



The Nunavut-Nunavik Search and Rescue Project (NSAR): Enhancing SAR Operations in Arctic Canada

Peter Kikkert, John Quigley, Ian Belton, Calvin Pedersen, Baba Pedersen, Robert Brown, Kerri-Ann Ennis, Floris Goerlandt, Susan Howick, P. Whitney Lackenbauer, Lawrence Mak, Ronald Pelot, Desai Shan, Lesley Walls, George Wright

SAR in Arctic Canada: The Challenge



Vast area to cover:

Nunavut: 2,093,000 km², 45,000 km of coastline (*UK = 244,000 km²*)

Nunavik: 500,000 km², 2,500 km of coastline



Challenging environmental conditions



Climate change brings increasing hazards and vulnerabilities



Very far (>2000km) from federal SAR assets



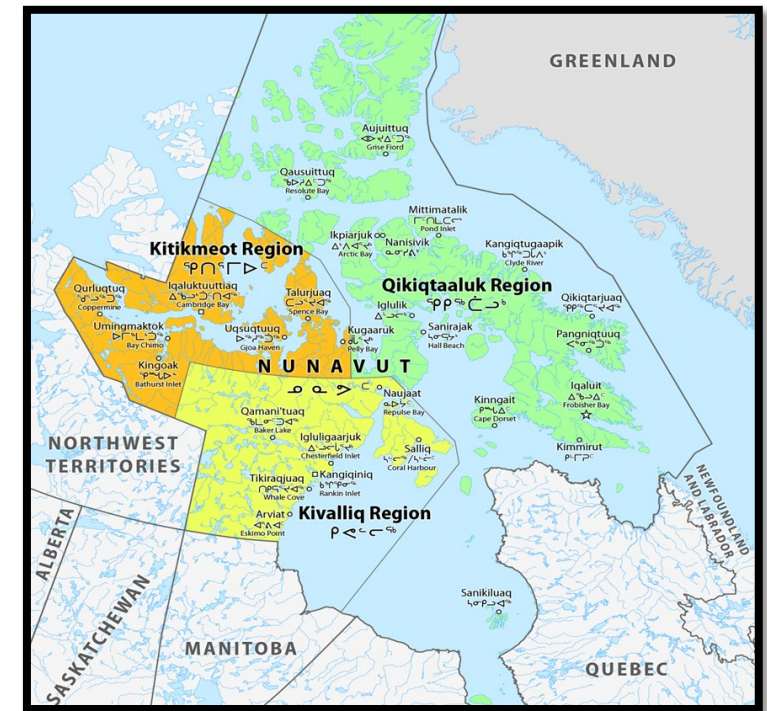
Few vessels of opportunity to respond



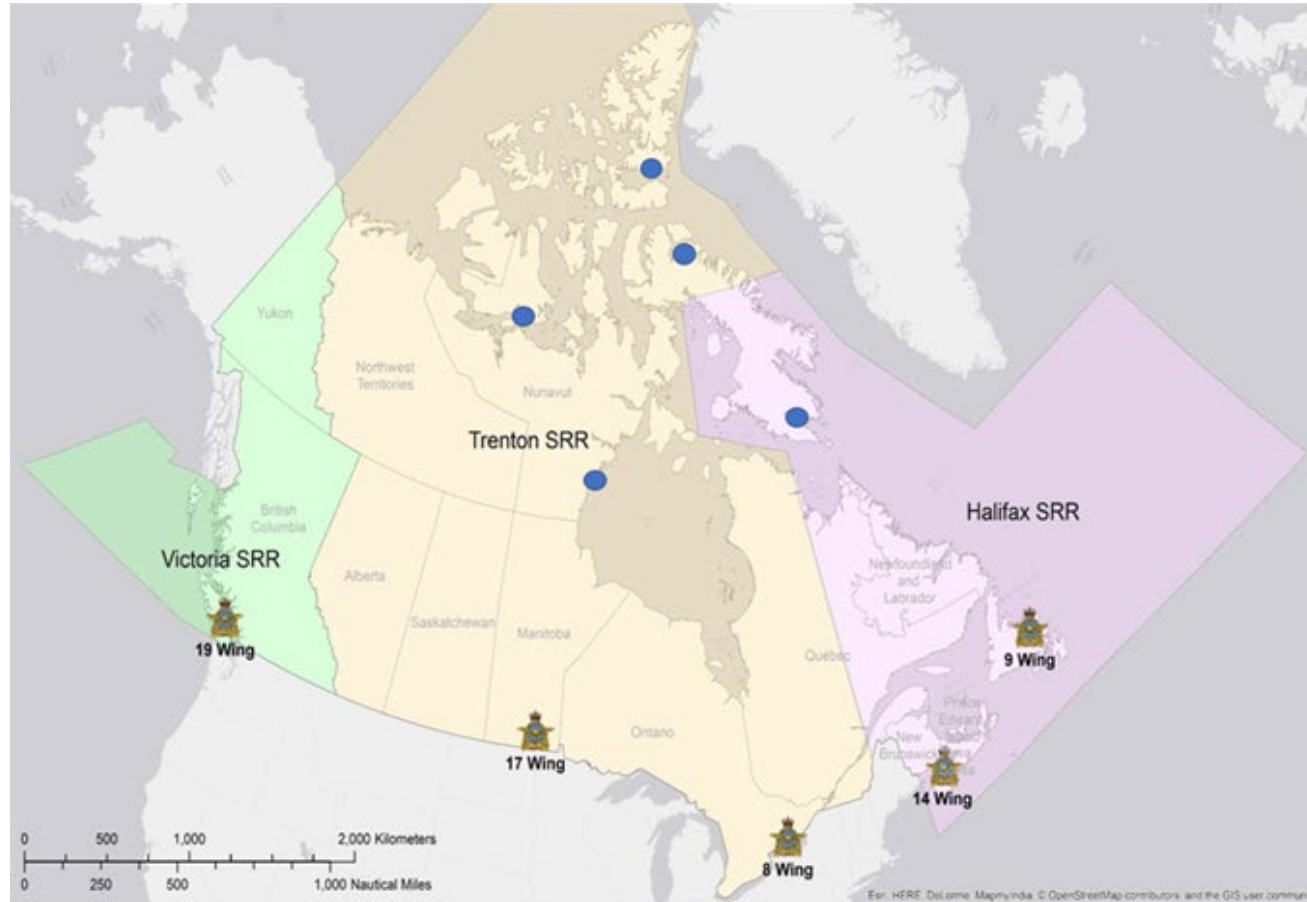
Hundreds of SAR cases *reported* each year – likely a large underestimate



Heavy burden on community volunteers



Extra slide – inserted for info 26.03.24



CAF Air Response Time

Iqaluit 1,135nm
5 hours FWSAR 8.5 hours RWSAR
Rankin Inlet 794nm
4 hours FWSAR 11.5 hours RWSAR
Grise Fjord 1,632nm
6.5 hours FWSAR 17 hours RWSAR
Pond Inlet 1,463nm
6 hours FWSAR 14 hours RWSAR
Cambridge Bay 1,172nm
5.5 hours FWSAR 11 hours RWSAR

SAR in Arctic Canada: The response



Aims of the NSAR project

NSAR aims to strengthen Nunavut's SAR system. An effective SAR system:

- Is a vital **adaptation tool** to help communities cope with Arctic climate change
- Constitutes critical infrastructure required to support **Inuit health and well-being**
- Is a necessary foundation for safe harvesting activities to enhance **food security**, a prerequisite for **economic development** in the region and required to boost Inuit **community resilience**.

