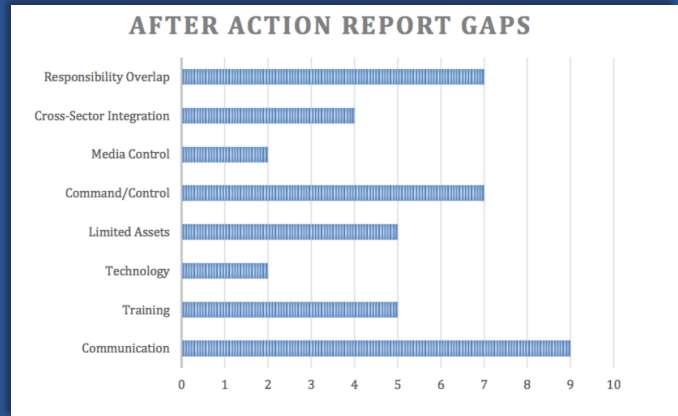


## Arctic and North Atlantic Security and Emergency Preparedness Network (ARCSAR): Communication and Coordination in SAR Activities

Due to forecasted increases in maritime traffic in the Arctic and North Atlantic, corresponding efforts have gone into readiness and disaster management exercises in order to increase training and preparation for any issues that may arise. This preparation is especially necessary since by all accounts, rescue resources and infrastructure in the Circumpolar North is limited. Various international stakeholders representing the military, industry, operators, first responders and government entities have performed upwards of 26 both live and hypothetical (tabletop) disaster scenarios in the Arctic. The scenarios have been varied in order to assess readiness to respond in the region, including search and rescue, oil spill response, and military operations.

While these exercises provide the opportunity to improve functional working relationships among operators and practitioners, consistently the after-action exercise reports highlight the need for improvements in both communication and coordination. A recent study which examined the after-action reports to identify common gaps and issues, found that the most common problems identified were not necessarily scenario specific, but instead related to process inefficiencies (*cf.* Cottle & Kern, 2019).

Thus, it is clear that process issues need to be prioritized in search and rescue and disaster management work moving forward, in addition to preparing for specific types of scenarios. The following solutions may assist in establishing best practices for communication and coordination moving forward.



Source: Cottle, J.L. & Kern, J.K. (2019)<sup>1</sup>

Procedural inefficiencies were similarly noted in the exercise report from the 2019 ARCSAR Joint TTX exercise:

- ⇒ Lack of shared understanding of what constitutes an emergency among operators and responders
- ⇒ Technical limitations in communication equipment (e.g., limited broadband)
- ⇒ Unshared awareness of rescue plans, rescue equipment and resources
- ⇒ Limited training for all operator personnel and lack of live situation training
- ⇒ Stress hindered communication - a need for clear communication in times of emergency to avoid misunderstandings



## RECOMMENDED SOLUTIONS

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### 1. Establish and Institutionalize an Open Clearinghouse for Vessel Emergency Plans.

Due to the heightened need for rescue preparedness stemming from the harsh environment and remoteness of the region, the International Maritime Organization's (IMO) Polar Code requires ships sailing in Arctic waters to have on board at all times a Polar Water Operations Manual (PWOM). This Manual requires owners to specify in advance all ship specific capabilities and limitations with regard to SAR, and include plans for ensuring safe operations and life support if needed.<sup>2</sup> In particular, the Manual requires ship owners and operators to formulate contingency plans and specific procedures to be followed in the event of an incident, including plans for how to contact emergency response providers should SAR be necessary.

According to current regulations however, the only other organizations to see these plans are the flag states, which review them pursuant to the ship owner's application to obtain a Polar Ship Certificate. After obtaining this Certificate, the only requirement for these risk management plans is that they are carried on board at all times the vessel is operating in Polar waters. This means that crucial information regarding the capabilities, resources and limitations of vessels operating in dangerous Polar waters is accessible only for a limited time to flag states, and the rest of the time only to ship operators.

Should an incident occur, however, this information would be instrumental to rescue responders. Knowledge of each ships' specific emergency action plans, and available resources, would mean that rescue coordinators

**This means that crucial information regarding the capabilities, resources and limitations of vessels operating in dangerous Polar waters is accessible only for a limited time, to anyone other than ship owners.**

and first responders could integrate all pertinent facts and information when determining how best to respond to an incident. It would also reduce some of the information that would need to be conveyed by operators during a crisis event. This clearinghouse would address many of the concerns highlighted in the most recent exercise report including:

- ***Facilitating shared situational awareness.*** Successful disaster management requires all relevant actors to have a firm grasp of the capabilities and resources of all parties involved. Noted in the most recent TTX report was the fact that first responders were surprised at the preparedness of vessel operators, indicating a disconnect between the capabilities and resources of operators, and the rescue responders who may be called upon to assist them.
- ***Encourages increased Self-SAR.*** Filing rescue plans and resources would encourage greater attention to possible mechanisms of self-SAR and preparedness, while also encouraging planning for situations where self-SAR would be insufficient.
- Having PWOMs on file would ***ensure access to a detailed text-based plan.*** Being text based, the information could also be readily translated into multiple languages which may be utilized en route, potentially overcoming language barriers and minimizing the likelihood of miscommunication at a time when clear communication is most needed.

