ARCTIC CRUISE SHIPS

THE URGENT NEED FOR SEARCH AND RESCUE

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THE CHALLENGE

Canada has both marine and aviation search and rescue (SAR) requirements and obligations that have been agreed to by longstanding binding international agreements. That is not in dispute. The question is, in view of increasing commercial and cruise ship activity, are current SAR capabilities adequate?

The challenges are great with respect to SAR response capability in the vast Arctic region, and the demand will only increase along with the steady growth of shipping activity. This is especially so when it comes to cruise ships. More tourists are being drawn to the Arctic experience, and such huge numbers of passengers creates incredible risk and special rescue challenges in the event of a catastrophe – of which there have been far too many to ignore. Nearby countries hold an obligation to be able to mount a credible search and rescue operation in and around their waters.

Sea-ice is 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 ship activity, which has been steadily increasing every year since the 1980s. These ships include everything from expedition adventure cruise vessels which 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 into problems, witness the sinking of the M/S Explorer in Antarctic waters on 23 November 2007, some 20 hours after suffering a gash in its hull. This 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. Both vessels were members of the International Association of Antarctic Tour Operators (IAATO) which 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. Luckily, when the Clipper

Adventurer grounded near Kugluktuk in the Coronation Gulf, in the Western Arctic, the conditions were calm and there was no loss of life. Although the reef was known, it was not marked on official Canadian Hydrographic charts. With the assistance of the Canadian Coast Guard research icebreaker Amundsen which, thankfully, was nearby, the 128 passengers were safely disembarked. The vessel was subsequently salvaged and returned to service.

In July of 2012, the cruise ship *The World*, in compliance with our existing Canadian regulatory regime, made its way on a voyage from Vancouver through the Canadian Northwest Passage, arriving in Newfoundland in September. *The World* is neither an ice-strengthened nor a polar class vessel, yet 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?

"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."

– Chatham House

to sign an International Treaty on Cooperation on Aeronautical Maritime Search and Rescue in the Arctic (IASAR Agreement), this is the first legally binding agreement negotiated under the auspices of the Arctic Council. It generated a lot of international interest and media attention. The IASAR Agreement coordinates life-saving international Maritime and aeronautical SAR coverage among the Arctic states across an area almost equal to the land mass of Russia.

THE NEED

There is clearly a need for increased Arctic SAR capability.

In 2012, Lloyd's of London released a report entitled *Arctic Opening: Opportunities and Risk in the High North*. This 60-page risk insight report, prepared by the British think tank, Chatham House, recommends that companies wanting to be among the successful operators in the Arctic will have to manage their own risk by using technologies, services and best practices adapted to Arctic conditions. Further, the report indicates that cruise ships present a particular challenge for ship owners, regulators and insurers. Specifically, it notes that larger cruise ships that have moved from the Caribbean, Europe and Mediterranean to operate in the Arctic represent a "genuine challenge".

Superimposed on this finding by the world's leading insurance market is the work undertaken by the Arctic Council. Meeting in Nuuk, Greenland on 12 May 2011

Prior to the IASAR agreement, the Arctic Council's Arctic Marine Shipping Assessment 2009 report (AMSA), a four-year multinational review, determined that "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, so increases the prospect of having to conduct mass rescue operations with limited SAR resources. Recent growth in Arctic marine tourism is outpacing infrastructure investment, development and support throughout the region".

The AMSA report highlighted several problems associated with responding to incidents aboard cruise ships. "The 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 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 and house rescued passengers would be another cruise ship."

Examining Canada's capabilities, a recent Interim Senate Report from the Standing Senate Committee on Security and Defense held that there is a need for a central Arctic operating base. The report referenced the words of then Chief of the Air Staff, LGen André Deschamps, who testified: "Search and rescue is a challenging file for us. Canada has the largest search and rescue area in the world – about 15 million square kilometres."

The report also quoted the former commander of the Canadian Forces in the North, who raised concerns about the need for rapid response, and echoed the words of the Lloyd's risk report and that of AMSA with respect to timely search and rescue efforts. It noted: "Colonel (retired) Peter 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 Leblanc pointed out that SAR aircraft based in Southern Canada can take 8 to 10 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 Leblanc has had long experience in the North and has been a consistent advocate for providing Canadian Rangers with increased SAR capacity, along with the positioning of dedicated SAR aircraft in the region. Canadian Rangers are members of the Canadian Reserve Army, and, in the Arctic, are primarily Inuit who have an intricate knowledge of the land; they pos-

sess the traditional skills to survive and operate year round and have proved their worth in SAR operations time and time again. At present, Canadian Rangers do not have any dedicated SAR equipment other than what they personally own and provide when called on a mission.

