

Arctic cruise ships: the pressing need for search and rescue

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There is clearly a need for increased Arctic search and rescue (SAR) capability. Canada has both marine and aviation SAR requirements and obligations that have been agreed to by longstanding binding international agreements. The question is whether these SAR capabilities are adequate in view of increasing commercial and cruise ship activity.

The challenges are great with respect to SAR response capability in this vast region and the demand will increase as shipping activity increases. This is especially so when it comes to cruise ships that are increasingly entering Arctic waters, and present special challenges given the large number of passengers.

With sea-ice both thinning and diminishing, it has been predicted that the final collapse of Arctic sea ice during the summer months could occur within four years. This will undoubtedly attract increased cruise activity, which has been increasing every year since the 1980s, from expedition adventure cruise vessels that are accustomed to operating in remote locations, to the world's largest cruise ships, which are non-ice-classed.

Even expedition cruise vessels can run



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into problems, witness the sinking of the M/S Explorer in Antarctic waters on November 23, 2007, 20 hours after suffering a gash in its hull. The vessel, owned by a Canadian adventure travel company, was no stranger to Arctic waters. Luckily, there was no loss of life, and its passengers, crew and staff were taken aboard the Norwegian cruise ship M/S Nordnorge after taking to the lifeboats five hours earlier in calm seas. Owners of both vessels were members of the International Association of Antarctic Tour Operators (IAATO), which had developed and implemented a contingency plan for self rescue, whereby cruise vessels were paired for mutual rescue assistance.

This incident could easily have occurred in the Canadian Arctic which has seen at least two serious cruise ship incidents involving the Clipper Adventurer (2010) and Hanseatic (1996), in addition to other vessel groundings in recent years. The summer of 2010 witnessed the grounding of the Clipper Adventurer on a rock near Kugluktuk in Coronation Gulf in the Western Arctic. There was no loss of life and the conditions were calm during and after the grounding on the reef, which was known but not marked on official Canadian Hydrographic services charts. With the assistance of the Canadian Coast Guard research icebreaker Amundsen, which was fortunately nearby, the 128 passengers were safely disembarked. The vessel was salvaged and returned to service.

In July of 2012, the cruise ship The World, in compliance with existing Canadian regulations, made its way on a voyage from Vancouver through the Northwest Passage arriving in Newfoundland in September. The World, not an ice-strengthened or Polar-class vessel, was likely carrying over 400 people. While the voyage was without incident, how would we have responded if there had been a call for assistance?

In 2012, Lloyd's released a report entitled *Arctic Opening: opportunities and Risk in the High North*. The 60-page risk insight report was prepared by the British think tank Chatham House. The report indicated that companies that want to be among the successful operators in the Arctic will have to manage their own risk by using technologies, services and best practices most adapted to Arctic conditions. The report also indicated that cruise ships present a particular challenge for ship-owners, regulators and insurers. Specifically, larger cruise ships that are moved from the Caribbean, Europe, or the Mediterranean to operate in the Arctic represent a "genuine challenge." The report went on to state:

"Clearly there is a need for protocols and strategies within the cruise ship industry to tackle the enhanced risks in the Arctic." With respect to shipping, search-and-rescue infrastructure is currently insufficient to meet the expected demands of economic development."

Superimposed on this finding by the world's leading insurance market is the work undertaken by the Arctic Council, which on May 12, 2011 met in Nunk, Greenland to sign the *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (SAR)*. This is the first legally binding agreement negotiated under the auspices of the Arctic Council, which generated a lot of international interest and media attention. The SAR Agreement coordinates life-saving international Maritime and aeronautical SAR coverage among the Arctic states across an area almost the land mass of Russia.

Prior to the SAR agreement, the Arctic Council's Arctic Marine Shipping Assessment 2009 report (AMSA), a four-year multinational review had this to say on the current state of Arctic SAR:

"Search-and-rescue infrastructure in the Arctic is limited. The most significant emerging challenge to existing SAR infrastructure arises from the increase in marine tourism and passenger vessels operating in Arctic waters. As large passenger vessels continue to operate more frequently further North in Arctic waters, the prospect of having to conduct mass rescue operations with limited SAR resources increases. Recent growth in Arctic marine tourism is outpacing infrastructure investment, development and support throughout the region."