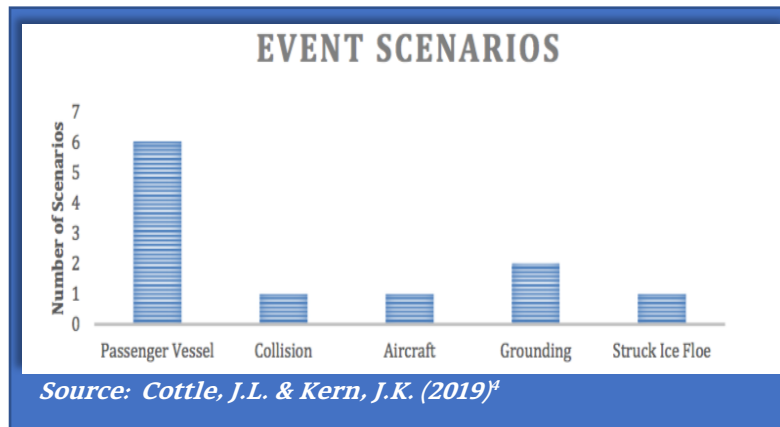
- *Having access to text-based plans also reduces the amount of information that needs to be communicated by people in crisis, while promoting shared situational awareness* on the part of operators and rescue authorities, making *communication more efficient*.
- *Filing PWOMs would notify rescue responders that they are part of a ships' emergency plan* before an emergency may arise, facilitating readiness to respond.
- The PWOM could also *facilitate the sharing of emergency action plans among all vessel personnel, enhancing crew training and preparedness*. In this way, training could focus more on what **will** happen should an incident arise, rather than what **could** happen.<sup>3</sup>
- Access to multiple plans could also *facilitate the examination of gaps or failure points which could drive innovation and process improvement efforts*; and show which areas would most benefit from *increased standardization* in terms of what is included in an Arctic specific disaster management plan.

While the increased safety of passengers and crew should be incentive enough to compel ships to file their Operating Manuals, it is possible that insurance companies could also find ways to incentivize these filings, given their obvious interest in ensuring the best possible outcome from a potential incident.

ARCSAR is ideally situated to help facilitate the creation of information sharing protocols, through its network of representatives from many different interests pertaining to Arctic and North Atlantic Security Preparedness.

## 2. Expand Joint Training in Combined Arctic SAR and Oil Spill Exercises to Ensure Readiness for Many Types of Disasters.

It is evident that a cruise ship disaster would represent the worst possible scenario for an incident in the Arctic and North Atlantic, due both to the sheer numbers of potential casualties, and the magnitude of necessary resources for any rescue endeavor. Because available resources are not currently to scale in the Circumpolar North, it is hardly surprising that the most common event for TTX exercises (e.g., approximately 78% of the event scenarios) involves SAR stemming from a cruise ship incident (*see Cottle & Kern, 2019, for a report detailing the full analysis of tabletop exercise reports*).



However, at least up until now, thankfully large-scale events involving cruise ships are also among the most uncommon events to occur. For this reason, future events should allow for capacity building in response to other types of events as well, to ensure preparedness in a wide variety of incidents. For example, future exercises should also expand their focus to include more opportunities for readiness and capacity building in response to an oil spill, since this too would be devastating given limited resources for remediation. Considering how oil and gas companies are ramping up

offshore exploration and drilling in the Arctic and North Atlantic, there is already increasing traffic from ships carrying oil around and through the region.<sup>5</sup> Combined with the fact that technology is still lacking in cold water spill remediation, an incident involving an oil spill represents another worst-case scenario that could also benefit from increased preparation and training.

Due to the importance of preparing for oil spill disasters, ARCSAR has included in their programming thus far multiple workshop sessions devoted to oil spill response, including heavy fuel oil use, regulations pertaining to the disposal of waste, energy efficient ships, and a learning from failures case study exercise involving oil and gas, just to name a few. ARCSAR plans to continue to examine ways to mitigate potential dangers from oil spills to the pristine Arctic and North Atlantic environment.

