# Nunavut Search and Rescue Roundtable

## Kitikmeot 2020: Mass Rescue Exercise


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## Executive Summary

The Kitikmeot Roundtable on Search and Rescue brought together members of community-based organizations from Kugluktuk, Cambridge Bay, Gjoa Haven, Taloyoak, and Kugaaruk, academics, and representatives of federal and territorial agencies to discuss best practices, lessons learned, and future requirements for search and rescue in the Kitikmeot region. The Roundtable's culminating activity involved a tabletop exercise exploring community-level responses to a Mass Rescue Operation (MRO). The exercise simulated a cruise ship running aground off Unahitak Island near Cambridge Bay, although participants from other communities were also asked to apply the scenario to their own local contexts. The following represent the key observations, themes, and recommendations from the TTX:

- The tabletop captured the willingness of community members to risk their lives to help strangers who might be in trouble. If a disaster unfolded close to their communities, they would go and see how they could help. [1]
- The exercise highlighted the sophistication of community-level understandings of and plans for MROs and reinforced the value of community-level perspectives in planning, preparing for, and executing an MRO.
- The local information that community-based groups could provide on geography and environmental conditions would be absolutely vital during an MRO and could save lives (e.g. during the TTX, Cambridge Bay participants provided information on the geography of Unahitak Island, environmental conditions, the safest evacuation route, and where passengers could be offloaded).
- Community groups would have essential and diverse roles to play in an MRO. Participants listed a series of potential responses for Coast Guard Auxiliary units, community GSAR teams, and/or Ranger patrols:
  - put eyes on the situation;
  - provide updates to the JRCC;
  - act as on-scene coordinator;
  - provide intelligence on where passengers could be evacuated to on the land;
  - shepherd lifeboats or zodiacs to safe havens or to the community;
  - help in offloading and tracking passengers;
  - search for missing passengers;
  - establish a camp to provide warmth and shelter;
  - give first aid;
  - provide predator control;
  - reassure evacuees that the situation is under control;

[1] This was also a key finding of the tabletop exercise executed by Liane Benoit and the Munk-Gordon Arctic Security Program in 2014. Their scenario envisioned a cruise ship running aground in Cumberland Sound close to Pangnirtung. Liane Benoit, *Perspectives on Emergency Response in the Canadian Arctic: Sinking of the MS Arctic Sun in Cumberland Sound, Nunavut. Parts A, B, C*. Munk-Gordon Arctic Security Program, 2014, http://gordonfoundation.ca/resource/perspectives-on-emergency-response-in-the-canadian-arctic/

    - assist in setting up accommodations for evacuees in their communities;
    - be the points of contact between evacuees and the community.

- The actions that community-based groups could take during an MRO should be further developed and practiced by community members in partnership with federal and territorial agencies. The training and equipment required to complete these tasks should be provided to community-based groups and tracked through community emergency plans. Community emergency plans should be kept as up to date as possible and be built to reflect the specific local contexts of each community. A generalized or standardized plan will not work in a real emergency.
- Cruise/tour operators should consider sharing their emergency plans and procedures with the communities that they plan to visit or travel near – and particularly with members of community-based SAR organizations. This would foster relationship-building with the people with whom they might have to work during an MRO or smaller-scale SAR operation, and would allow community members to get a sense of the capabilities, plans, and equipment these companies possess. These companies should consider donating rescue equipment to the community groups whose assistance they might require at some point.
- While willing to follow the direction of the JRCC, the CAF, or Emergency Management Nunavut, community first responders stressed that they also expected these agencies to listen to the information and suggestions that they passed along, and to act upon their recommendations and approaches. The need to listen to community-based responders was repeated frequently.
- Communication and coordination would be vital in an MRO (at the community-level, between responders and the JRCC, responders and the ship's crew, between the different groups acting at the scene, etc). Lines of communication and coordination must be firmly established and put to the test through exercises.
- During an MRO it would be essential to provide a steady stream of information to the broader community to reassure community members and enlist their support in evacuation efforts.
- Roundtable participants wished to be briefed on the plans, preparations, and tools federal and territorial agencies have in place to deal with an MRO.
- As the regional hub for the Kitikmeot, Cambridge Bay is well equipped with both the human and physical infrastructure required to deal with a disaster involving hundreds of people – the community's size, capacity in terms of transport, shelter, food, medical care facilities, and its highly effective community-based GSAR team and Coast Guard Auxiliary unit are all key assets. The community has also established clear lines of communication and information flow in case of an emergency. The community could host evacuees for several days if required.
- Participants noted that, while the other Kitikmeot communities also have effective community-based groups that could respond to an MRO, even a short stay by evacuees would place a severe strain on their existing physical infrastructure.

- Private industry should be considered an important force multiplier in the Kitikmeot. The North Warning System helicopter could be requisitioned from Cambridge Bay, while other communities might have access to equipment and infrastructure from mining companies operating in the region.
- The fuel and oil spills that could result from this kind of incident were a major concern for community participants. They noted that there was extremely limited or no resources to deal with an oil or fuel spill at the community-level and advised that community members should be better equipped and trained to respond.
- Participants highlighted the importance that a TTX can play in preparing and planning for an MRO or SAR operation – it allowed the different groups involved to navigate the complexity of an MRO while seated around the same table. Through this TTX, federal and territorial learned a great deal about community capabilities and approaches to disasters, while community members learned about some of the resources at the disposal of federal agencies (eg) the MAJAID Kit. The TTX also offered a chance to build the relationships that would be required in a real MRO. Participants hoped that the Coast Guard, other federal agencies, or academics would offer additional exercises at the community level, eventually moving towards functional and full-scale exercises.

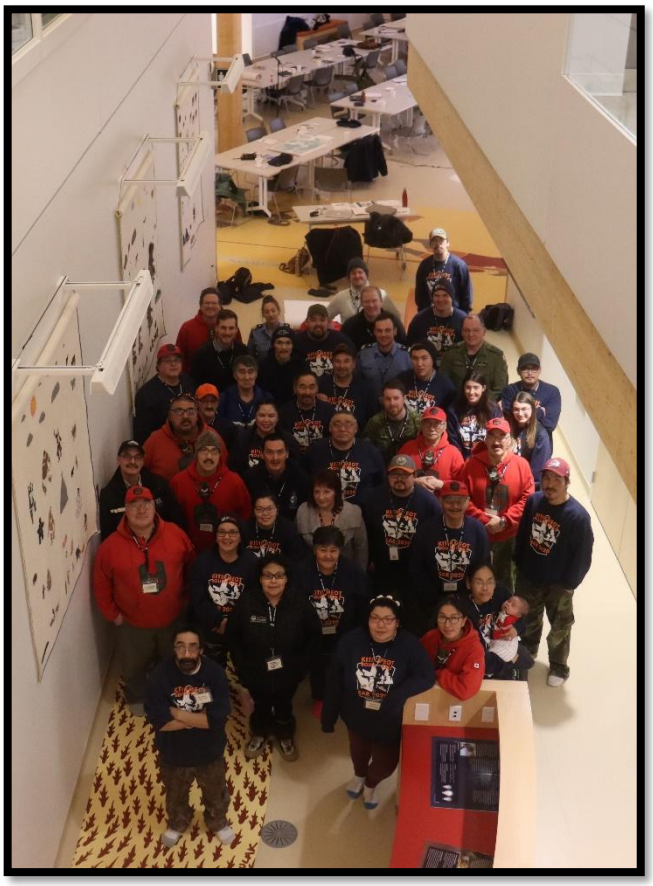
"We know the local weather. We know the conditions. We know the water and ice, the rocks. We know how the ice works. We know the best routes to take, the fastest, the safest routes to take. We know things that you can't get from a GPS or a weather report. We know how the tides work. If you are coming in by zodiac or lifeboat, we can help you avoid dangers. We may not be happy that you've brought this trouble, but we will try our best to help you out of it. You have to listen."

- Participant, Kitikmeot Roundtable on SAR

## Roundtable Overview

The Kitikmeot Roundtable on Search and Rescue, co-organized by Peter Kikkert, Angulalik Pedersen, and P. Whitney Lackenbauer, was held at the Canadian High Arctic Research Station (CHARS) in Cambridge Bay, Nunavut, from 31 January – 1 February 2020. It brought together 55 members of community-based organizations from Kugluktuk, Cambridge Bay, Gjoa Haven, Taloyoak, and Kugaaruk, academics, and representatives of federal and territorial agencies to discuss best practices, lessons learned, and future requirements for search and rescue in the Kitikmeot region.

The idea for this roundtable came out of conversations that the organizers have had with members of the community-based organizations involved in SAR in the Kitikmeot. These individuals highlighted the need to: 1) share their knowledge with and learn from practitioners in other communities; and 2) share their experiences with and develop relationships with the territorial and federal agencies involved in SAR in Nunavut.



This roundtable allowed participants from the Kitikmeot region's Ground SAR (GSAR) teams, Canadian Coast Guard (CCG) Auxiliary units, CASARA volunteers, and Canadian Ranger patrols to explain how they organize, coordinate, and conduct searches, with a focus on training and skills, response procedures, leadership, equipment, and inter-organization and inter-community cooperation. Participants also discussed SAR operations with representatives from the territorial and federal agencies involved (e.g. the Canadian Coast Guard, Emergency Management Nunavut, and the Department of National Defence/Canadian Armed Forces), with a particular emphasis on how to best utilize community-based assets as force multipliers. The main objective of this roundtable was to produce a list of lessons learned and best practices for dissemination to all individuals, groups, and agencies involved with SAR in the Kitikmeot, and to identify capability gaps that exist in communities and the region more broadly.

Given the range of participants involved, the roundtable also provided an ideal opportunity to explore Mass Rescue Operations (MRO). The International Maritime Organization (IMO) defines an MRO as "an immediate response to a large number of persons in distress so that the capabilities normally available for search and rescue authorities are inadequate." Responses to such rescues generally demand "immediate, well-planned and closely coordinated large-scale actions and use of resources from multiple organizations."[2] The research on MROs highlights the need to involve local stakeholders and community

[2] Natalia Andreassen, Odd Jarl Borch, Svetlana Kuznetsova, and Sergey Markov, "Emergency Management in Maritime Mass Rescue Operations: The Case of the High Arctic," in *Sustainable Shipping in a Changing Arctic*, L.P. Hildebrand et al (eds) (Springer International Publishing, 2018), International Maritime Organization (IMO), *Guidance for mass rescue operations*, IMO, 2003 http://imo.udhb.gov.tr/dosyam/EKLER/201381214504COMSAR1Circ31GuidanceForMassRescueOperations.pdf

organizations in the planning, exercise, and execution of MROs given their expert knowledge of local geography, conditions, and capabilities.[3]


August 2010 photo showing *Clipper Adventurer* under tow by the Canadian Coast Guard (*Nunatsiaq News*, 13 February 2017, https://nunatsiaq.com/stories/article/65674federal_judge_raps_clipper_adventurer_oner_for_nunavut_grounding/)

Roundtable participants noted that in the last decade the Kitikmeot has been the scene of several marine incidents that could have escalated into Mass Rescue Operations. On 27 August 2010, MV *Clipper Adventurer*, with 128 passengers and 69 crewmembers on board, went aground at over 13 knots on a rock shoal in the Coronation Gulf, approximately 100 km east of Kugluktuk. Fortunately, calm seas and sunny conditions prevailed throughout the incident. These conditions allowed the Coast Guard icebreaker *Amundsen* to travel over 500 km in 40 hours and arrive on scene on 29 August to evacuate all passengers.[4] After midnight on 30 August, Amundsen disembarked the passengers at Kugluktuk for a charter flight south – an event that left many community members asking "what if?". What if the weather had been worse, increasing the danger to passengers and crew, and preventing evacuation by *Amundsen*? What if *Clipper Adventurer* had been sinking and required immediate assistance from the community? What if there had been medical emergencies on board? What if there had been a major fuel leak from the vessel? What if Kugluktuk had to house, feed, and provide medical aid to passengers and crew for an extended period of time?[5] The *Clipper Adventurer* incident had a lasting impact on Kugluktuk's emergency responders and these questions continue to trouble them.