The NSAR project also aims to:

- **Increase capacity** within local communities to engage with SAR policy-makers, leverage new technology, etc.
- Highlight the importance of **indigenous knowledge** for effective Northern SAR operations.



Collaborative approach to research –
Co-creation of solutions respecting
principles of *Inuit Qaujimajatuqangit*
(IQ):

- **Regional roundtables across Nunavut and Nunavik** – 50+ Nunavummiut and Nunavimmiut, RCAF, CCG, other agencies
- **SAR exchange** in Trenton, ON
- **Community SAR exercises** in Cambridge Bay, Kugluktuk, NU
- **Standard Operating Procedures workshop** in Montreal, QC



Modelling Arctic SAR

- Nunavut SAR is a complex, socio-technical **system** with many interconnected, dependent factors
- Modelling the system helps identify links between related variables and understand the system as a whole
- Built from experiences shared at the Nunavut and Nunavik roundtables and the Trenton SAR Exchange
- Modelling methodology:
 - Data analysed using thematic analysis
 - Bayesian Belief Network developed to represent key factors that can impact the outcome of any given SAR case and the causal relationships between them



"All of it is very stressful, very tiring. When you have two dozen searches a year, it takes so much out of you. It's easy to get exhausted. Sometimes you want to quit. Sometimes you are searching for people you love. Sometimes you don't find them or find them too late. It's all hard."

"...we need paperwork and it's too time consuming when lives are on the line. These are our families. Every minute, every second is precious when someone is in danger."