The AMSA report further noted that there are potential problems



The Joint Rescue Co-ordination Centre Victoria is one of three JRCCs in Canada operated by the Canadian Forces in conjunction with the Canadian Coast Guard.

with cruise ships SAR incidents:

"There are several potential problems associated with responding to an incident aboard a cruise ship. The potential number of people that would have to be rescued from a cruise ship far exceeds the capacity of most SAR response vessels and aircraft available in the Arctic. Cruise ships have minimal capacity for self rescue. Compliance with IMO guidelines for passenger vessels are voluntary and, as a result, the planning and capability for self rescue varies. Passengers are likely to be ill-prepared for the weather which decreases the likelihood of survival if they are not rescued quickly.

The report goes on to note the problems associated with the lack of SAR infrastructure in this remote region:

"There are also a host of logistical challenges associated with the lack of shoreside infrastructure in most of the Arctic needed to accommodate and care for those that are rescued, including the lack of sufficient food, lodging and medical facilities. In many cases, the only available platform with the capacity to feed house rescued passengers would be another cruise ship."

A recent interim Senate report from the Standing Senate Committee on National Security and Defence examining Canada's capabilities held that there was a need for a central Arctic operating base. The report referenced the words of the Chief of the Air Staff who testified:

"Search and rescue is a challenging file for us," we were told by Canada's Chief of the Air Staff, Lieutenant-General André Deschamps. "Canada has the largest search-and-rescue area in the world"—about 15 million square kilometres."

The report quoted the former Commander of the Canadian Forces in the North, Canadian Army Colonel (Retired) Pierre Leblanc, who raised concerns about the need for rapid response, and echoes the words of the Lloyd's risk report and that of AMSA with respect to timely search and rescue efforts. The Senate report noted:

Colonel (Retired) Leblanc, the former commander of Joint Task Force (North), told a story to make the point. "We had a case, while I was a Commander, where a small aircraft travelling to Yellowknife crashed. The crew on board survived the crash, but died of exposure before search and rescue arrived ... Time is of the essence with search and rescue in the High Arctic." Colonel (Retired) Leblanc pointed out that with SAR aircraft based in Southern Canada, it can take eight to ten hours "before the aircraft will be physically over the target to drop either SAR technicians or equipment that will provide shelter for the people there.

Colonel (retired) Leblanc, an Arctic veteran who has had long experience in the North, has been a consistent advocate of providing Canadian Rangers with increased SAR capacity, along with the posi-

tioning of dedicated SAR aircraft in the region. Canadian Rangers are reserve members of the Canadian Army, and in the Arctic are primarily Inuit who have an intimate knowledge of the land, and possess the traditional skills to survive and operate year-round. They have proved their worth in SAR operations time and time again. At present, Canadian Rangers do not have any dedicated equipment other than what they personally own and provide when called on a mission.

Presently, there are no primary SAR aircraft operating in the Arctic. Accordingly, it takes up to eight to ten hours for SAR aircraft to make their way North from airbases in Southern Canada – specifically Trenton, Ontario and Greenwood, Nova Scotia. The dedicated SAR aircraft are fixed-wing C-130H transport aircraft and CH-149 Cormorant helicopters. The Cormorant helicopters have a limited carrying capacity and must refuel en route because they lack in-flight refueling capability. Therefore, if there were a large marine mass casualty incident, one helicopter would have limited impact but, combined with fixed-wing support, could provide an initial response. Any response would require the use of all commercial vessels and secondary SAR assets, which include all government of Canada aircraft and vessels within reasonable proximity.

SAR aircraft are operated from specialized SAR, Transport and Rescue Squadrons of the Royal Canadian Air Force, flown by experienced pilots used to operating in extreme conditions and manned by highly skilled SAR technicians, who are trained paramedics and skilled in all forms of entry whether through helicopter winching and parachuting into any conditions, including open ocean at night. It is important to remember that in the Arctic it is dark for half the year.

The 2012 IMO Award for Exceptional Bravery at Sea was recently awarded to three SAR technicians from 424 SAR, Transport and Rescue Squadron based at Trenton Ontario for an October 2011 rescue of stranded Inuit hunters in a boat near Igloodik, Nunavut. Sgt Janick Gilbert, the team leader, deployed by parachute from a C-130 along with two other rescue personnel into deteriorating conditions in 10-foot ice covered seas. The tether to his personal life raft severed, and he drowned attempting the rescue. Aided by the two other technicians, the Inuit hunters survived and were hoisted on board a Cormorant helicopter, which arrived on the scene at first light. There is no lack of professionalism in the Canadian Forces when it comes to search and rescue in the Arctic. We need to provide them with new equipment to do the job.