Just a few days after the *Clipper Adventurer* incident, the tanker MV *Nanny*, which was delivering fuel to Taloyoak and had 9.5 million litres of diesel on board, ran aground on a sand and mud shoal in Simpson Strait, about 50 km southwest of Gjoa Haven. The Canadian Hydrographic Service had known about the shoal for more than a decade and had issued a public warning about it in 1998. Luckily, there was no pollution and, after several days, *Nanny* managed to dislodge from the shoal by offloading cargo with the

[3] J.C. Gaillard and J. Mercer, "From knowledge to action: Bridging Gaps in Disaster Risk Reduction," *Progress in Human Geography* (2012)

[4] Transportation Safety Board, *Marine Investigation Report M10H0006*, Government of Canada, http://www.bst-tsb.gc.ca/eng/rapports-reports/marine/2010/m10h0006/m10h0006.html; Emma Stewart and Jackie Dawson, "A Matter of Good Fortune? The Grounding of the Clipper Adventurer in the Northwest Passage, Arctic Canada," *Arctic* 64 (2) (June 2011): 263-267.

[5] Interviews with members of the Kugluktuk Coast Guard Auxiliary, Ranger patrol, and GSAR team by Peter Kikkert, October 2019, Kugluktuk, Nunavut.

assistance of a sister ship.[6] Roundtable participants from Gjoa Haven also remembered that in 1996 the cruise ship *Hanseatic*, with 153 passengers, also ran aground in Simpson Strait while en route to the community. Two of the ship's fuel reservoirs were perforated and all of the passengers were evacuated by helicopter.

Finally, on 24 August 2018, the 364-foot Russian cruise ship, *Akademik Ioffe,* with 102 passengers and 24 crew members on board, ran aground on a shoal about 72 km north of Kugaaruk.[7] Once again, good sea and weather conditions prevailed, and *Ioffe*'s sister ship, *Akademik Sergey Vavilov,* was able to make it to the stricken vessel in sixteen hours and started to transfer passengers via zodiacs.[8] Fifteen hours later, passengers were offloaded at Kugaaruk to await a plane ride south. Writing about the SAR response to the incident, passenger Ed Struzik explained that, "it took nine hours for a Hercules aircraft to fly in from the Canadian National Defence Joint Rescue Coordination Centre in Trenton, Ontario, to our grounded ship, 12 hours for another smaller defense plane to come in from Winnipeg and 20 hours for a Canadian Coast Guard helicopter to arrive."[9] Struzik's comments highlight the importance of an effective local, community-based response.

The *Ioffe* incident left roundtable participants from Kugaaruk asking many of the same questions as their peers in Kugluktuk during the *Clipper Adventurer* grounding. How would the community have responded if the situation had been worse? What impact might the incident have had on the community if the passengers had to stay in Kugaaruk for a prolonged period? Adding to these concerns is the general feeling that the flow of information and communication to the community broke down over the course of the incident. Neither *Ioffe's* operator nor the federal and territorial agencies involved provided consistent updates to the Kugaaruk hamlet office, the local GSAR team, or the Ranger patrol. The roundtable participants from Taloyoak GSAR team and Ranger patrol shared similar sentiments, noting that, despite their proximity to the incident, they were never informed that a possible emergency was unfolding.

Roundtable participants agreed that if a Mass Rescue Operation ever occurred close to their communities they would be the first responders. They would try their best to help in whatever way possible – from the initial notification of an incident to any possible environmental clean-up required. Ryan Angohiatok, a member of the Cambridge Bay Ranger patrol and GSAR team explained that, "If a major emergency happened…people would come from the community to help. That's just the way it is up here. I guess it would be helpful to know how we could help. So, if we go out as Rangers, what could we do? Maybe not a lot, but something. People are going to go out anyway, can't we get some direction on how we might be able to help the most?"[10]

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[6] CBC News, "2nd Tanker to Assist MV Nanny Stuck in Northwest Passage," *Radio-Canada*, https://www.rcinet.ca/eye-on-the-arctic/2010/09/08/2nd-tanker-to-assist-mv-nanny-stuck-in-northwest-passage/

[7] Ed Struzik, "In the Melting Arctic, a Harrowing Account from a Stranded Ship," *Environment 360*, https://e360.yale.edu/features/in-the-melting-arctic-harrowing-account-from-a-stranded-ship

[8] Malte Humpert, "Arctic Cruise Ship Runs Aground in Canada's Northwest Passage," *High North News*, 28 August 2019, https://www.highnorthnews.com/en/arctic-cruise-ship-runs-aground-canadas-northwest-passage

[9] Struzik, "In the Melting Arctic, a Harrowing Account from a Stranded Ship."

[10] Interviews with Ryan Angohiatok by Peter Kikkert, Cambridge Bay, April 2019.

To try to provide answers to this question and to explore some of other issues raised by previous maritime incidents in the Kitikmeot, the culminating activity of the roundtable was the Mass Rescue Tabletop Exercise. Mass Rescue Operations (MRO) officers and SAR specialists from CCG Arctic Region facilitated the exercise on the afternoon of 1 February. To encourage the sharing of location specific perspectives and responses to the exercise incident, the Roundtable broke into six groups arranged generally by community. Facilitator Chris Bianco from the Coast Guard set the stage by laying out the initial incident, which involved a cruise ship running aground off Unahitak Island close to Cambridge Bay. He asked that each community apply the scenario to their own unique context. Next, Bianco moved through a series of scenario injects that gradually increased the complexity and difficulty of the rescue operation.


## Key Agencies Involved[11]

In Canada, search and rescue (SAR) is a shared responsibility. Many partners (government, military, volunteer, and industry groups) are involved in the National Search and Rescue Program_due to the country's immense size, range of terrain and weather.

The Canadian Armed Forces (CAF) has the main responsibility for providing SAR from the air. It also coordinates the national response for air and maritime SAR. CAF assets are tasked to respond to about 1000 SAR missions across Canada every year.

Territorial and provincial governments are responsible for searches for missing persons including those who are lost or overdue on land or inland waters - commonly known as Ground Search and Rescue (GSAR). Generally, they delegate the authority for ground SAR response to the police services in the area. In northern communities, however, the RCMP often take on a secondary role in SAR, allowing community GSAR committees/teams to take the lead, with support from Emergency Management Nunavut. Parks Canada leads ground SAR in federal parks and preserves. The CAF may also help with ground SAR efforts, medical evacuations and other incidents where people are in distress. The provincial, territorial or municipal authority must ask for the help. The Canadian Rangers often help with ground SAR in sparsely settled regions of Canada, upon request.

[11] This section is drawn from "SAR in Canada: A Partnered Response," https://www.canada.ca/en/department-national-defence/services/operations/military-operations/types/search-rescue/about.html unless otherwise noted.

The CAF sponsors and funds the Civil Air Search and Rescue Association (CASARA). This is a volunteer organization established in 1985. CASARA helps the CAF respond to incidents that involve air SAR. It makes private aircraft and trained volunteer crews available for SAR missions. They provide both search and communications services.

The primary responsibility for the provision of the maritime component of the federal search and rescue (SAR) program rests with the Department of Fisheries and Oceans (DFO) and the Canadian Coast Guard (CCG). This responsibility is assigned to DFO through the *Oceans Act*. The SAR activities of the CCG are:

- the provision of and participation in the maritime component of the joint rescue coordination centres (JRCCs) as well as the provision, operation and equipping of the Quebec Maritime Rescue Sub-Centres (MRSC) and other SAR installations, in cooperation with the Canadian Armed Forces (CAF);
- in collaboration with the CAF, the coordination, control and conduct of maritime SAR operations within the Canadian area of responsibility (AOR);
- the provision of maritime advice and assistance to the CAF in the coordination of aeronautical SAR and other emergencies which may require the use of maritime facilities;
- the provision of maritime SAR units (SRUs) in response to SAR incidents within the Canadian AOR, the activities of which SRUs are coordinated by JRCCs and Quebec MRSC;
- the provision of humanitarian assistance, as a secondary task, when such is deemed best provided by CCG SRUs;
- the formulation and promulgation of federal SAR policy (in collaboration with the Interdepartmental Committee on Search and Rescue);
- the establishment of levels of service, performance and operating standards;
- the provision of maritime SAR training for the coordinated SAR system in collaboration (when appropriate) with the CAF;
- the organization, coordination and administration of Canadian Coast Guard Auxiliary activities;
- the evaluation of SAR services, equipment and procedures, in collaboration with the CAF;
- the review of SAR services, installations and units, in collaboration with the CAF; and
- the provision of maritime distress and safety communications and alerting services.[12]

[12] DND and DFO, Canadian Aeronautical and Maritime Search and Rescue Manual, Combined Edition, General System Concept. B-GA-209-001/FP-001, CAMSAR I – Organization and Management, DFO 5449 Version: Final 2014, Effective Date: 2014-09-30 , Section: I-1.07(E), pages 1-2. In 1948, Canada signed the *Convention for the Safety of Life at Sea*, wherein, under *Chapter 5, Regulation 15*, each contracting state is required to undertake and ensure necessary arrangements for coast watching and for the rescue of persons in distress at sea. In 1958, Canada became a signatory to the *Convention on the High Seas*, wherein, under *Article 12 (2)*, every coastal state is required to maintain an adequate and effective SAR service regarding safety on and over the sea. These responsibilities are further reflected and amplified in subsequent Cabinet decisions, and legislation such as the *Canada Shipping Act, 2001* and the *Oceans Act*. The *International Convention on Maritime Search and Rescue, 1979*, further defines these responsibilities.

Community-based marine SAR units have existed in North for decades, comprised of emergency management personnel, the RCMP, and other community volunteers. The Canadian Coast Guard Auxiliary has also been operating in the North since the 1980s. CCGA units are made up of local volunteers who use their own vessels or a community vessel to respond to emergencies. Pursuant to the Oceans Protection Plan's emphasis on improving marine safety, the Canadian Coast Guard has been actively expanding the Auxiliary in the Arctic and bolstering the capabilities of marine SAR societies since 2016. The vast majority of SAR incidents in the North occur while people are hunting and fishing, or travelling between communities, which is reflected in the missions with which auxiliary units have been tasked to date.[13] Units are also preparing to respond to growing marine activity throughout the Canadian Arctic – from pleasure craft, to fishing boats, to cruise ships. Given the vast distances involved and the lack of federal resources in the region, these groups constitute a vital part of Canada's Arctic SAR system.[14] There are currently CCGA units in Cambridge Bay, Kugluktuk, and Gjoa Haven, while another is planned for Taloyoak in the immediate future.

Successful SAR operations rely on many factors. These include having the right equipment and highly-skilled crews, ready to go out on short notice. Another factor is having SAR resources in the right places and using the right procedures. Effective procedures must include clear lines of communication and coordination, and outline how the different groups and agencies involved in a SAR operation should cooperate. Extensive knowledge of local geography, sea and ice conditions, the environment, and potential challenges and risks is also essential to SAR operations.

