice sculpture, which helped to warm us up, as well as pass some time. Cooking was eventful, and we built a cooking space out of ice blocks.

In addition to the on-ice survival tests, I was also lucky enough to be involved in some 'summer' time Arctic tests – including trials of an Arctic escape vehicle (sort of a life-raft for the ice) called the Arktos. The Arktos was a bit like two enclosed life rafts on backhoe treads, joined together with a 'link' that allows it to go up and over ice floes. It was also amphibious; in that it could traverse 'puddles' as well as the ice itself.

I also was able to assist with some science monitoring, helping to drill multi-year ice cores on some of the oldest ice in the Arctic – ice in Viscount Melville Sound. If you look at a map now, you will see that Viscount Melville Sound is mostly ice-free. It certainly hits home the effects of global warming when I see photos of myself on what was some of the oldest ice available for study, and to know now that it is all but gone.

Participants of the survival exercise (Jillian Carson is on the front row, second from the right)