

**Nunavik winter safe practice guide for land and ice environments:
Supporting safe travels among Nunavimmiut.**

Kativik Regional Government

January 2008



<http://climatechange.krg.ca/>

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1. Introduction

In Nunavik and Northern Quebec, the winter trail networks are always used by the population both to carry out traditional harvesting activities such as hunting, fishing and trapping or for recreation. To keep access to territory and resources safe, it is necessary to plan each trip. This guide provides some basics elements that can help improve your preparation for traveling. The production of this document has been possible through the participation of experienced hunters and Elders in Nunavik and Northern Quebec.

2. Before traveling

A good and safe trip begins always with good organization. Several things have to be planned before travelling. Planning will help ensure you have a safe and more comfortable trip.

- Determine *how long* your trip will be.
- Determine *how many people* will be going on your trip.
- Determine *where you will go* and the routes that you will use. Trail networks already exist. Try to have a map with your routes and/or GPS with the waypoints of your planned route. If in doubt, do not hesitate to check with your local community experts.
- Check the *trais conditions* and identify possible risky areas. Some trails may be dangerous especially at the beginning or at the end of the winter.
- *Check the locations of shettes* along your route. Several shelters exist and can be used in case of an emergency. If you know where the shelters are, you will be more able to use them quickly if needed. Try to have a map with the shelter locations and/or their GPS coordinates recorded. If in doubt, do not hesitate to check with your local experts.

- **Check the equipment and supplies** that you plan to use during your trip (food, ice auger, gas, HF radio, GPS, snowmobile etc.). Prepare your own check list of things you need to check before you leave. This list could help you remember all the things to help ensure you have a safe trip.
- **Inform friends and family** of your destination and estimated arrival time and when you plan to be back home.
- **Inspect your snowmobile** for mechanical integrity: make sure that your engine is tuned, the oil and gasoline levels are full (and that you have enough for your trip).
- **Wear suitable clothing** to prevent hypothermia – remember that children are particularly susceptible to the cold. Snowmobilers should wear well-insulated protective clothing, including goggles, waterproof snowmobile suits, gloves and rubber-bottomed boots.
- **Carry a first aid and survival kit.** Ideally, you should carry a first aid kit and an emergency tool kit containing spark plugs, drive and fan belts and an extra key; a survival kit that includes flares; and, if practical, a satellite phone (see appendix 1).
- Snowmobilers should **travel in groups of two or more.**
- Snowmobilers should **check the weather forecast before going out** and should become familiar with the signs of hypothermia and regularly check for frostbite on themselves and children traveling with them.

3. On the trail

On trail (ice or land), several things should be remembered to make sure that you travel safely.

- **Exercise caution when crossing lakes and rivers.** Check the ice thickness regularly in unknown areas or

at more unpredictable times of the year (beginning and end of winter).

- Ride within your capabilities. Snowmobilers **should travel at safe speeds**, especially on unfamiliar or rugged terrain where hazards (dangerous ice or land conditions) may be encountered.
- **Reduce speed** in unfamiliar territory.
- **Slow down at night.** Your headlight limits how far ahead you can see. The slower you are traveling, the less distance you need to stop.
- **Use known snowmobile trails** whenever and wherever possible.
- Snowmobilers **should not carry more than one passenger.** Headlights and tail lights should be on at all times to improve the visibility of the snowmobile to other vehicle drivers.

4. Over lakes and rivers

River and lake ice routes are places where many snowmobile trails pass. Take all the precautions possible when traveling on ice.

- Be **aware of ice conditions** and, if in doubt, check with local experts or organizations (e.g. Elders, local experts, HFTA, Parks office where KRG runs a community ice monitoring program),
- The freeze-up and break-up periods could be the most dangerous. Make sure to **know your environment** well (point 6).
- Snowmobilers should **avoid snowmobiling on ice if they are uncertain about its thickness or condition.** The conditions of trails should also be checked whenever possible before traveling. Check with an Elder, active hunter in your community or the local

KRG office if the ice monitoring program is running in your village.

- ***Wear flotation-type clothing.***

5. NEVER

Avoid bad habits that could put you or your family and friends in danger.

- **Never** drive a snowmobile if you are impaired (have been drinking alcohol or taking any illicit drugs). "Don't drink and drive" applies to snowmobiles as to any motor vehicle.
- **Never** ride alone.
- **Never** leave children unsupervised with "kiddie" snowmobiles.
- **Never** leave young children alone.
- **Never** travel with babies.

6. Ice security

Safe travel, either inland or on sea, depends on the awareness of ice conditions. Two critical periods to be aware of when traveling or planning to travel on sea ice are freeze-up and break-up. Traditional Inuit knowledge and skills can help you to be aware and prepared to ensure your safety. The following information comes from interviews conducted with experienced hunters and Elders of Nunavik. If you have any doubts about ice conditions and safety, do not hesitate to check with your local experts.

6.1 Freeze-up

The freeze-up period is the first critical period when you have to be aware of the ice conditions. Before travelling, make sure that the ice is safe. Weather and environmental conditions can influence ice formation and safety. If you are at all in doubt

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about the ice quality, do not hesitate to check with your local experts.

a) Weather conditions

During freeze-up, make sure that the ice is safe (thick and stable). The ice must be thick enough to support your machine and those of your group. A variety of weather conditions can influence the ice conditions. Some indicators can help you identify if the ice is ready or not to travel on. You should be aware of and know what the weather conditions have been like in the days just before your trip.

Have the days just before your trip been very cold? Weather conditions are important during ice formation. Ice formation at the beginning of winter season requires cold temperatures for an extended period of time. Local Northern Quebec community experts state that two to three cold days are required for safe ice formation, both in sea and freshwater environments. They say that cold and dry weather contributes to a faster freeze up.