# Tabletop Exercise

## Background

- MS *Arctic Explorer*
- Tour Operator: Nautica Tours (headquarters in Miami, Florida)
- Shipping Company: Cruise Management International (CMI)
- Built in 2019
- First time eastbound NWP transit

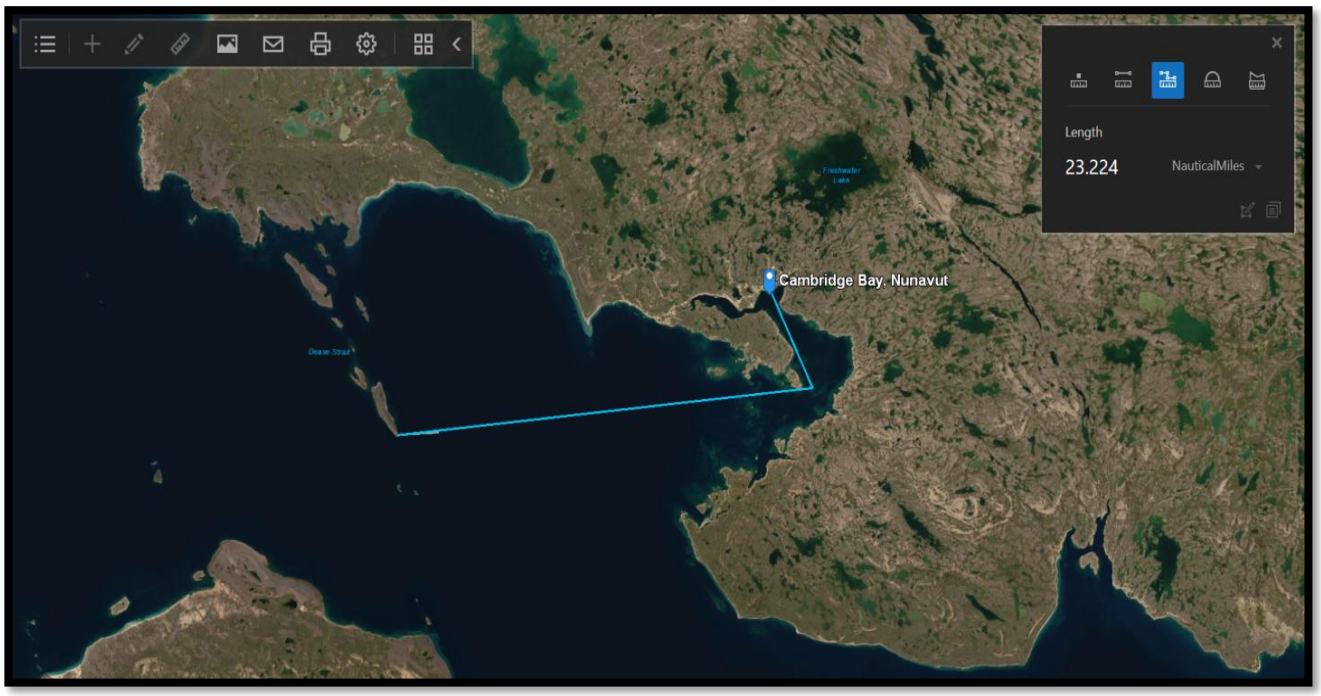
[13] Standing Committee of Fisheries and Oceans, *When Every Minute Counts: Maritime Search and Rescue*, Report published November 2018.
[14] See Peter Kikkert and P. Whitney Lackenbauer, "Bolstering Community-Based Marine Capabilities in the Canadian Arctic," *Canadian Naval Review* 15 (2) (2019): 11-16.

- 138m length
- 22m beam
- 5.4m draft
- 395 POB (240 passengers, 155 crew)
- Average age of passenger is 63
- 16 zodiacs onboard, a 3 ward infirmary, 1 shipboard doctor, 1 paramedic and 3 “first responders” with unknown qualifications
- Zodiacs are loaded from the marina in the aft section of the vessel
- No helipad on vessel, however, there are winching locations in the fore and aft section of vessel

## Inject #1 – T+00.00

- MS *Arctic Explorer* is on a first-time eastbound NWP transit.
- The MS *Arctic Explorer* is scheduled to arrive at the community of Cambridge Bay on the morning of July 30.
- Changing ice conditions force the vessel to alter its route, and due to a lack of familiarity with the region, the MS Arctic Explorer runs aground on the southeastern point of Unahitak Island while transiting towards the community.
- Time of grounding is approximately 03:00.
- W/X – Wind 25kts SE (expected to increase to 30kts in 24hrs), Seas 1.5m, Temp 7°C.*

* *Note:* When some participants explained that their local boats would be unable to operate in 1.5m seas and 25 knot winds, the scenario was adjusted to calm seas and 10 knot windsLocation of Grounding



According to the scenario, the grounding occurred about 23 km from Cambridge Bay by water (estimated at 1 hour by boat or 2 hours by zodiac).

Bobby Klengenberg (GSAR, Cambridge Bay) highlighted the plausibility of this location for such an event to occur given that the presence of a low reef that is out of the water at low tide and hidden below the surface at high tide.

## Initial Actions

- Passengers mustered/briefed in the main lounge on deck 4.
- Tanks are sounded to assess water ingress.
- Ship stability assessed.
- Ship contacts their shipping company to report the grounding.
- MCTS Iqaluit is notified and informs JRCC Trenton.
- At this point, no responding assets have been tasked, however, the tour operator has contacted the SAO of Cambridge Bay to inform them of an itinerary change in their arrival.

## Discussion

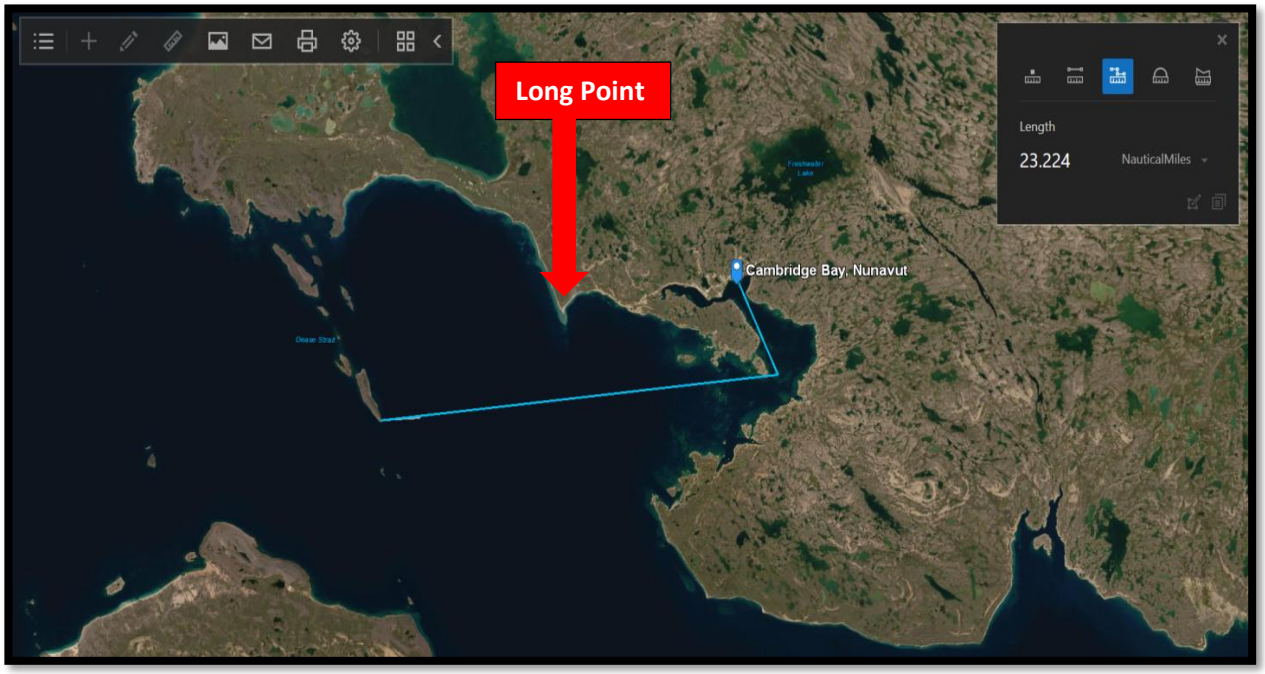
- What are your initial concerns?
- What are your initial actions?
- What challenges do you anticipate in the next hour?
- Who needs to be informed of the situation at this point? How are they notified?
- What information needs to be gathered? From what sources?
- What resources do we have in the immediate area and how are they best employed to ensure an effective response? What agencies direct these resources and how do they interact with other responding agencies?

The facilitator concluded his introduction of the scenario by highlighting the importance of the first few hours in any emergency – particularly one as complex as an MRO. At this stage, the facilitator asked each group to reflect on the discussion questions – first from the exercise point of view focused on Cambridge Bay and, secondly, as the situation might unfold in their own communities. After each group had the chance to reflect on the questions, the entire Roundtable came back together to discuss responses.

Participants from Cambridge Bay and Kugluktuk – who had the most knowledge of local resources and capabilities – were spread out across two groups and together they laid out a comprehensive approach to the scenario:

### The Response:

- If a passenger evacuation were required, it would be shorter to truck passengers and ship crew from Long Point (which has road access and is about 15 km from town) rather than bringing them directly from the ship to Cambridge Bay harbour. This would reduce the water distance and allow the boats to shuttle people more quickly to shore. A key question that emerged from this suggestion was how this local knowledge should be shared with responsible agencies and organizations.
- If someone anticipated a turn in the weather, or if the ship was going down fast, they might decide to shuttle the passengers to a safe site on Unahitak Island until they could arrange for transport to Victoria Island. The NWS station has a helicopter which could offer support in carrying people from the Unahitak Island to Long Point
- The focus of SAR teams would be to get people from ship to shore, and then from Long Point to the community of Cambridge Bay. Participants noted that the community has seven (7) buses (when all are fully operational). The gravel pit is located close to the water and accessible to buses. The bus door would serve as a natural checkpoint, helping to reduce the danger of losing people.
- The RCMP or hamlet would arrange for security along the roadway (traffic control). They would also ensure that local residents did not travel to check out the ship.