"...in an emergency, when groups have different ways of communicating, different ways of doing things, different mandates from the South, we can quickly run into trouble. We need to practice cooperating. We need to practice working together."

"People prefer to use their own equipment. They know the equipment, they know who has used it before. They know if it's been damaged... But if they're going to do that, they need to make sure insurance is in place".

"We've had a minimum of 5 calls for water rescues this year, and we have to say, "ok but you know we don't have a boat..."

"[The JRCC assets] are hours and hours away. It's hard to rely on them".

"[We] could "populate the whole arctic with [drones]"

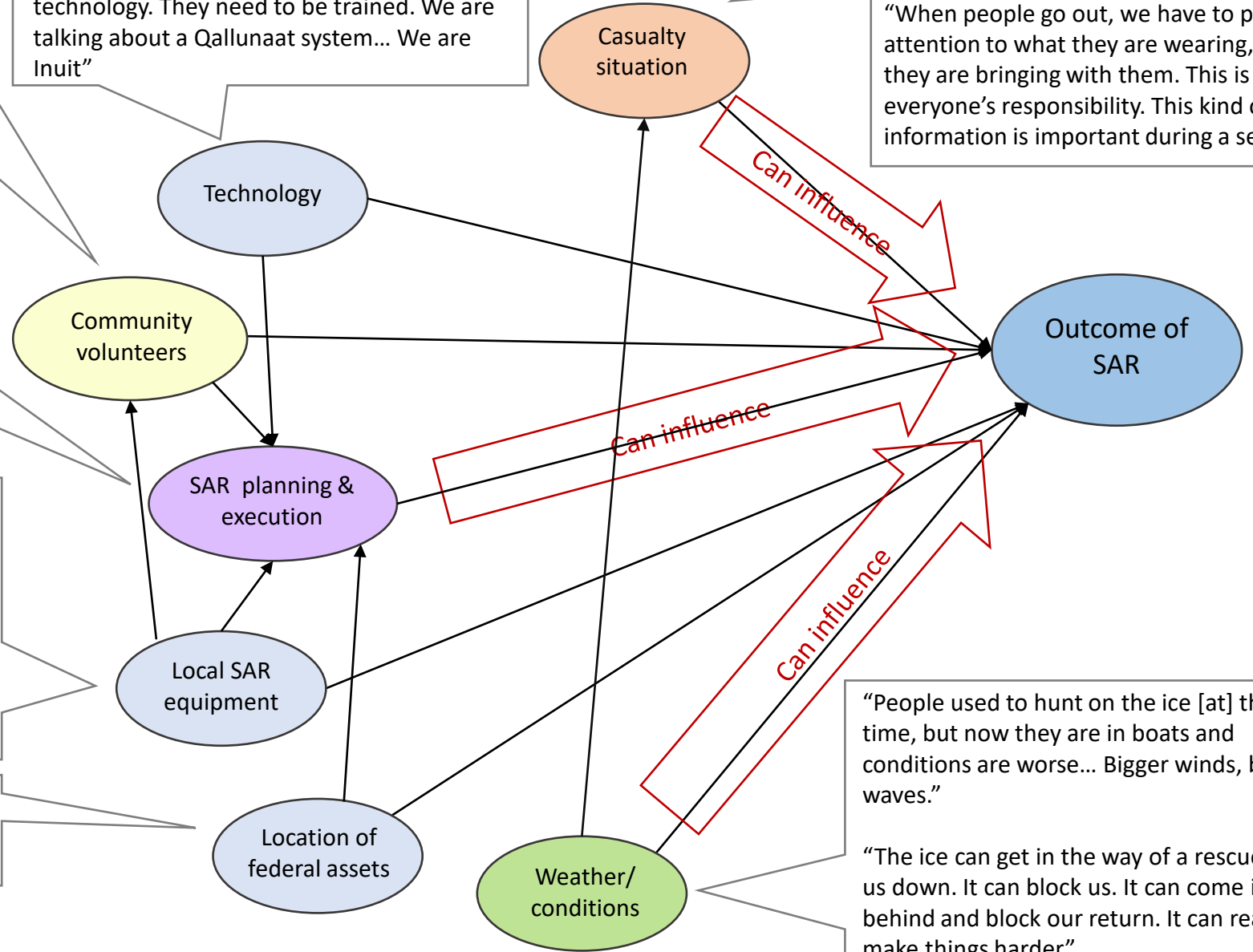
Many great hunters don't know how to use technology. They need to be trained. We are talking about a Qallunaat system... We are Inuit"