In Canada, SAR is a shared responsibility with the lead provided by the Department of National Defense. The Canadian Forces have

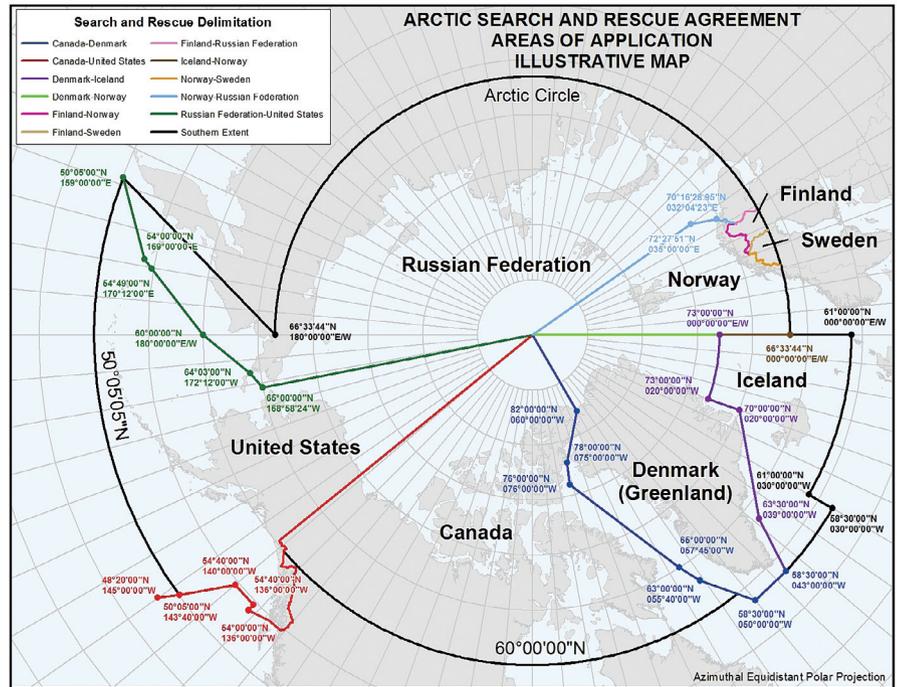


Photo: Capt Darryl Klassen, Canadian Forces, 440 (Transport) Squadron

the primary responsibility for the provision of air SAR services whereas the Canadian Coast Guard is responsible for maritime SAR. The country is divided into individual SAR regions with overall command held by the ranking Canadian Forces flag officer. Canada Joint Operations Command is the responsible arm of the Canadian Forces and brings all Canadian Forces assets to respond to a SAR incident as required on a secondary basis. Joint Rescue Coordination Centers (JRCC) are set up in three locations for the coordination of SAR activities. This coordination is an often

overlooked but critically important element of Canada's SAR capability, especially as it relates to the Arctic and Marine mass casualty incidents where the experience of SAR controllers with operational experience is key. For the Arctic, the two main JRCCs are located at Trenton, Ontario and Halifax, Nova Scotia.

Due to its vast size and range of environments, Canada relies on diverse group of government, military, and volunteer personnel to provide overall SAR services. Canada has developed a comprehensive national search-and-rescue program. The National

SAR Secretariat reporting to the Minister of National Defense is tasked with the development of a SAR policy and has been working on an Arctic SAR strategy for some time.

In the United States, the Commandant of the U.S. Coast Guard (USCG), Admiral Papp, in candid testimony to the U.S. Senate made it clear that USCG has limited Arctic SAR capability. Canada and the United States have signed joint SAR agreements with one another, which are long-standing. There is a close working relationship between the two countries on search and rescue. The SAR agreement is seen as a step forward for SAR coordination and cooperation in the Arctic region, and the sharing of information and best practices between all Arctic nations. After the signing in 2011, a tabletop exercise was held in Whitehorse, Yukon Territory with a follow-up actual exercise hosted by Denmark in Greenland this past September. However, these exercises do not create capability, especially as it relates to cruise ships, which is the responsibility of the individual coastal state.