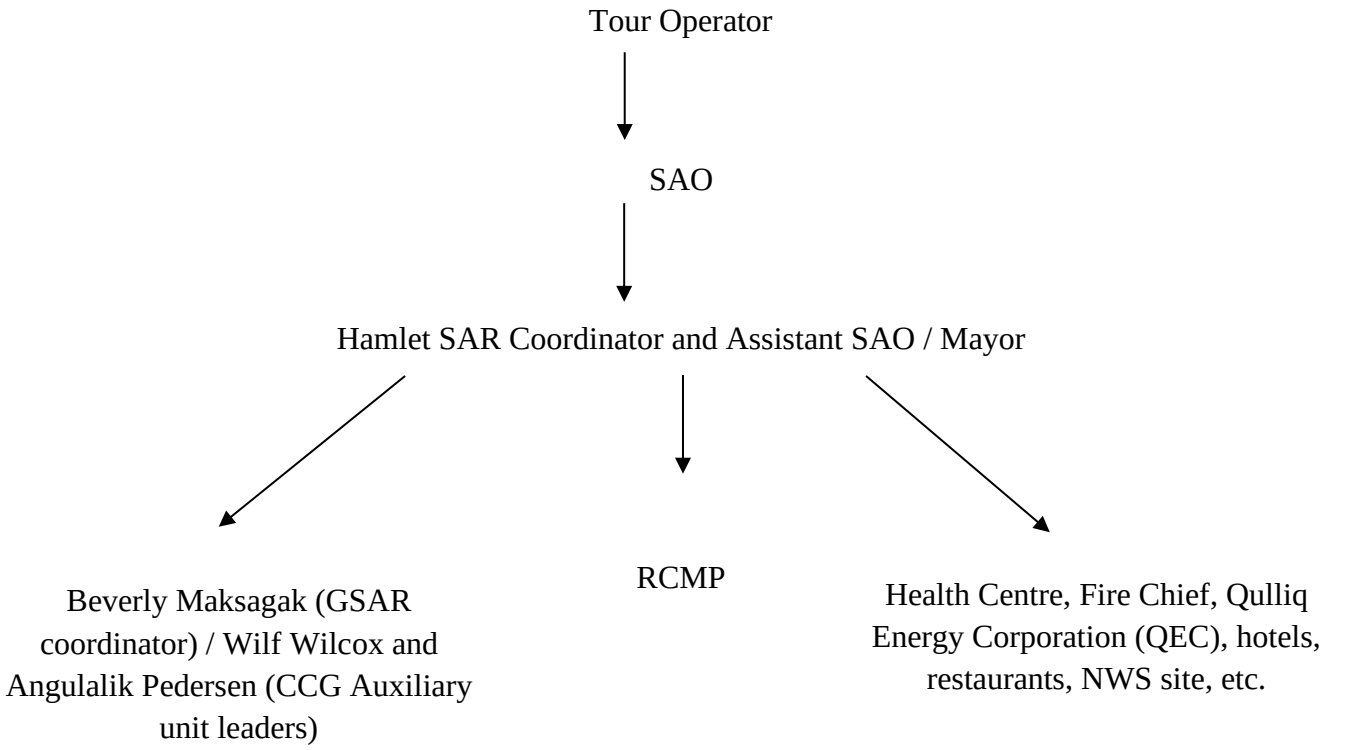



## Communication and Coordination:

- The Cambridge Bay Assistant SAO noted that health care workers in Cambridge Bay would be notified immediately, with the plan to set up a triage tent, possibly at Long Point.

- The SAO/ASAO would engage with the appropriate people in the hamlet to invoke the community response plan, which lays out key responsibilities and lines of information flow in case of emergency. A command post would be established at the Hamlet office.
- In order to ensure access to all possible resources, people would contact the hotels and the North Warning System (NWS) station (locally referred to as the "DEW Line" station), as well as the gym, community centre, and local schools.
- Someone would contact the ship operator to ask if they were calling airlines to arrange to fly healthy people south to Yellowknife, which would reduce the burden on Cambridge Bay.

### Cambridge Bay Information Flow:




### Cambridge Bay Resources:

- A major question asked at this stage was whether Cambridge Bay had the capacity to handle a sudden influx of hundreds of evacuees. What should be done with people once the made it into town? The Cambridge Bay ASAO noted that this issue had been considered at the community level during the *Crystal Serenity* cruise in 2016 and again by the Canadian Armed Forces during Operation NUNALIVUT 2018. The latter study, which focused on an event that brought 1700 evacuees into the community, had produced a capacity analysis and planning documents that would be useful in this MRO scenario. In short, Cambridge Bay had the capacity to safely accommodate, feed, and support 1700 evacuees, although potential challenges might arise around the availability of cots and bedding, hygiene and sanitation services.

- Participants noted that there are three (3) commercial kitchens in Cambridge Bay (in addition to restaurants): at the Canadian High Arctic Research Station (CHARS), at the high school, and at the community centre. This meant that the community would have the capacity to feed the 395 POB the ship as long as there was enough food. To anticipate needs, someone would contact the Northern and Co-Op stores to see how much food they had in inventory. They would also inquire how much food was available and salvageable on the ship.
- If the R/V *Martin Bergmann* were in town, it would be contacted to offer support.

**Summary of Task Force Nunavut, *Hamlet of Cambridge Bay: Capacity Analysis*, Operation NUNALIVUT 2018**

During Operation NUNALIVUT 2018, the 38 Brigade Civil-Military Co-operation Team deployed to Cambridge Bay to assist in the completion of an emergency preparedness capacity analysis for the community. The audit explored Cambridge Bay's ability to support 1700 evacuees – from surrounding communities or a large cruise ship – for a period of 72 hours in both summer and winter. The study found that Cambridge Bay had most of the assets to support 1700 evacuees, including a suitable reception centre and adequate accommodations, water supply, medical care, power, transportation, communications, food sources, food preparation capacity, and garbage services. The assessment identified potential challenges around the availability of cots and bedding, hygiene and sanitation services.

Reception and Accommodation Centres: Kiilinik High School, Kullik Ilihakvik Elementary School, Canadian High Arctic Research Station (CHARS), Hamlet Recreation complex. While there is the required space, it will be difficult to secure sufficient cots, bedding, and hygiene products for evacuees.

Water: Adequate supply based on Based on 55 litres/person/day. Schools, Health Centre and CHARS are on a high-pressure direct water line.

Sewage: Sewage removal requirements will increase dramatically. All facilities require septic tanks to be emptied and deposited into lagoon via truck. The community has four sewer trucks. While the lagoon is able to handle waste generated by evacuees, any equipment breakdowns and driver exhaustion could lead to challenges.

Food preparation: Deemed sufficient, with five commercial grade kitchens in CB each estimated to be able to prepare 350 meals per sitting. Additional facilities are available if needed. Finding enough people to assist in food preparation could be addressed through volunteers.

Food sources: Deemed sufficient and able to handle increase in demand. "Commercial food sources have an abundance of dry goods in their warehouses to enable food sources to the community for the year." This scenario also assumes that resupply flights will continue to arrive as scheduled.

Medical: The medical centre is equipped to handle a wide range of issues. Standard procedure is to stabilize serious cases and transport to Yellowknife. This should not be disrupted by influx of evacuees.

Security: RCMP with five officers on staff will require support, e.g. 1 CRPG, CCGA, Volunteer Fire to help direct evacuees.

### Key Considerations:

- The average age of the passengers on the ship was 63. This meant anticipating medical issues, the limited amount of time that they would be able to face the elements, and possible challenges in offloading the vessel.
- Participants already began to anticipate the health needs of the ship passengers and crew, highlighting that passengers would need their medication, sleep apnea machines, cell phones, etc. They noted that, in due course and if the situation allowed, they would want to anticipate retrieving and securing passengers' possessions – but only if this could be done safely. They also noted that the infirmary on the ship would contain supplies and pharmaceuticals.
- Participants expressed concern about the environment, and particularly how to contain a fuel spill, given that the same people in the community who are trained to manage spills would be busy rescuing passengers and crew from the sinking ship.

Once the Cambridge Bay and Kugluktuk groups completed their briefings, the other groups added various considerations that took into account the specific contexts of their own communities. They noted that the resources Cambridge Bay had its disposal to address an MRO differed greatly from the limited capacities of the other Kitikmeot communities. While agreeing with many of the steps outlined by the first groups, they added additional actions, concerns, and questions.

### The Response:

- The Coast Guard Auxiliary unit from Gjoa Haven noted that there should be an emphasis placed on securing tasking numbers as quickly as possible and getting out on the scene to get eyes on the situation. There was some concern that the Coast Guard would not issue the auxiliary a tasking number in a situation such as this or that it would delay in providing one. The Auxiliary should be allowed to respond to this sort of situation immediately, even if only to provide situational updates. In addition, only by being on scene could the auxiliary report if there had been extensive damage to the ship or if there was any oil or fuel spills from the vessel. If the scenario worsened and the passengers had to get into lifeboats, the Auxiliary vessel would be needed to guide them to a safe harbour or bring them back to Gjoa Haven.
- Several participants noted that as soon as there is the possibility of an emergency or MRO, CASARA assets should be activated at the community level. While it is unclear if community CASARA volunteers would be required in this kind of scenario, they should at least be notified to get ready.
- Rangers from Taloyoak advised that they would try and contact 1 Canadian Ranger Patrol Group Headquarters in Yellowknife to determine what is happening and what might be required of them. They wondered if assisting in an MRO might be a Ranger task and, if so, what might they be asked to do? Many of the Rangers have access to personal boats, which they often use when doing patrols. They could potentially use these boats to assist during an MRO. If people were offloading onto a remote island, Rangers would seem to be a good choice to go set up a camp to help reassure

passengers and keep them warm. The patrol would also know the best locations to set up a temporary camp and would be able to provide predator patrol.

- The positive psychological impact of seeing the red hoodies and a well-organized patrol on the scene should not be underestimated. The radio would be the best way to keep people up to date on the situation.
- One Ranger noted that in this MRO situation, patrols had an obvious role. Rangers are supposed to be the "eyes and ears" of the military in the North, so whenever a ship is in danger and calls for assistance, the Rangers should be deployed to provide information to 1CRPG, which could then be shared with the military and Coast Guard. Rangers are also the eyes and ears of their communities, so several roundtable participants said that they would go out to check on the vessel regardless if 1CRPG tasked them to do so or not – to make sure that there was no environmental pollution or dangers to their community.
- A participant from Kugaaruk noted that, as far as he knew, his community still did not have a community emergency plan (as of spring 2019, Kugaaruk and Pangnirtung were the two Nunavut hamlet without emergency plans), so when asked what the plan would be in this kind of scenario, he did not know. Still, he knew that the GSAR team and other community members would do something to help. He wondered what plans Emergency Management Nunavut or the Coast Guard had in place for this sort of scenario and wondered if they could share them with the communities to give them an idea of the role they could play.

### Communication and Coordination:

- In general, community participants wondered if and how they would be kept informed about the unfolding situation. Participants from Taloyoak and Kugaaruk did not feel like territorial and federal organizations provided them with sufficient updates during the *Ioffe* incident. In an MRO, keeping communities as informed as possible is absolutely vital. If there is going to be an influx of evacuees into a community, the hamlet office and responders need to time to prepare. Also, communities should be kept in the loop because their local knowledge might provide key information to help with any evacuation or rescue. As one participant noted – "We know the local weather. We know the conditions. We know the water and ice, the rocks. We know how the ice works. We know the best routes to take, the fastest, the safest routes to take. We know things that you can't get from a GPS or a weather report. We know how the tides work. If you are coming in by zodiac or lifeboat, we can help you avoid dangers. We may not be happy that you've brought this trouble, but we will try our best to help you out of it. You have to listen."
- Contact local radio to tell people not to go out to the ship site or to get in the way of rescue efforts.
- Several participants noted the importance of contacting other communities for potential support if required. This might be a situation that calls for every Ranger patrol or Coast Guard Auxiliary unit in the region to be mobilized. They should be given as much advance notice as possible.

### Resources:

- Participants from Taloyoak and Kugaaruk, which do not currently have Coast Guard Auxiliary units, noted that the state of potential rescue boats would be an immediate concern. While many Rangers and GSAR members have their own boats, some might be hesitant to use them in this situation and others worried about whether their boats would be considered safe enough to get a tasking number.
- In communities without obvious helicopter support (such as the NWS helicopter), the hamlet or different response groups should find out if there are any helicopters in the vicinity to assist in the MRO. Private industry might be able to provide some of the resources required in an emergency.
- When a roundtable participant heard about the Oceans Protection Plan's Safe Harbors initiative in Cambridge Bay – which identified a series of safe harbours in the area – they thought this program would prove useful during an MRO and that it should be applied to the other Kitikmeot communities.
- Participants from Taloyoak, Kugaaruk, and Gjoa Haven were very concerned about the ability of their communities to support such a rapid influx of people, should the ship be evacuated. The evacuees from the *Ioffe* incident were only in the community of Kugaaruk for a few hours, but it was enough to make people worry about feeding and housing them. What impact would this many people have on the fuel supply of a community? What impact would they have on a community's limited supply of fresh food? Would the sanitation systems be able to take this many people? How quickly could the government or cruise ship operator get the people on a plane heading back south? What if weather conditions made this impossible for a certain period of time?

