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Living With Climate Change in the Arctic

Text & photos by James Ford

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Floe-edge hunting has become more dangerous.

In the late spring of 2000, a group of 52 hunters from Arctic Bay, a small Inuit community on the northern coast of Canada's Baffin Island, were hunting narwhal from the edge of the sea ice. But things didn't go according to plan, recalls Levi Barnabas, a 41-year-old hunter and local politician. A strong wind from the south caught the group by surprise, detaching the ice they were on from the mainland and blowing them out towards the sea. Unable to reach land and approaching open water, Barnabas and several others radioed for help. Luckily, an icebreaker sailing nearby was able to dispatch a helicopter to rescue the stranded hunters. All were saved, but many lost their valuable equipment, including snowmobiles, sleds, guns, rowboats, and VHF radios.

Stories of Inuit getting into difficulties while hunting are increasingly common. For the Arctic Bay group, the rapid onset of a south wind was unexpected and came without the usual warning signals, such as predictable cloud cover. Unfortunately, such problems may become the norm for Inuit, who depend heavily on the local environment to support small hunting and fishing settlements across Greenland, northern Canada and Alaska, and northeastern Russia.

In 2004, I traveled to two Inuit communities in Canada's Nunavut territory, Arctic Bay and Igloolik (700 and 1,300 residents, respectively) to find out how people are being affected by climate change and to assess what future change may mean for the region. The trip highlighted the magnitude of problems posed by climate change but also demonstrated the adaptability of Inuit. Even so, social, cultural, and economic challenges threaten to undermine this adaptability and, if not addressed, could ultimately compromise their ability to cope with future environmental change.

« The World Is Different Now »

On my first trip to Arctic Bay, an elder told me, "The world is different now." Over the past decade, he has witnessed unprecedented changes in the Arctic environment, including later

freezing and earlier break-up of the sea ice in the fall and spring, more unpredictable weather, and stronger and more frequent winds. He had also seen greater temperature extremes, increased summer precipitation, and declines in the number and range of mammals, particularly seals. Other residents of Arctic Bay, and of Igloolik to the south, told similar accounts of changing climatic conditions beyond expected natural variability.

These observations are not unique to Canada's Nunavut Territory. In 2004, scientists with the Arctic Climate Impact Assessment, a comprehensive study of climate change in the Arctic, reported that the region as a whole has undergone the greatest warming on Earth in recent decades, with annual temperatures now averaging 2–3 degrees Celsius higher than in the 1950s. This warming has affected the region's ice and hydrological balance: the late-summer Arctic sea ice has thinned by 40 percent in some parts and shrunk in area by roughly 8 percent over the past 30 years. Precipitation has increased by around 1.2 percent per decade since the 1950s, and rain-on-snow events are far more common.

These changes pose significant risks and hazards to communities across the Arctic. Most of these risks are associated with hunting activities. For the 155,000 Inuit living in the region, hunting is more than just a hobby; it is a way of life that underpins the social, cultural, and economic fabric of community life. People spend a significant amount of time on the land, hunting, camping, and traveling outside their settlements, and must deal with the changing natural environment in their daily lives.

In Arctic Bay and Igloolik, the unpredictability of the weather has caused the most concern. Before venturing out on the land, hunters typically look to the sky to decide if it's safe to go out—assessing cloud height, form, and direction as well as the wind and other environmental conditions. Predicting the weather is essential to anticipating and responding to travel dangers. Strong winds, for example, can be treacherous

while boating on exposed water in the summer. In the winter, they can cause whiteout conditions and rapidly disintegrate the ice during late-season break-up.

Over the past several generations, the weather has been fairly predictable. In the summer, explains Atagutak Ipeelee from Arctic Bay, for “three or four days it would be calm, with bad weather lasting less than three days.” Bad weather would also be associated with wind coming from a certain direction. Today, the bad weather—mainly strong wind—appears without warning and lasts longer than in the past.

Changing climatic conditions have made traditional knowledge, through which predictions are made, less dependable. “Normally, when the wind starts coming, it comes gradually and then it gets stronger later on,” says Lisha Levia, a resident of Arctic Bay. “But today, when it starts getting windy, it comes on really strong. I cannot predict the weather through looking at the clouds when I used to.” Leah Otak agrees, echoing the concerns of many hunters in Igloolik: “[The weather] seems to be all mixed up now.” Identifying signs of hazardous conditions has become increasingly difficult.

Olayuk Kigutakarjuk of Arctic Bay appreciates the dangers posed by changing conditions only too well. While traveling on a snowmobile with her husband one autumn, they plunged through thin ice hidden under snow—a hazard that has worsened with climate change. Both were lucky to survive. Igloolik’s walrus hunters face similar perils, as a sudden shift in the wind direction from the south/southeast to the north/northwest on an outgoing tide would strand them on drifting ice.