Has it snowed in the days or weeks just before your trip?

The snow, although it is needed to travel by snowmobile, can influence ice formation. A thick layer of snow can insulate the cold and limit its penetration to the ice and slow down freezing. Also, a snow layer can camouflage or hide dangerous spots on the ice too. The negative association between snow accumulation and ice development is true in both salt water and freshwater ice.

Was it windy in the days prior to your trip? According to local community experts, freeze up is influenced, in combination with temperature and snow accumulation, by wind. Even if the temperature is below zero, strong wind can

delay freeze up. This negative effect of wind on freezing is observed in both salt water and freshwater environments.

b) Presence of currents

Presence of currents can also influence ice formation during freeze-up in both sea and fresh water environments. You must know where the main currents are. Usually, ice formation is delayed or the ice will be thinner where there are strong currents in the water. Places such as straits (between islands and the mainland) and the mouths of rivers are considered more dangerous for this reason.

c) Lake ice thickness as a regional indicator

According to local community experts, the thickness of lake ice on particular lakes in an area is a good indicator of the freeze up time of all lakes in that area. They are good indicators for the area, in this case. This information can be helpful but be certain to use a lake that is known to be a good indicator or representative of the region before trusting it as an indication of other lakes in the region. It is best to ask one of your local community experts in your town to know where the best 'indicator lakes' are in your region.

6.2 Break-up period

The break-up period is the second critical period you have to be aware of considering ice conditions. Before travelling, make sure that the ice is safe. The sea ice is the most dangerous and difficult to predict during break up. Warmer days and presence of currents in the water can accelerate melting. If you are at all in doubt about the ice safety, do not hesitate to check with your local experts.

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a) Weather conditions

During break-up, make sure that the ice is safe. Some climate indicators (temperature, wind, etc) can help you identify good ice conditions.

Have it been very warm recently?

Ice can be frozen solid following the bitter cold temperatures of winter, but is melting with the return of the sun and the warm sun of spring. Freshwater ice can get dangerous very fast, even if the ice was very thick on that lake before. This is especially the case when the ice is very clear. In sea ice, where there are currents in the water, warmer temperatures could contribute to melting and create open water (polynyas) even during the winter months, so be careful.

Has it snowed recently?

Snow at the beginning of spring can extend the period of time that sea and lake ice stay in the water. Snow cover can protect the ice from the warm temperatures keep the ice solid for a longer time. However, large amounts of snow in spring could also lead to slushy conditions in that the snow begins to melt and raise the level of water under the ice.

b) Presence of currents

The presences of currents in the area you are traveling can also influence the ice contributing to faster melting. On the sea ice, you have to know where areas of strong currents are. Currents may form, during mild weather, and create areas of open water.




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Appendix 1: Winter Check List suggestion







Before a trip, it is recommended to verify whether you have all necessary equipment and all is functional. To help you to prepare your trip, here is a check list of material useful for winter trips. Please note that this list is a suggestion only and should be adjusted to meet your own needs.

WINTER CHECKLIST			
Before travelling, LET THE PEOPLE KNOW WHERE YOU ARE GOING TO TRAVEL!!!			
		Use	Check List (✓)
axe, snow knife & woodsaw		Useful to cut logs or snow bricks.	
brew kit		Pack of tea and sugar can help restore morale!	
candles		Can help start a fire.	






compass, maps, GPS & extra batteries		Compass will help you to find your way. GPS can be useful too, but you must make sure you have batteries that work. A map of the area you plan to go can help you find your way if you are lost.	
cooking Pots & Pans		Useful for boiling water and cooking food.	
dog		To help warn for bears.	
food, dry frozen and cooked (extra food)		Perfect for travelling (light and compact). Extra food will be useful if you are travelling longer than expected.	
emergency blanket		To keep you warm in cases of emergency.	
supply of gas		Extra gas can be useful if you are travelling longer or further than expected.	
fishing gear (fishing nets, line & hooks)		Fishing gear can help you if food packed is not sufficient.	

			
fire arms withammunitio n		The best tool for the hunter...	
first-aid kit		The medical kit is necessary if you are injured.	
flare gun		Useful to signal your presence.	
flashlight with extra batteries		Useful if you need to work in dark conditions.	
harpoon & avataq		Useful for hunting.	

HF radio, SAT-phone		The HF Radio and SAT-Phone serve to communicate in cases of emergency.	
hotwater bottles		Perfect for a tea break.	
Icescape		A key to surviving going through the ice is getting out of the water as quickly as possible.	
knife or ulu		Always useful...	
lantern		Light for the long winter nights.	
matches, lighter & magnifying glass		Matches are the best tool to make a fire. You can waterproof your matches by dripping them with candle wax. A magnifying glass can help you start a fire if you don't have matches. You need to use the energy from the sun with lichen or small branches to start the fire.	

			
probe		Useful for measuring snow and in rescue situations.	
sleeping gear (mattress, caribou skin & sleeping bag)	  	A good insulation from the cold soil.	
sewing kit (with needles, strong thread & Patches)		To repair your equipment.	

			
ski or snowmobile goggles		To protect your eyes.	
shovel		Always useful!	
stove (Fuel or wood)		To heat food and beverages.	
snowshoes & skis		Always useful!	
sun glasses & sun block		To protect your eyes and skin during sunny days.	
tarp & rope (and extra rope)		Tarp can be used to build a shelter in cases of emergency. Ropes could be useful to tie your tarp and for several other uses.	

			
tent		Always useful.	
tool-box & snowmobile parts (drive belt, sparkplugs, headlight bulb & motor oil)		To repair mechanical problems.	
Throw bag		For rescue people in water	
extra cloths (wool and fleece and other warm layers)		To replace wet cloths or to add layers. Will help keep you warm.	

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