### Key Considerations:

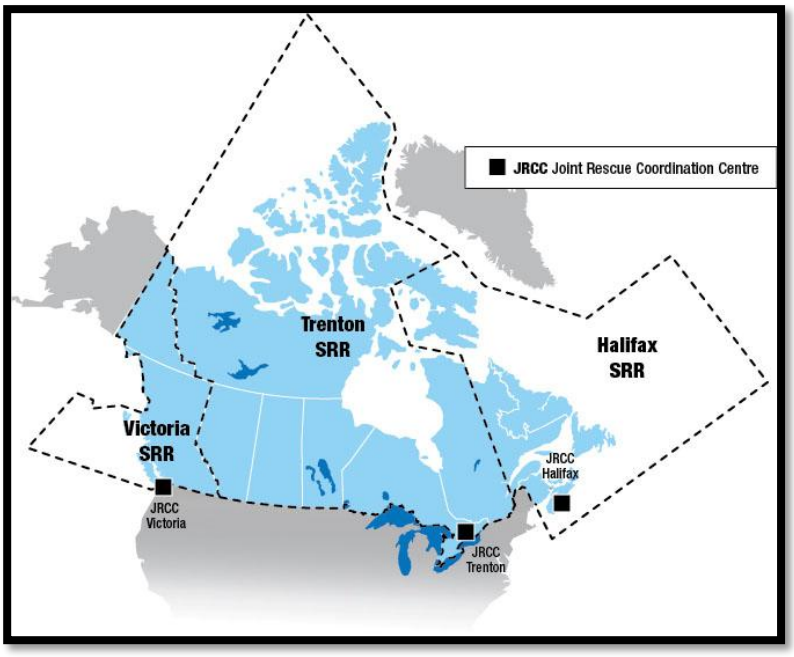
- Fuel and oil spills a major concern, as was the lack of capacity and resources to deal with them. Participants from Taloyoak noted that this would be their major concern. They noted that the response equipment stored in Cambridge Bay would be of little use to them. They did not know anyone in the community with the training to respond to an oil or fuel spill. They did not know how the government would respond to such a spill. The Taloyoak Rangers thought that Ranger patrols might be the best choice to respond to an oil spill, given their organization, training, and the fact that they can be paid for their time and work.
- Given the 03:00 scenario, many passengers might be in nighttime clothing which would need to be factored into response efforts, e.g. should community responders secure and bring additional warm clothing.
- Keep an eye out for inexperienced community members who might go out to watch or even help.

## Inject #1 General Roundtable Discussion:

After each group finished presenting their plans, ideas, actions and concerns, the tabletop facilitator provided time for responses from the federal and territorial partners present and for general discussion. Ranger Master Corporal Baba Pedersen, the Resource Management Officer for Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) in Kugluktuk, noted that if a ship is leaking fuel, the

best case scenario is that there are up to two (2) sea can containers of fuel spill containment material. In a worst-case scenario, it could take up to a week to initiate cleanup efforts.

The CCG highlighted that accurate reporting is key: they can only deploy assets as quickly as they have information. Reporting signs of vessel damage, a sheen, leak, or smoke plume is important for local responders and "higher ups." The Joint Rescue Coordination Centre (JRCC) in Trenton, Ontario, would likely task a Hercules and icebreakers, but these assets would take many hours to reach the scene, so local resources would be essential to evacuate passengers and report information. Participants high-lighted the *Queen of the North* ferry disaster in BC (2007) and the MV *Leviathan II* tragedy as examples of rescue efforts largely prosecuted using local resources.




The RCAF representative explained that "all assets" would be "spooled up" to support rescue efforts, and that the RCAF would ready its Major Air Disaster (MAJAID) kit and rig it onto Hercules (CC-130) aircraft. He also provided a detailed description of the contents of a MAJAID kit.

The representative from Joint Task Force (North) in Yellowknife, who was working when the *Akademik Ioffe* ran aground with 126 POB about 45 miles north of Kugaaruk in 2017, explained that the Operations Centre at JTFN would contact everyone in the headquarters and would prepare an intelligence brief for the Commander JTFN. In the case of the *Akademik Ioffe*, an Arctic Response Company Group in Petawawa was called up for potential deployment. JTFN would then "ready up" a team to send to Cambridge Bay to identify a potential MAJAID site. Although the Canadian Coast Guard would be in the lead, he noted that the Canadian Armed Forces would be "flinching" so that it would be ready to deploy at any moment as required.

## The MAJAID Kit

The CAF's MAJAID kit is on standby 24/7 365 days a year. While MAJAID is short for Major Air Disaster, the kit is intended to serve as rapid response to any disaster or emergency that demands the swift deployment of survival supplies. The kit can support up to 320 people for 72 hours.

The kit is permanently stored on pallets designed to be loaded into a CC-130J Hercules or CC-177 Globemaster transport aircraft and parachuted on the scene of a disaster. When deployed, the kit is accompanied by SAR Techs and a security team to provide predator control. These teams carry with them 24 hours of personal supplies. The kit consists of tents, sleeping bags, clothing, medical supplies, heaters, generators, water, rations, and several Argos (all terrain vehicles).

During Operation NANOOK 2014, the MAJAID kit was airdropped for the first time in the Canadian Arctic. The scenario simulated a 50-passenger cruise ship grounding due to mechanical issues in York Sound, on the south shore of Frobisher Bay, Baffin Island. The exercise included twelve CAF members who parachuted onto the scene to unpack the kit and establish a functional camp.

The CAF again tested the MAJAID Kit in the North during Operation NANOOK-Exercise READY SOTERIA 2018 near Yellowknife. The exercise simulated a major air disaster on Banks Island, NWT, involving 199 people on board.

As observer Richard Lawrence noted: "BGen. Anderson [then Deputy Chief of Staff – CJOC], talked about some of the take-aways from this exercise with his first comment regarding the amount of time it takes to reset the MAJAID Kit once it has been deployed. In short, it takes 90 days before the MAJAID Kit can be used again and should another disaster occur during that period, the kit is not available. The easiest fix to this is to have a second MAJAID Kit ready to go. As well, the tactical operators are looking at the kit during this exercise to make sure its components are appropriate to the job, especially if the CAF is going to purchase a backup kit."

See Department of National Defence, "Operation Nanook," https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-nanook.html Richard Lawrence, "OPERATION NANOOK - EXERCISE SOTERIA (MAJOR AIR DISASTER - MAJAID)," *Esprit de Corps*, 11 October 2018, http://espritdecorps.ca/richard-lawrence/operation-nanook-exercise-soteria-major-air-disaster-majaid

## Inject #1: Major Observations and Themes

- As the regional hub for the Kitikmeot, Cambridge Bay is well-equipped with both the human and physical infrastructure required to deal with a disaster of this magnitude – the community's size, capacity in terms of transport, shelter, food, medical care, etc. and its highly effective community-based GSAR team and Coast Guard Auxiliary Unit are all key assets. The community has also established clear lines of communication and information flow in case of an emergency. In the case of an evacuation, the community would be able to host the cruise ships passengers and crew for several days.
- Participants noted that, while the other Kitikmeot communities also have effective community-based groups that could respond to an MRO, even a short stay by evacuees would place a severe strain on their existing physical infrastructure.
- Private industry should be considered an important force multiplier in the Kitikmeot. The North Warning System helicopter could be requisitioned from Cambridge Bay, while other communities might have access to equipment and infrastructure from mining companies operating in the region.
- Roundtable participants were all members of community-based organizations involved in SAR and they all recognized where their "marching orders" would come from. Auxiliary members understood that their tasking would come from the JRCC, while the Rangers would look for orders from 1CRPG, and GSAR teams expected to be directed by their community command post, Emergency Management Nunavut, and, possibly, the JRCC. Given the complexity of SAR operations in Canada, and the many different partners involved, the fact that community groups are aware of who would be in command of their potential taskings is important.* Still, participants noted that this relationship would only work if southern agencies were willing to listen to community members and agreed to work as a team during an MRO.
- Some participants expressed concern that the federal and territorial organizations involved in an MRO would not utilize community assets to their greatest potential. Each group was clear that if an MRO were to occur near their communities they would want to be involved and laid out a set of potential responses and capabilities they could offer.
    - If tasked immediately, the Coast Guard Auxiliary could travel to the scene to get eyes on the situation and start feeding updates to the JRCC. If the situation worsened, an Auxiliary unit could also guide lifeboats or zodiacs to safe havens or bring them back to the community.

* This observation is very different from the conclusions drawn by a 2014 Tabletop Exercise based on a cruise ship grounding near Pangnirtung. See Liane Benoit, *Perspectives on Emergency Response in the Canadian Arctic: Sinking of the MS Arctic Sun in Cumberland Sound, Nunavut. Part B: Response to the Hypothetical Scenario*, Munk-Gordon Arctic Security Program, 2014, http://gordonfoundation.ca/resource/perspectives-on-emergency-response-in-the-canadian-arctic-part-b/

    - Rangers noted that, if required, they could respond to a maritime emergency in their personal boats. They could also quickly establish a camp for offloaded passengers, providing warmth and shelter, help to track evacuees, and provide predator control. Rangers also stressed the positive psychological impact that seeing the red hoodie and an organized military unit might have on evacuated passengers.
    - Community GSAR teams also noted that they could participate in an MRO with their personal boats, could help offload and keep track of passengers, and assist evacuees if they moved into the community.
    - CASARA participants noted that they should be notified of an incident immediately in case their services would be required.
- Roundtable participants highlighted the need to think about the ways in which community groups could be utilized in an MRO. The roles of community groups could be clarified and practices through additional tabletop, functional, or full-scale exercises.
- Roundtable participants expressed an interest in being briefed on the plans, preparations, and tools that federal and territorial agencies have in place to deal with an MRO (eg) the MAJAID Kit, other forms of response, plans to evacuate passengers from a community.
- The fuel and oil spills that could result from this kind of incident were a major concern of community participants. They noted that there was extremely limited or no resources to deal with an oil or fuel spill at the community-level and advised that community members be better equipped and trained to respond.
- Coast Guard participants highlighted how important local knowledge would be in an MRO and stressed the need to have local eyes on the scene. Community participants further stressed the importance of the local intelligence they could provide during a rescue. A clear example of this was the suggestion from the Cambridge Bay participants that, rather than taking passengers by boat directly to the town's harbour, they should be offloaded at Long Point, which was far closer and has road access to the community. From there passengers could transported by bus to accommodations in the community. A central question raised was how this information should be shared with the tour operator / ship's crew and how to ensure it was acted upon.

"We know the local weather. We know the conditions. We know the water and ice, the rocks. We know how the ice works. We know the best routes to take, the fastest, the safest routes to take. We know things that you can't get from a GPS or a weather report. We know how the tides work. If you are coming in by zodiac or lifeboat, we can help you avoid dangers. We may not be happy that you've brought this trouble, but we will try our best to help you out of it. You have to listen."