### 3. Developing Shared Situational Awareness through Perspective Taking

Because each actor in a disaster scenario has different interests, perceptions, knowledge and experiences, the exact same incident may be viewed differently by each party involved. While all parties likely share the common frame of reference of disaster management and passenger/crew safety, each stakeholder will approach an incident from a different vantage point. These differences in perspectives and viewpoints then serve as a source of possible miscommunication and misunderstandings in the event of a crisis situation. Therefore, future joint and common exercises **should engage in Perspective Taking exercises utilizing actual past events, in an effort to understand the unique perspectives each set of actors brings to the problem.** Doing so would enhance preparedness in general, but also increase shared situational awareness, and facilitate

understanding of unique points of view and approach frameworks held by different stakeholders.

ARCSAR's 2019 Joint Arctic SAR TTX, utilized a similar methodology by examining the grounding of the cruise vessel *M/V Vavilov* in Canada's Northwest Passage. A presentation from the perspective of the cruise operator, One Ocean Expeditions, was then followed by the Canadian Coast Guard, which presented their operational point of view of the incident, allowing for shared understandings of perspectives to emerge.<sup>6</sup> Likewise, an earlier 2018 ARCSAR workshop utilized a "learning from failures" methodology to examine case studies involving a maritime disaster, an oil and gas incident, and a nuclear power plant disaster.

Understanding how different stakeholders approach responding to incidents, and the unique frame of reference each party employs, assists in developing shared mental models which facilitates cooperation in times of crisis and stress. Future workshops should expand upon these exercises in order to increase and develop shared frames of reference, allowing everyone involved to spend "a day in another's shoes".

**Perspective taking allows for an increased understanding of what others can and will do, which then helps each individual know what they themselves must do, in response to an event.**

Finally, learning from past events also allows for an expanded knowledge base from which to craft solutions to problems moving forward. Because coordination is key in the area, developing a shared approach to problems is critical to ensuring that in future, everyone's unique points of reference are incorporated into the solution. Disaster management plans and best practices would then be developed based not only on what could happen, but what has

happened, allowing for a more complete understanding of leverage points and recurring issues that need to be addressed. Because of the variety of organizations, institutions and practitioners that are members of the ARCSAR network, we are again uniquely situated to continue to coordinate this process as well, through workshops and combined exercises. Care must be taken however to ensure that learning from the past does not lead to a myopic focus on issues of simply “who did what and when”, but also focuses on consistent failures in shared points of view.

## CONCLUSION

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Of the recommended options presented above as a means to address communication and coordination issues in SAR activities, it is clear that some are going to be easier to implement than others. The simplest and least resource intensive to implement would likely be the expansion of planned ARCSAR workshops to include formalized sessions devoted to perspective taking through learning from the past.

Somewhat more resource intensive is the recommendation to expand joint exercises to include additional types of situations, combining

SAR with Oil Spill Response scenarios in particular. On the other hand, this recommendation has the potential to have the largest impact in the region, and as such should be considered a priority for exercises being planned in the future.

The recommendation to establish an open and accessible clearinghouse for Polar Water Operations Manuals accessible to emergency responders will require a longer-term investment in terms of time and resources, as well as buy in from important stakeholders. Questions regarding who might host such a database, how to ensure compliance and ongoing participation, and mechanisms for determining who and how interested parties could access these plans still needs further examination. But this option merits further scrutiny, as it would establish common requirements for vessels operating in the Arctic, tie operations to existing regulations, and facilitate communication and coordination, to the benefit of all parties involved in emergency preparedness. In this way it would serve as an important innovation which would establish common capabilities, and interfaces among capabilities, thus leading to increased standardization of practices.

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<sup>1</sup> Cottle, J.L. & Kern, J.K. (2019). The Future of Shipping in the Arctic: New Perspectives on the Next Frontier. Foresight analysis report prepared for the Center for Arctic Study and Policy, US Coast Guard Academy.

<sup>2</sup> The Polar Code. <https://www.pame.is/index.php/chapter-2#chapter-2-polar-water-operational-manual-full-polar-code-text>

<sup>3</sup> This is not to say that operators would not be best served by also preparing and planning for alternative situations as well.

<sup>4</sup> Cottle, J.L. & Kern, J.K. (2019). The Future of Shipping in the Arctic: New Perspectives on the Next Frontier. Foresight analysis report prepared for the Center for Arctic Study and Policy, US Coast Guard Academy.

<sup>5</sup> Preparing to Respond to Oil Spills in the Arctic. <https://toolkit.climate.gov/case-studies/preparing-respond-oil-spills-arctic>.

<sup>6</sup> Report of the Fourth Joint Arctic SAR TTX and Workshop, found at <https://www.aeco.no/events/joint-arctic-sar-workshop-and-ttx/>