Précis: Canada’s Future Search-and-Rescue Challenges

Canada’s maritime search and rescue area is one of the largest in the world, and the challenges posed for search and rescue become greater every day. As a result of climate change, Canada’s Arctic waters are experiencing a boom in shipping – and even tourist vessels have begun cruising these waters. Iridium can provide important information to the Senate Standing Committee on Fisheries and Oceans’ inquiry on how Canada can meet this new challenge to her maritime search-and-rescue personnel with advanced satellite technology.

Global Maritime Distress and Safety System

The Global Maritime Distress and Safety System (GMDSS) is established by international law and consists of high-frequency (HF) and very high-frequency (VHF) radio alerting, electronic position-indicating radio beacons (EPIRBs) and satellites. The GMDSS system is supposed to provide ship-to-shore, shore-to-ship, and ship-to-ship communications to respond to distress calls. It is also designed to provide timely navigation and weather information to help ships avoid hazardous situations. Ships above 300 gross tonnage are required to carry GMDSS equipment by international maritime law.

Limited Existing Northern Coverage

A critical problem with the current GMDSS system, however, is that it cannot provide the global coverage Canada requires. VHF and HF infrastructure is limited to near-shore communications. The vast majority of ocean coverage is provided only by a single geostationary (GSO) satellite system, and by Cospas-Sarsat satellites. But Cospas-Sarsat can only relay a distress signal – in effect an electronic flare that cannot be used to provide the information necessary to coordinate rescue efforts. And the sole GMDSS satellite provider – because it is a GSO system – has limited coverage, especially in high latitudes critical to Canadian mariners, Indigenous Peoples, and national sovereignty patrols. Given the ever-increasing traffic on Canada’s polar routes, and the often harsh weather conditions of these waters, more reliable emergency communications is especially important for the Canadian people.

Iridium’s Constellation

The good news is that the Iridium network, which operates earth stations in Nunavut and Northwest Territories, is capable of providing truly global search-and-rescue capabilities. Iridium is licensed in Canada and flies a cross-linked constellation of 66 satellites in a low-Earth orbit. It is, by virtue of its architecture, the only network of any kind that covers all Canadian and Arctic waters. Iridium now meets all GMDSS performance standards and intends to begin GMDSS service by 2020.

Environmental Benefits

The environmental benefits enabled by expanding satellite-provided GMDSS to more northern latitudes are also significant. First, no additional terrestrial infrastructure is required. Fragile environments need not be disturbed by deploying towers or cables along entire coasts. Second, GMDSS communications can provide safety information to enable ships to avoid incidents that could have ecological consequences, and to expedite search-and-rescue operations that limit environmental damage.
Next Steps

The International Maritime Organization (IMO) and the International Telecommunication Union (ITU) are working to enable Iridium to provide global GMDSS service. Doing so would not only provide GMDSS service in all Canadian and Arctic waters for the first time, it would also provide a second service provider (with all the benefits redundancy brings to a safety-of-life service) elsewhere around the world. But the processes of international organizations, like the IMO and the ITU, are slow.

They can, however, be made to move along faster. It is therefore important for Canadian voices to be heard in international meetings to help make sure reliable safety-of-life communications are available as soon as possible. Canada’s leadership in the IMO can ensure the timely approval of Iridium’s GMDSS offering and set an important precedent for other organizations seeking to improve search-and-rescue capabilities.