## Inject #2 – T+01:00

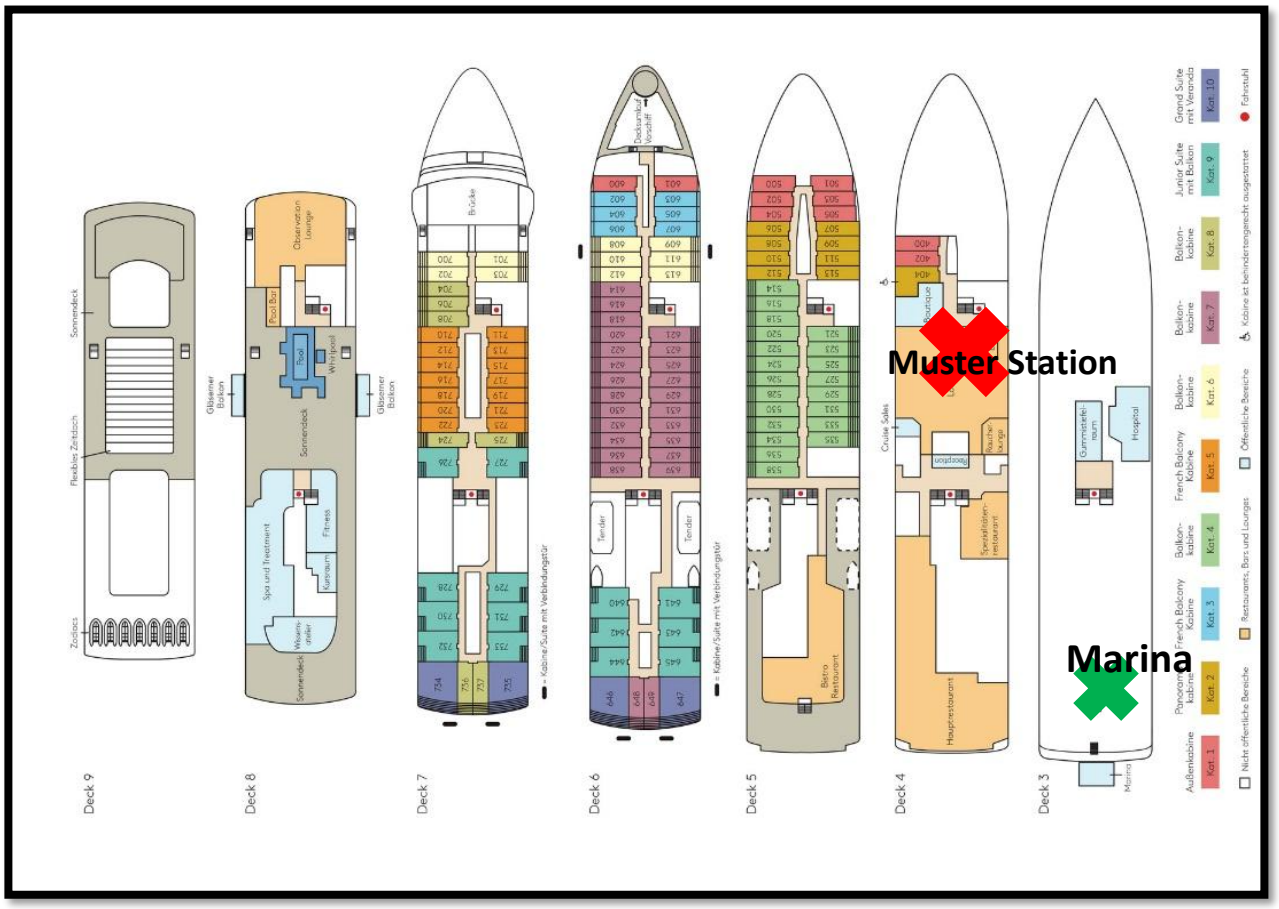
- After sounding the tanks it is determined that the vessel is taking on water.
- Bilge pumps have been activated and are able to somewhat delay the ingress.
- On orders from the Captain, passengers and crew are being evacuated to the shoreline of Unahitak Island.

## Actions

- JRCC Trenton notifies Cambridge Bay CCGA and tasks them to assist on-scene. CASARA is tasked to provide situational awareness on-scene.
- Due to the prevailing weather conditions, no vessels of opportunity are able to be tasked in the immediate area.
- Passengers are being taken in groups from the muster station in the main lounge to the marina at the stern of the ship.
- While deploying zodiacs, the vessel briefly loses power and is unable to use the crane. Two zodiacs (10 passenger capacity) have been deployed.
- When the backup generator is activated, the crane will not function. One zodiac is stuck on the crane.
- Two 60 person lifeboats are being deployed.
- The vessel's marine evacuation system has been activated and approximately 120 passengers are being loaded into life-rafts.
- Vessel loses internet connection and communications are limited to portable satellite phone.

## Discussion

- What are your concerns at this stage?
- What actions should be taken? Do additional personnel/agencies need to be informed at this point?
- What challenges do you anticipate in the next three hours?




While several of these questions had already been answered in the inject #1 dialogue, the roundtable once again broke into community groups to discuss the evolving situation.

### The Response

- One Ranger/GSAR/CCGA representative, who knows the island because he flies over it regularly pursuant to his environmental inspector job, noted that it was safe to land on the Unahitak Island because it tapers down to the sea. The question was how to get passengers out of lifeboats and other small craft (eg. zodiacs) and onto the island.

- Members of the Cambridge Bay, Kugluktuk, and Gjoa Haven Coast Guard Auxiliaries all noted that the inject had officially tasked the Cambridge Bay unit with assisting on-scene. Some questioned exactly what their role would be in this incident. Would they be responsible for shepherding the zodiacs and lifeboats to the island? Should some members get off at the island to assist with offloading passengers? Would they be responsible for establishing a check point at which passengers could be logged and tracked? What specific equipment should they bring with them in this scenario?
- Coast Guard Auxiliary members also noted at this point that the JRCC would likely make the CGA unit leader the on-scene coordinator. At least that is how they thought it would work in a regular SAR – would the same hold true in an MRO? If so, did the expectations change or did the same general provisions apply? One participant suggested that additional training might be provided to CGA unit leaders on MROs and how to effectively coordinate at the scene. Participants also noted that, if a CCG ship arrived, the on-scene command would transfer to its captain.

**Excerpt from Canadian Coast Guard Auxiliary *National Guidelines* (2016)**

3.7 ONSCENE COORDINATION

On-scene Coordinator (OSC)

In major SAR operations where several rescue units respond to a call, an On-Scene Coordinator (OSC) is normally appointed by the JRCC/MRSC. An On-Scene Coordinator is the commanding officer of a vessel or aircraft designated by JRCC/MRSC to coordinate SAR operations within a specified area. On-Scene Coordinator authority may be delegated to primary Coast Guard SAR vessels, DND aircraft, secondary Coast Guard vessels, CCGA Vessels or other government vessels that have suitable equipment and trained personnel for the expeditious conduct of SAR operations.

Where an OSC has been designated, the OSC shall be responsible for the following tasks to the extent they have not been performed by the responsible JRCC/MRSC:

- Coordinate operations of all SAR maritime and air resources;
- Receive the search action plan or rescue plan from the JRCC/MRSC or plan the search or rescue operation, if no plan is otherwise available;
- Modify the search action or rescue plan as the situation on-scene dictates, keeping the JRCC/MRSC advised (done in consultation with the JRCC/MRSC when practicable);
- Coordinate on-scene communications;
- Monitor the performance of other participating facilities;

- Participants understood that any possible evacuation would demand a great deal of cooperation between the different groups involved. At this point, a scenario could be envisioned where the ship's crew would be working with Cambridge Bay Coast Guard Auxiliary, GSAR team members, and/or Canadian Rangers. With this many partners involved, how can we best track passengers during the evacuation and ensure that all are accounted for? All agreed with the facilitator on the importance of working together in a system that could track passengers from "ship to shore to south." These efforts need to be streamlined so that a master count could be taken and tracked.
- A major question explored by participants was how do we "control the flow" of passengers as they arrive on the island and then later to Cambridge Bay? (i.e. checkpoints, staging areas, directing passenger movement). While community groups would play a major role in tracking passengers throughout the process, commentators also suggest that cruise ship and tour operators have quite sophisticated methods for tracking passengers, particularly for executing activities like shore excursions. It would be useful if these organizations could keep community groups informed of their methods and technological systems.
- To identify and control the passengers, local responders asked that a copy of the ship manifest be passed down to the tactical level as quickly as possible, including the names, ages, and medical conditions of the people. The SAR team would work in conjunction with the

**Excerpt from Canadian Coast Guard Auxiliary *National Guidelines* (2016)**

- Ensure operations are conducted safely, paying particular attention to maintaining safe separations among all facilities, maritime and air;
- Make periodic situation reports (SITREPs) to the JRCC/MRSC. SITREPs should include but not be limited to:
    - 1. weather and sea conditions; 2. the results of search to date; 3. any actions taken; and, 4. any future plans or recommendations.
- Maintain a detailed record of the operation:
    - 1. on-scene arrival and departure times of SAR resources, other vessels and aircraft engaged in the operation; 2. areas searched; 3. track spacing used; 4. sightings and leads reported; 5. actions taken; and 6. results obtained.
- Report the number and names of survivors to the JRCC/MRSC;
- Advise the JRCC/MRSC to release resources no longer required;
- Provide the JRCC/MRSC with the names and designations of SRUs with survivors onboard;
- Report which survivors are in each SRU;
- Request additional JRCC/MRSC assistance when necessary (for example, medical evacuation of the sick and injured).

ship's crew to triage passengers. Calming down passengers who were panicking would be an important task. The professionalism of the SAR team would be key to mitigating panic as a complicating factor, and help to ensure that efforts went smoothly.

- In the responses to inject #1, roundtable participants from Cambridge Bay noted that if the passengers could be taken to Long Point, buses from the community could transport them to temporary accommodations in the community hall, schools, and CHARS. Other participants highlighted that their communities would struggle to provide adequate ground transportation for moving passengers. Most would have to travel by foot, with community vehicles being used to transport the elderly or injured.
- With passengers and crew being moved to the island, the priority was to get tents out and set up to shelter them because they would need to be safe from the elements while in that location (safe haven). Further-more, participants thought about the need to get food and warm drinks to the island if the passengers were going to be stuck there for a prolonged period of time. One participant asked what cruise ship companies or tour operators have available in terms of sustainment packages, camping supplies, and/or deployable resources?

### Communication and Coordination:

- Communications were a dominant discussion theme, including the lack of direct communications between first responders from the community and the ship being a primary concern. Would the ship's crew understand the importance of working with community-based assets? With passengers on the island, who would be relaying information to the community to tell responders what they needed to know to revise/adjust plans (including where to send nurses)?
- There was a strong desire for more information on how to best communicate effectively with JRCC or with military assets in the area (e.g. Hercules pilots) during an MRO. What kind of information would the JRCC deem critical at different stages of the operation?
- Participants also expressed fears about the telecommunications (internet and cell service) system in Cambridge Bay if the passengers overwhelmed the system. The anecdote of civil servants involved in Operation NANOOK who overwhelmed the system in Iqaluit when they all turned out their Blackberries, was raised.
- The community would also need reassurance. Consistent and effective communication would be key to preserving the confidence of the community.

### Key Considerations:

- To determine if other cruise ships or other vessels were around, one participant suggested accessing the marinetraffic.com website to see. The facilitator noted that JRCC would coordinate with vessels of opportunity, but local awareness and initiative was clearly evident as well.

- The JTFN representative noted that the military would be focusing on deploying assessment and recce teams from Yellowknife at this stage. This would include developing go / no-go criteria, and developing operational plans as quickly as possible. A local risk assessment of prevailing and projected weather conditions would inform the decision about how to respond to the SAR incident.