Changing climatic conditions are affecting the accessibility of hunting areas as well. In the colder months from October to July, community access to these areas—open water for fishing, snowy caribou runs, the ice edge where seals gather—depends on the condition of the sea ice and snow. Later and longer freeze-up in the fall delays the start of harvesting, as harpoon seal hunters and ice fishers must wait longer before they can travel safely on the ice. For Inuit from Igloolik, the longer freeze-up is particularly frustrating: the village is located on a small island, and hunters cannot venture into the surrounding area until the ice is thick enough to cross.

In the summer, access to hunting areas depends on the condition of inland trails, which can get muddy and nearly impassable when the upper layer of permafrost melts and the summer rains pool. It also depends on the ability to use boats. The stronger and less-predictable summer winds limit small motor boats from accessing certain grounds because the vessels do not offer protection in rough water. For some hunters, this rising unpredictability spells danger and unnecessary risk. “Because of the weather, I stayed mostly at home [last summer],” notes Joe Arnatsiaq.

« We Can Cope With It »

Despite the new challenges they face, Inuit communities are coping in innovative and effective ways. In anticipation of potential weather-related dangers, many residents now make



extra preparations before they go out. David Kalluk of Arctic Bay, for instance, takes “extra everything, extra grub and extra gas” in case a sudden change in conditions means he has to spend more nights on the land. And the community’s narwhal hunters, who harvest at the ice edge during the annual spring break-up, now carry small boats on their sleds to avoid being stranded on drifting ice.

Other residents have simply become more risk-averse. They avoid traveling on the land or water if they have reason to believe the weather is going to be bad, they return quickly if weather conditions deteriorate, and they are more vigilant during their day-to-day activities. Some have stopped going out altogether at certain times of the year, altering the timing and location of their activities in response to changes in the accessibility of hunting areas. “The main reason I don’t go to [the] floe edge [in late spring] anymore is because of the wind,” explains Koonark Enoogoo of Arctic Bay. Many hunters have also adopted new technology, using global positioning systems (GPS) at the floe edge to detect if the ice is moving, carrying VHF radios to contact the community in emergencies, and consulting satellite images of the sea ice to identify areas to avoid.

That Inuit are managing these changes comes as no surprise to John MacDonald, a long-time resident of Igloolik and former director of the Nunavut Research Institute. “If [Inuit] weren’t adaptable they wouldn’t be around,” he notes. Unpredictability and a certain amount of change are characteristic of Arctic life and define the very nature of hunting. Hunters have an intimate knowledge of the Arctic environment through their own experience on the land and from knowledge and skills passed on by elders. This collective social memory, known as *Inuit Qaujimagatuqangit* (IQ; pronounced cow-ye-ma-ya-tu-kang-eet) enables risks to be managed. Hunters know the dangers of hunting, precursors to certain hazardous conditions, survival techniques for bad weather, what equipment to take along, and what preparations to make. The more experienced hunters are able to use traditional methods for

navigation if they are caught out in bad weather.

Like other forms of indigenous knowledge, IQ is dynamic—continually evolving in light of observations and trial-and-error experience. In the face of increased unpredictability, Inuit have combined this traditional knowledge with their experience of changing conditions to take appro-



Arctic char dry. Later sea ice freeze-up means less fishing from the ice.

appropriate precautions to ensure safe and successful hunting. Strong links between family and friends, another characteristic of IQ, have long facilitated survival in the Arctic and continue to play an important role today. The sharing of locally harvested animals and plants, for instance, is considered obligatory between family and friends, and occurs with others in the community at certain times of the year or when necessary. Sharing traditional food underpins Inuit food security as changing environmental conditions make certain hunting areas inaccessible to those who lack the equipment, knowledge, or time to harvest their own food.

Diversity and flexibility in resource use is also important in facilitating Inuit adaptability. Harvesting is opportunistic: hunters will harvest game when and where it is available, taking advantage of specific local conditions. As climate change creates new situations, such as a later ice freeze-up in the fall, they take advantage of this by extending the fishing season and waiting until freezing occurs to resume normal activity.

«We're Losing Our Traditions and Our Culture»

While climate change is a major worry for residents of Arctic Bay and Igloolik, an even more pressing concern is the social fallout from the transformation of these traditional subsistence-based societies to “southern” wage-based economies. Unemployment in both Arctic Bay and Igloolik stands at over 20 percent, and alcoholism is a major problem. Nunavut’s suicide rate, at 77 deaths per 100,000 people, is one of the highest in the world and six times higher than in the rest of Canada. Meanwhile, the switch from traditional diets to processed, store-bought foods has led to rising levels of obesity and diabetes, particularly among younger generations. But social and environmental problems are linked: as these



Hunters now take small boats to the floe edge for safety.

social changes occur, they are undermining the very characteristics of Inuit society that have facilitated cultural resilience to wider changes in the natural world.

Of particular concern to both communities, and to indigenous communities across Canada’s north, is the erosion of traditional land skills among youth. These skills used to be developed through learning by doing, explains David Kalluk of Arctic Bay. Young children, primarily boys, would be taken out on the land by their fathers and grandfathers. Through observation, experience, and trial-and-error, they would attain the knowledge required for safe and successful hunting.