Death from exposure is the biggest risk factor faced by incident victims, and it is also important to remember that in the Arctic it is dark for half the year, which further complicates search efforts. Presently, there are no primary SAR aircraft operating in the Arctic. Accordingly, it takes anywhere from 6 to 10 hours for SAR aircraft to make their way North from airbases in Southern Canada, specifically Winnipeg (Manitoba), Trenton (Ontario) and Greenwood (Nova Scotia). Canada's dedicated SAR aircraft are fixed wing C-130H transport aircraft and CH149 Cormorant helicopters. Helicopters are slower to arrive, have a limited carrying capacity and must refuel on route due to limited capacity, therefore, a complete response for a marine mass casualty incident would require the use of all SAR assets including Coast Guard and commercial vessels, plus secondary assets including all government of Canada aircraft and vessels within reasonable proximity.

SAR aircraft are operated from specialized 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, or parachuting into any conditions including open ocean at night.

The 2012 International Maritime Organization's Award for Exceptional Bravery at Sea was recently awarded to three SAR technicians from 424 Sqn, Transport and Rescue Squadron based at Trenton, Ontario for an October 2011 rescue of stranded Inuit hunters in a boat near Igloolik, Nunavut. Sgt Janick Gilbert, the team leader, deployed by parachute from a C-130 along with to two other rescue personnel into deteriorating conditions in 2-3 metre waves in 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 scene at first light. There is clearly no lack of professionalism in the Canadian Forces when it comes to search and rescue in the Arctic. They need new equipment to do the job.

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In Canada, the federal SAR responsibility is shared, the Canadian Forces have primary responsibility for 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 for ensuring that all Canadian Forces assets respond to a SAR incident if requested. Joint Rescue Coordination Centers (JRCC) are organized in three sectors for the coordination of SAR activities (East, West and Central), with five Primary SAR Squadrons (Comox, Winnipeg, Trenton, Halifax, and Gander). This coordination is an often overlooked but a critically important element of Canada's SAR capability. It is composed of key expert SAR controllers in dealing with Arctic and Marine mass casualty incidents. For the Arctic, the two main JRCCs are located at Trenton, Ontario and Halifax, Nova Scotia.

Prime Minister Harper has been emphasizing the need to have military assets in the North for sovereignty requirement, and this will be the perfect opportunity to station dedicated Arctic SAR capabilities.

Due to its vast size and range of environments, Canada relies on a diverse group of government, military, and volunteers 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 before the U.S. Senate made it clear that the USCG has limited Arctic SAR capability. Canada and the United States have long-standing signed joint SAR agreements with one another. There is a close SAR working relationship between the two countries. The ISAR 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 signing in 2011, a tabletop exercise was held in Whitehorse, Yukon Territory and followed up with an actual exercise hosted by Denmark in Greenland this past September. However, these exercises do not create capability, especially as it relates to cruise ships. These remain 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 the Arctic, we need a much more

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comprehensive plan which must 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. Success 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, Annex 7B of the Canadian National SAR manual deals with major maritime disaster SAR 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, 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 caused by ice contact. As the sea-ice diminishes, cruise ships will venture into new waters, as their owners sell more exciting cruise products. Canadian Arctic waters lack hydrographic charting, with only 10 percent charted to a modern standard. Unlike on Canada's West and East coasts there is also no requirement for compulsory pilotage. 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 major marine incident will happen in the Arctic.

Canadian Arctic SAR capability requires us to have a comprehensive and critical analysis and review of 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 mechanism for ongoing dialogue needs to be developed to integrate the knowledge and expertise of all interested parties. This can be a component of the ongoing development of the Polar Code for the Arctic Council if it involves all Arctic nations and flag states. Hopefully this will lead to the necessary 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 for these 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 must be called upon and enabled to play a much more active role in SAR response, as they live in the region. There is much to be learned from the USCG's comprehensive approach to Marine Mass Rescue operations, perhaps adopting this for the Arctic through the work of the Arctic Council. The IASAR Agreement is a good start, but the world is coming to the Arctic.

CALL TO ACTION

Canada and other Arctic nations need to be ready. The grounding incidents in Canadian Arctic waters in 2010 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.

The Arctic is on the cusp of tremendous economic development, and a report recently published by the Centre for International Governance Innovation calls for the development of smart and strategic transportation infrastructure in the Arctic – SAR is part of this infrastructure. We can develop a truly comprehensive Polar Code and learn from the Antarctic experience, which has proved helpful in dealing with cruise ship incidents, as demonstrated by the M/S *Explorer* SAR response in those remote waters. 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". S

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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 on route, due to limited refuelling capability.