## Inject #2: Major Observations and Themes

- Local knowledge played a pivotal part in inject #2 as one Ranger/GSAR/CCGA representative who knows Unahitak Island well advised it would be safe to evacuate passengers there as it tapers down to the sea.
- In this inject, the Auxiliary unit was officially tasked to respond on-scene. Roundtable participants advised that in this scenario the organization and capabilities provided by community-based groups would be vital. They could shepherd lifeboats and zodiacs, establish a checkpoint at which to offload passengers, provide First Aid, establish a temporary camp to provide some shelter and warmth, and help keep track of the evacuees.
- When the Coast Guard Auxiliary arrived on scene the expectation was that the JRCC would make them the on-scene coordinator. One Auxiliary unit leader advised that additional training and exercises should be offered on how to coordinate the scene of an MRO.
- The major theme in inject #2 was how to keep track of passengers as they evacuated to Unahitak Island and then to Cambridge Bay. Participants acknowledged that this would take a great deal of cooperation between all involved and would depend on the flow of information and communication between these groups. They were particularly concerned about establishing communications with the ship's crew to facilitate the process of monitoring passengers.
- Questions arose about the technology, equipment, and methods that cruise ships/tour operators that visit Nunavut utilize to keep track of passengers. Participants also wondered if cruise ships operating in the Arctic generally have easily deployable sustainment packages or the supplies to set up a camp on board.

## Inject #3 – T+03:00

- JRCC receives a report from the vessel that a number of passengers and crew have been injured during the grounding incident.
- Three elderly passengers have fallen down a staircase, one has fractured their arm, one has a suspected spinal injury and has been immobilized by the shipboard paramedic, and one has sprained their ankle.
- Two crewmembers were injured by a falling zodiac while trying to deploy the zodiac stuck on the crane.
- Four crewmembers who were running dewatering pumps are showing symptoms of carbon monoxide poisoning.

## Actions

- The casualties have received preliminary treatment from the shipboard doctor and paramedic and are being prepared for evacuation.
- Casualties will be transported by one of the deployed zodiacs.

## Discussion

- What are your concerns at this stage?
- What actions should be taken? Do additional personnel/agencies need to be informed at this point?
- What challenges do you anticipate in the next three hours?
- What effect will the influx of casualties have on the local medical resources? What can be done to mitigate the impact?
- Is there a way to assist or provide first aid en route?
- Can resources be supplied by the ship to supplement the response effort?

At this point, the facilitator acknowledged that many of the inject #3 questions had already been anticipated and answered by roundtable participants. To save time and avoid redundancy, from this point onward the TTX discussion shifted from small groups to the roundtable as a whole.

### The Response:

- Those involved in the MRO will need to assist in triage, sorting evacuees according to injury level at check-in zone: major injuries in one place, minor injuries another place, uninjured in another place.
- A driving question was how to stabilize casualties as a SAR crew until they could be MEDEVACed. Triaging according to injury level would be important.
- Participants highlighted that landing people to and from a boat was very difficult. Landing a stretcher from a ship to a boat, and from a boat to shore, are important activities for a SAR team to practice.
- Cambridge Bay was again well prepared to provide medical assistance to the injured passengers and crewmembers. The members of the Coast Guard Auxiliary Unit all have their Standard First Aid. The Cambridge Bay GSAR team also includes several wilderness guides who are well trained and current in Wilderness First Aid. Once passengers made it into the community, the health centre would be able to meet most of their needs and prepare the injured for MEDEVAC to Yellowknife.
- Participants asked: Who is providing the consistent casual care? Who is tracking the casualties as they move? Is Yellowknife prepared to handle casualties as they arrive?
- One participant highlighted the need to keep track of the members of the community-based organizations involved in SAR that have First Aid and Wilderness First Aid training. This information should be kept up to date and reflected in community emergency plans. In case of an MRO, this information would be vital to share with the JRCC and other agencies involves.

Three types of medical evacuations (MEDEVACs):

1. Rescue MEDEVAC – The critical evacuation of injured or stranded persons from isolated areas, or the recovery of sick or critically injured persons from vessels at sea.

2. Critical MEDEVAC – The transfer of persons under medical care where the situation is deemed to be life threatening in terms of either the patient's serious condition or isolated location.

3. Routine MEDEVAC – The transfer of a patient from one medical facility to another medical facility where delay would not unduly compromise the patient's condition.

Maritime Incidents

Rescue MEDEVACs from vessels at sea are actioned and classified as maritime search and rescue (SAR) incidents.

Source: General System Concept. B-GA-209-001/FP-001, CAMSAR II – Mission Coordination, DFO 5449 Version: Final 2014, Effective Date: 2014-09-30 , Section: II-3.05(E), page 1.

### Communication and Coordination:

- Paul Ikuallaq from Gjoa Haven noted that they have tour guides in their community who could be employed to keep track of passenger groups as they moved.

### Key Considerations:

- The carbon monoxide poisoning cases could become very serious and would have to monitored very carefully.
- To keep injured persons calm, family members/ travel mates would have to be with them where possible. This would mean additional numbers to manage.
- NEM highlighted the importance of ongoing triage, including people who might not have taken their medicines, as well factoring in potential language barriers owing to the diversity of the ship's crew and passengers.

### Inject #3: Major Observations and Themes

- Inject #3 introduced several medical emergencies into the scenario. Participant responses focused on how to address these medical emergencies and whether their communities could respond effectively.
- If the Coast Guard Auxiliary vessel was tasked with quickly bringing the injured passengers back to the community for medical evacuation its crew might have to move a stretcher from ship to boat, and from boat to shore. This is a very difficult SAR skill that should be practiced.
- Participants from Cambridge Bay again felt that their community was well prepared to provide medical assistance to the injured passengers and crewmembers. The members of the community-based organizations responsible for SAR are well trained in First Aid and/or Wilderness First Aid. The pharmacy is well stocked. Once passengers made it into the community, the health centre would be able to meet most of their needs and prepare the injured for MEDEVAC.
- Participants stressed the need for communities to keep track of the members of their first responder organizations that have first aid and additional medical training. This information should be available in community emergency plans. They also emphasized the need for consistent First Aid training.
- Keeping track of injured passengers was flagged as essential. Who would keep track of casualties as they moved from ship to shore, and then when they were evacuated to Yellowknife?
- Given the advanced age of the majority of passengers, participants discussed the need to track existing health issues before they became emergencies.

## Inject #4 – T+06:00

- Approximately half of the passengers have arrived in Cambridge Bay.
- One passenger informs an expedition staff member that she cannot find her husband.

- The last time she saw her husband was onboard the ship, at the muster station. She says that he went back to their cabin to retrieve a personal item and she was evacuated from the ship shortly afterwards. A staff member assured her that he would be evacuated with the next group, however he is not with the group of passengers on shore.

## Actions

- Expedition staff and the captain of the vessel have been notified and conducted a search of the vessel.
- The missing individual was not located during the search.

## Discussion

- What are your concerns at this stage?
- What actions should be taken? Do additional personnel/agencies need to be informed at this point?
- What challenges do you anticipate in the next six hours?
- How do we coordinate our search efforts with the tour operator?
- Who coordinates search parties and who should they be comprised of?

The group had several suggestions to help deal with a possible missing person during this MRO:

- The first priority would be determining what happened to the missing passenger. Did they fall off the ship? Were they still on the ship? Were they in town?
- The first step would be to use the records / lists generated to this point to determine where the person was last seen.
- The local RCMP detachment would probably become heavily involved in this search.
- Once a description of the person's identity is provided, this could be shared through the community radio or to the community facebook page, which would dramatically increase the number of people looking for the missing person.
- One participant noted that in Cambridge Bay, but especially the smaller communities, if a stranger was missing within town limits, they would not remain missing for long. People would spot them.
- The CCGA and/or other deployed community assets would search the water between the ship and point of evacuation.
- At this point, the Rangers could be deployed to conduct a shoreline search for the missing individual.
- It would be important to coordinate the search to ensure that searchers did not repeat coverage of the search area.

- Nunavut Emergency Measures (EMO) noted that we do not have case studies upon which to base how we would deal with this particular scenario.

**Inject #4: Major Observations and Themes**

- In the event a passenger goes missing during the evacuation process, participants highlighted the role that Auxiliary units, Rangers, and GSAR teams could play in executing a search quickly and efficiently. Their knowledge of the land and their communities makes them essential assets. Key to this would be the relaying of information from the ship's crew / tour operator to the community responders.
- Participants also noted that community members would be able to assist the search if they were provided required information / a description of the missing person through the radio station or social media. If an individual was lost in the community, he/she would be located very quickly.

## Inject #5 – T+12:00

- All passengers are now in Cambridge Bay.
- A number of passengers have left their medication aboard the vessel.
- Eight elderly passengers require heart medication, and two diabetics have left their insulin aboard the vessel.

## Actions

- One diabetic casualty has gone unconscious, and one is severely hypoglycemic.
- All eight passengers in need of heart medication are at a heightened risk of cardiac arrest.

## Discussion

- What are your concerns at this stage?
- What actions should be taken? Do additional personnel/agencies need to be informed at this point?
- What challenges do you anticipate in the next 12 hours?
- What medications do the healthcare facilities in Cambridge Bay have on hand?
- How will these stores be affected by increased demand in an emergency situation? How are these stores replenished and how long will restocking take?

Participants noted that there is a well-stocked pharmacy and major health centre in Cambridge Bay so short-term access to most medication would not be a serious concern. This would not be the case in smaller communities without a physician (who would be required to oversee the acquisition of prescription medicine) or a pharmacy. Participants also wondered if a) the Department of Health or the

military would be responsible for bringing medications to the community (if they were absent) b) how quickly these medications could be delivered to a community.

## Inject #6 – T+24:00

- Demobilization of passengers and responding personnel is underway.
- Marine search and rescue personnel are no longer required to act in a SAR capacity.
- Some responding assets may still need to be employed in the incident follow-up.

### Actions

- Transportation systems are operating at maximum capacity.
- The full demobilization of passengers is expected to take up to 5 days.

### Discussion

- What are your concerns at this stage?
- What actions should be taken? Do any personnel/agencies need to be stood down? What does the demobilization plan look like?
- What challenges do you anticipate in the future?
- Will a large influx of passengers cause short term and/or long-term strain on the community's resources? If so, what measures should be taken immediately and in the follow up to the incident to mitigate this strain?
- What does the incident follow-up look like, and how are depleted supplies replenished?
- How would this differ in other northern communities?

Unfortunately, we were unable to have a fulsome discussion of this particular inject owing to time constraints. Informal discussions after the TTX covered elements of a demobilization plan, including the orderly release of resources and the importance of a demobilization checklist (including equipment accountability, potential damage claims, etc.). Participants highlighted various principles of demobilization, including timing, control, communications, resource and personnel tracking, and safety considerations.

**Inject #5 and #6: Major Observations and Themes**

Although discussion during these inject were somewhat truncated by time constraints, several important observations emerged.

Participants questioned a) which agencies would be involved to ensure that evacuated passengers had access to the medications they require (if not readily available in a community) b) how quickly could these medications be provided.

Participants noted the importance of providing communities with an accessible and comprehensive demobilization checklist.

## Tabletop Wrap-Up

After the facilitator presented the final scenario injects, roundtable participants convened for a short debrief. The tabletop illustrated the sophistication of community-level understandings of and plans for MROs. All agreed that the exercise reinforced the value of community-level perspectives in planning, preparing for, and executing an MRO. As the discussions reinforced, community groups would have essential and diverse roles to play in a rescue – roles that should be clarified, further developed, and practiced moving forward.

Maritime MROs are complex events involving an array of factors and actors. Community members and participants from the territorial and federal agencies involved in MROs agreed that the tabletop offered a helpful setting to work through this complexity together. While southern-based participants learned a great deal about community capabilities and approaches to emergencies, community members learned about some of the resources at the disposal of federal agencies, including the MAJAID Kit and Arctic Response Company Groups. Given the increase in the number of cruise ships visiting the Kitikmeot, participants suggested that tabletop and full-scale exercises should be held on a more regular basis to practice responses, but to also facilitate the relationship-building required to effectively execute an MRO.