But with school and other distractions such as TV and computer games, few younger-generation Inuit are learning this way today. “They’re not observing and they’re not out there hunting,” says Arctic Bay’s Tommy Tatatuapik. Consequently, skills necessary for safe hunting and travel are being lost or insufficiently developed, including methods of navigation and making snow shelters, dealing with certain dangerous situations, dressing appropriately, stocking supplies for trips, and identifying precursors to hazardous conditions.

“We have lost the skills so much,” laments James Ungalak of Igloolik. “What would have not been dangerous 50 years ago is now dangerous.” Arctic Bay’s Leah Kalluk has similar concerns: “[The younger generations] either get stranded or go into dangerous spots because they [are] not listening to the elders.” Indeed, there have been numerous cases of young Inuit getting into difficulties on the land—and changing climatic conditions are making it even more dangerous for them.

The erosion of traditional skills in younger generations is compounded by an erosion of traditional family structures and sharing networks, emerging inter-generational segregation and loss of respect for elders, increasing dependence on technology, and reliance on outside financial support. All of these are straining the mechanisms through which Inuit manage climatic and environmental conditions.

«They're Saying It Will Continue to Change... What Can We Do?»

Both social and environmental concerns will only worsen as the Arctic undergoes further climate change in the decades ahead. By 2100, average annual temperatures are projected to rise 3–5 degrees Celsius, and precipitation is expected to increase roughly 20 percent, according to the Arctic Climate Impact Assessment report. The report also predicts a more significant decline in the extent of sea ice, increased ice instability, and

even greater weather extremes. While Inuit are able to manage the changes in climatic conditions today, vulnerabilities associated with the transition from a traditional lifestyle, particularly among youth, make future prospects more worrying.

Ultimately, the ability of the residents of Arctic Bay and Igloolik to manage future environmental change will be constrained or enhanced by the resilience of traditional livelihoods and the strength of *Inuit Qaujimajatuqangit*. The nature of the change will also be important, as rapid and unpredictable climate alterations would be more problematic. Timing is also key. Changes in environmental conditions at dangerous times of the year (such as during ice freeze-up and break-up), including increased instability, thin ice, and less-predictable winds, have been most troublesome to date. Further changes would create additional risks. Unfortunately, existing climate models are limited in their ability to predict how climate change will affect environmental conditions at specific times of the year.

As they witness this new reality, Inuit organizations have become increasingly vocal in raising awareness of the magnitude of Arctic climate change and in advocating action to reduce emissions of heat-trapping greenhouse gases. In June, the Inuit Circumpolar Conference (ICC), an international non-governmental organization representing Inuit communities across the Arctic, announced plans to file a petition with the 35-member Organization of American States to pressure the United States to do more to cut its emissions. The group has accused the U.S. government of violating Inuit human rights by fueling climate change. For her work for Inuit rights, ICC chair Sheila Watt-Cloutier was recently awarded the \$100,000 Sophie Prize.

The ICC and other Inuit groups have been less effective, however, in addressing what communities can do to cope with climate change at a local level. This is an important issue for many residents who are experiencing climate change in their everyday lives and who face the specter of even greater change in years to come. Most communities would prefer to avoid the fate of Shishmaref, a small Inuit village in the Chukchi Sea off Alaska, where residents are preparing to move their entire settlement to more solid ground as the shrinking sea ice, thawing permafrost, and frequent sea storms erode their island.

Several Nunavut residents offer insights into what can be done. Atagutak Ipeelee notes that bigger boats would better navigate the strong winds and improve the safety of hunters during the late-spring narwhal hunt. In Igloolik, Abraham Ulayuruluk would like to see subsidies that would allow hunters to buy the extra gas, food, tents, and other supplies

they need in the face of changing conditions. This includes funding for more safety equipment, including satellite phones and GPS units, as well as affordable insurance to cover equipment lost or damaged in climate-related hunting accidents.

Opportunities also exist to address the social issues that plague many Inuit communities, and thus to indirectly strengthen their ability to cope with future change. These include policies to promote and preserve traditional Inuit knowledge and to improve the safety of hunting among youth. In Igloolik, the Inullariit Society, established in 1993 to pre-



Sea ice break-up. Ice at this time is more unstable than it was for previous generations.

serve and promote culture, language, heritage, and traditional values, now offers “Land Camps” during which elders take young Inuit on the land for weeks at a time to teach hunting, survival, and safety skills. Because Inuit knowledge forms the basis for Inuit cultural identity, spirituality, and values, its preservation and promotion is key to addressing concerns at the community level.

By considering climate change and the full range of coping mechanisms in local planning, budgeting, and other decision making processes, Inuit communities can act to hedge against any future challenges they are likely to face. This approach, known as “mainstreaming” may be the best way to prepare for the inevitable changes ahead.

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