USCG has done a lot of work on Mass Rescue Operations (MRO). It has been said that mass rescue operational planning is more critical than ever, but often remains “undervalued by SAR organizations who are responders, not planners”. When it comes to



Transport Canada Dash-7 on patrol in the Arctic.

the Arctic, we need a much more comprehensive plan, which needs to include the vessel owners and operators. The MRO planning guide states: “the success of an MRO is contingent upon seamless efforts of search and rescue agencies, the company, mutual assistance assets and good samaritans. Suc-

cess is also contingent upon effective plans and exercising those plans.” USCG plans to conduct a full-scale exercise called Black Swan involving a cruise ship in April 2013 off the coast of Florida.

In Canada, the National SAR Manual Annex 7B deals with major maritime disaster contingency plans. It states: “there is no fundamental distinction between a major maritime disaster and other maritime distress incidents except in scale, and in the scope of the response required.” While Canada continues to host Operation Nanook in the Arctic each August, there has been no large-scale mass rescue exercise. Until the inevitable happens, as a coastal nation we do not know whether we are ready to handle a major incident like the Costa Concordia.

All of the recent incidents in the Arctic involving cruise ships have involved groundings, and were not incidents caused by ice contact. As the sea ice diminishes, cruise ships will venture into new waters as part of their owners selling more exciting cruise products. There is presently a lack of hydrographic charting with only 10 per cent of Canadian Arctic waters charted to a modern standard. There is also no requirement for compulsory pilotage like there is on Canada’s West Coast and East Coast. Marine incidents can and will happen even in Southern waters that have modern navigation aids and accurate charting, if only due to human factors. It is not a matter of if, but rather when a marine incident will happen in the Arctic.

Canadian Arctic SAR capability requires us to have a comprehensive discussion to critically analyze and review our ability to respond to potential cruise ship incidents. This needs to include officials of local governments and Inuit communities, as well as ship operators, owners and marine insurers. A

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mechanism for dialogue needs to be developed to integrate the knowledge and expertise of all interested parties on an ongoing basis. This can be a component of the ongoing development of the Polar Code (see previous article) if it involves all Arctic nations and flag states. This will lead to greater resiliency in the Arctic SAR system.

We also need to examine the depth of potential private SAR assets that may be available at any given time. For example, there are often private helicopters in the Arctic, useful in an incident, but there is no active database of such potentially available assets.

In the Arctic, communications are always a problem. There is a potential role for space-based AIS to ascertain location of potential SAR assets. The Canadian Rangers also need to play a much more active role in SAR response, as they live in the region. There is much to be learned from USCG's comprehensive approach to Marine Mass Rescue operations and adopt this in the Arctic through the work of the Arctic Council. The SAR Agreement is a good start but the world is coming to the Arctic.

Canada and other Arctic nations need to be ready. The grounding incidents in Canadian Arctic waters are a wake-up call for action. SAR capacity and capability building – combined with the development of the Polar Code – will lead to the harmonization of a risk-based approach to Arctic shipping and minimize SAR requirements. We can develop a truly comprehensive Polar Code and learn from the Antarctic experience which has been proven to be helpful in dealing with cruise ship incidents as the M/S Explorer SAR response in the remote waters of the Antarctic has demonstrated. The time to start building SAR capability by governments and vessel owners and operators is long before incidents occur. We in Canada, as an Arctic nation, need to move forward on Arctic SAR as fast as the sea-ice is receding so “others may live”.



The Canadian Forces have the primary responsibility for the provision of air SAR services whereas the Canadian Coast Guard is responsible for maritime SAR.

Joe Spears, Maritime Counsel and principal of Horseshoe Bay Marine Group has been involved in Arctic SAR for many years and has undertaken work for the National Search and Rescue Secretariat, worked as Rescue Coxswain with the Canadian Coast Guard, and instructed the Canadian Rangers of 2CRPG of Nunavik on Arctic SAR. He can be reached at kjs@oceanlaw-canada.com.

Mike Dorey retired as a Lieutenant Colonel in the Canadian Air Force. He is a military helicopter pilot with 5,600 hours, including flying with 442 SAR Squadron, flight instructor and chief check pilot. He was OIC of Halifax RCC, Commanding Officer of both 413 SAR, Transport and Rescue Squadron (Greenwood) and 103 Rescue Unit (Gander), and an Air Attache in Washington, DC, among other postings in a 38-year career.



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