The tabletop captured the willingness of community-members to risk their lives to help strangers who might be in trouble. If a disaster unfolded close to their communities, they would go and see how they could help. Their responses during the tabletop emphasized a few key points:

- While willing to follow the direction of the JRCC, the CAF, or Emergency Management Nunavut, community first responders stressed that they also expected these agencies to listen to the information and suggestions they passed along, and act upon their recommendations and approaches.
- The information that community-based groups provide on geography and environmental conditions could prove vital during an MRO and could save lives.
- Community groups understand that they could play many different roles in an MRO. They desire the training, equipment, and guidance required to play these roles effectively.
- Communication and coordination are vital in an MRO: at the community-level, between responders and the JRCC, responders and the ship's crew, and between the different groups acting at the scene. Lines of communication and coordination must be firmly established and practiced.

Whitney Lackenbauer, in offering a few summary remarks about the TTX, pointed out that Canada's Arctic and Northern Policy Framework commits to "increase whole-of-society emergency management capabilities in Arctic and Northern communities" as a key priority. Community-level perspectives, skills, and responses must form the core of this whole-of-society approach in the North. The tabletop embraced this approach, and Lackenbauer shared his hope that, as the government worked towards co-developing implementation plans for its policy framework, more exercises would follow that engaged community-based groups and federal and territory departments/agencies .

Lackenbauer concluded by suggesting that the idea "we're from Ottawa, we're here to help" – which has been the government's historic approach to emergencies in the North – does not fit in a whole-of-society approach to emergency management, threatens to undermine community-level understandings and responses, and is unsuited to local realities. Instead, Lackenbauer recommended that this approach be replaced by a mindset of "Hi, we're Ottawa, we know you have things in hand – how can we help without disrupting what you are already doing and getting in your way."

## Appendix A: Definitions[15]

**After action review** — a structured review or de-brief process for analyzing what happened, why it happened, and how it can be done better by the participants and those responsible for the incident or event.

**Agency** — a division of government with a specific function, or a non-governmental organization (e.g., private contractor, business, etc.) that offers a particular kind of assistance.

**Assignment (or team assignment)** — a specific set of tactics assigned to a ground search and rescue resource for implementation in the field in order to meet specific objectives.

**Authority having jurisdiction (AHJ)** — the government agency that has responsibility for search and rescue within their jurisdiction.

**Briefing** — the process of providing searchers with the information they need to adequately perform their task.

**Call-out** — the authority having jurisdiction's call to conduct a search and rescue operation whereby GSAR personnel are requested to respond.

**Camp** — a geographical site, within the general incident area separate from the incident base, equipped and staffed to provide sleeping, food, water, and sanitary services to incident personnel.

**Convergent volunteer** — an individual that offers his or her service and/or expertise for no remuneration during a recognized public safety line activity and is signed into the task and is not already registered as a public safety line volunteer.

**Core competency** — the essential knowledge, skills, abilities, and attributes required to successfully accomplish assigned tasks or roles.

**Craft** — any air or water-surface vehicle, or submersible of any kind or size.

**Critical incident stress (CIS)** — a stress reaction experienced by searchers and/or emergency responders during the incident that could have long-term, debilitating psychological and physiological effects upon them.

**Debriefing** — the exchange of information, usually at the close of a tasking, that conveys important knowledge and experience.

[15] Drawn from CSA, Training curriculum standards for ground search and rescue operations: Searcher, team leader, and SAR manager, Z1625-16.

**Note:** *A SAR team will be debriefed when it returns from the field so important information can be gathered to help with the search planning. At the end of a SAR incident all those who participated are usually debriefed on the event and how it unfolded.*

**Demobilization** — occurs at the end of a search successful or otherwise and includes all of the sign-out procedures and the return of equipment and the debriefing, as well as the reorganization of personal gear for the next response.

**Distress** — an aspect of a search and rescue incident where there is a reasonable certainty that one or more individuals are threatened by grave and imminent danger and require immediate assistance.

**Evacuation** — to move or remove people from an area that is deemed unsafe or will become unsafe.

**Extraction** — to remove someone from a location as part of a rescue (synonym to the "transport" part of the rescue cycle).

**Global positioning system (GPS)** — a specific satellite-based system used in conjunction with mobile equipment to determine the precise position of the mobile equipment.

**Ground search and rescue (GSAR)** — the conduct of a search and rescue operation to assist persons lost, missing, or in distress on land and inland waters.

**Initial response** — the first response to a search event, usually by a small team of three searchers who are fit, fast, and skilled that can quickly search high-probability areas.

**Note:** *Also known as "initial response teams" or "hasty teams."*

**Last known position (LKP)** — the last known location for the missing subject as determined by physical evidence or clue such as a parked car, discarded object such as a wallet, or a footprint that places the missing subject. **Note:** *LKP can be revised during search.*

**Likely spot** — features or areas that might offer attraction to the lost person. **Note:** *Lost-person behaviour is often used along with interview information to determine likely spots a lost person might go.*

**Lost person** — a known individual in an unknown location whose safety might be threatened by conditions related to the environment or other factors.

**Lost-person behaviour** — the travel and self-help behaviour generally exhibited by persons in various age groups, mental conditions, or by activity when lost.

**Point last seen (PLS)** — the physical point a lost or missing person was actually last seen at.

**Reporting person** — the person who initially reported someone lost or missing.

**Rescue** — an operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety.

**Resource list** — a list of search or logistical resources that can be employed during an incident; part of the pre-plan.

**Risk management** — the process of decision making for managing risk and the implementation, enforcement, and re-evaluation of its effectiveness from time to time, with input from the results of risk assessment. **Note:** *Risk assessment is a structured, common-sense approach to reducing the frequency and severity of loss events.*

**SAR manager** — a person who manages and coordinates a search and/or rescue incident, leads and directs the SAR resources, is trained and experienced in search and rescue, and might or might not be the incident commander under the ICS system.

**SAR volunteers** — an organized group of trained and equipped individuals who are capable of conducting search and rescue operations.

**Search** — a search involves assembling, coordinating, and using the necessary resources to find lost, stranded, trapped, missing, or injured people, to save lives or avoid further injury to them. **Note:** *Search is its own discipline with its own theories, strategies, and tactics.*

**Search and rescue (SAR)** — the combined activities and tasks involved in both searching for and rescuing persons who are feared to be lost, missing, or in distress. **Note:** *Many searches do not involve rescue, and many rescues do not require searches.*

**Search and rescue (SAR) manager** — a person who manages and coordinates a search and/or rescue incident, leads and directs the SAR resources, is trained and experienced in search and rescue, and might or might not be the incident commander under the ICS system.

**Search and rescue (SAR) volunteers** — an organized group of trained and equipped individuals who are capable of conducting search and rescue operations.

**Search techniques** — a body of techniques used in the orderly conduct of a search. **Note:** *These include patterns of coordinated movement, employment of sound or visual signals, self-orientation during movement, and awareness of others and their positions.*

**Search termination** — the point at which the official search is called to an end by the AHJ due to the finding of the subject, lack of clues and evidence to continue, safety issues, etc.

**Searcher** — a trained individual, reporting to the team leader, who is tasked to use observation skills to detect clues that may lead to the location of a subject of a search.

**Searching data** — that information that searchers require in order to search for the lost subject, such as the subject's name, description, clothing, footwear, and items carried.

**Specialized SAR groups** — organized groups (military, police, volunteer, etc.) of trained individuals with specialized skills and equipment that are capable of working in technical environments (e.g., water, cave, high angle, avalanche, etc.).

**Stress defusing** — a short meeting (30 to 60 min) held shortly after an incident, conducted by qualified peer counsellors, directed at those people who are assumed to be experiencing stress from the incident.

**Subject** — the object of a search.

**Task** — a specific search and rescue operation formally initiated by an AHJ.

**Tasking** — a role delegated to a searcher or to a search team to carry out as part of a search and rescue operation.

**Team leader** — a trained individual, reporting to the SAR manager, responsible for the conduct of a ground search and rescue resource.

**Volunteer** — an individual or group donating time and talents to a specific task or project without salary or compensation other than for allowable out-of-pocket expenses associated with the volunteer activity.

**Walk-away** — a type of missing person with some mental cognitive deficiency, who has wandered away from a constant care environment. **Note:** *Alzheimer's and other forms of dementia are often associated with a walk-away.*

## Appendix B: Roundtable and TTX Participants (by community, alphabetical order)

**Cambridge Bay**

- Murphy Angnayoak - GSAR
- George Angohiatok - GSAR
- Sgt. Jas Dilbar - RCMP
- Jimmy Haniliak - GSAR and CCGA
- Bobby Klengenberg - GSAR
- Randy Klengenberg - GSAR
- Rosabelle Klengenberg - GSAR
- Jim MacEachern - Assistant Senior Administrative Officer and SAR command centre lead
- Beverly Maksagak - GSAR Coordinator
- Ivor Maksagak - GSAR
- Angulalik Pedersen - 2IC CCGA and GSAR
- Calvin Pedersen - GSAR
- Candice Pedersen - CASARA

**Taloyoak**

- Abel Aqqaq - Canadian Ranger
- John Ikilik - Canadian Ranger
- David Nanook - Canadian Ranger
- Mary Ugyuk Sutherland - Canadian Ranger
- Bruce Takolik - GSAR and Canadian Ranger
- Sgt. Sam Tuluirialik - Canadian Ranger
- David Totalik - Canadian Ranger
- Steven Ukuqtunnuaq - GSAR and Canadian Ranger
- Lena Ukuqtunnuaq - GSAR
- Johnny Ukuqtunnuaq - GSAR and Canadian Ranger

**Kugaaruk**

- Breanne Inaksajak - GSAR

- Sam Inaksajak - GSAR
- Ronald Inutuinaq - GSAR
- Bernadette Iqqugaqtuq - GSAR
- Nick Sikkuark - GSAR
- Chris Tungilik - GSAR

**Kugluktuk**

- Aidan Case - Junior Canadian Ranger
- Jack Himiak - CCGA and GSAR
- Sgt. Roger Hitkolok - Canadian Ranger, CCGA, GSAR
- Glen Leyte - Canadian Ranger
- MCpl Baba Pedersen - Canadian Ranger, CCGA, GSAR

**Gjoa Haven**

- Winnie Hatkaittuq - CCGA
- Paul Ikuallaq - Unit Leader CCGA, GSAR Coordinator, Canadian Ranger
- Sarah Kamimmalik - CCGA
- Kenneth Puqiqnak - CCGA
- Leonard Teelktak - 2IC CCGA

**Emergency Management Nunavut**

- Mike Kendall - Manager Emergency Response and Recovery

**Joint Task Force North**

- Captain Daniel Wilkinson - J9-Ops, Joint Task Force (North)

**Department of National Defence**

- Ehren J. Edwards - Policy Officer, Directorate of Strategic Coordination and Outreach, Department of National Defence / Government of Canada

**Royal Canadian Air Force**

- Major Wesley Cromwell - Staff Officer Search and Rescue Readiness, 1 Canadian Air Division Headquarters

**Canadian Coast Guard**

- Chris Bianco - Mass Rescue Operations Officer, Arctic Region
- Jay Collins - Deputy Superintendent SAR, Arctic Region
- Darlene Langdon - Arctic Administrative Assistant, Canadian Coast Guard Auxiliary
- Alana Swales - Canadian Coast Guard, Arctic Region

**Transport Canada**

- Miguel Parent - Senior Policy Advisor

**Academic**

- Natalie Carter, Ph.D.
- Bailey Chisholm
- Ryan Dean
- Peter Kikkert, Ph.D.
- HLCol P. Whitney Lackenbauer, Ph.D.
- Bianca Romiagnoli
- Chloe Walker

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