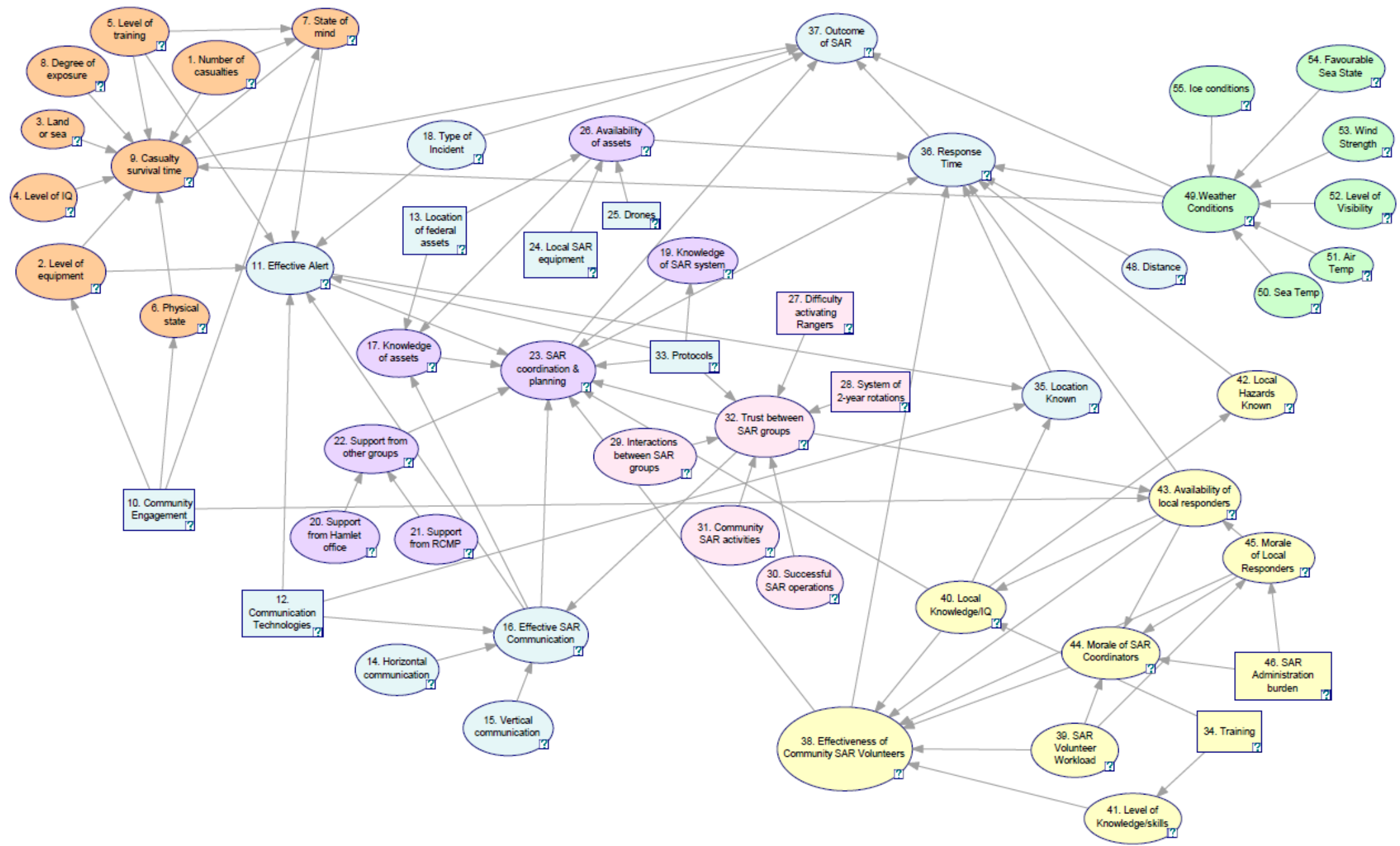
"I've been on searches where the people didn't bring anything with them on the land. Not even a tent."

"When people go out, we have to pay attention to what they are wearing, what they are bringing with them. This is everyone's responsibility. This kind of information is important during a search."

"People used to hunt on the ice [at] this time, but now they are in boats and conditions are worse... Bigger winds, bigger waves."

"The ice can get in the way of a rescue. Slow us down. It can block us. It can come in behind and block our return. It can really make things harder"







Moving forward together

"It's the sustained attention that's the difference here... Having the roundtable, then the SAR debriefs, the Trenton exchange, and the SOP workshop in just over a year. That's progress. That's what's needed."

Craig Lingard, Director, Kativik Civil Security



National Research Council Canada

Conseil national de recherches Canada

