



## Indigenous Wellbeing in Response to Changing Environmental Conditions

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Though climate change is a looming force around the world, the Arctic regions are experiencing numerous adverse effects of climate change – melting of the sea ice, forced migration of land animals, warming of the ocean, and more extreme weather. Though everyone in this region feels the effects of climate change, the Inuit people are poised to experience a greater impact, due to their deep connection and dependence on the land. Nearly all of their cultural and daily practices rely on the environment – most notably the sea ice – from hunting traditions to cultural knowledge passed on through generations. This paper aims to examine how climate change may negatively impact the physical, mental, and emotional health of the Inuit people, due to the loss of traditional resources and forced adaptation.

The Inuit people are one of the largest groups of Indigenous people worldwide, inhabiting the subarctic area of Canada. The Inuit people are a sea people – out of all the environmental aspects of the land they live in, the sea ice is considered the most important. Additionally, their most valuable and most hunted animals are the ringed seal and the bowhead whale. The Inuit have adapted to more modern practices now – such as the use of the snowmobile versus that of dog-sled teams – but they remain keen on protecting their traditional life and customs, many of which may not have a place in our rapidly changing planet. The relationship between the environment and the Inuit is one that is not commonly understood or practiced in non-Inuit communities; as said by an Inuit interviewed for one of the studies referenced, experiencing and being in nature makes “soul feel better”. Though the research articles referenced in this paper focus on different impacts on Inuit wellbeing, all acknowledge that data and studies about the connection between climate change and Indigenous health are lacking, something that can be remedied by monitoring and creating frequent systems to assess conditions of Inuit resources.

Climate change has caused the physical wellness of the Inuit people to decrease. For one, it is reported that fatal injuries have increased recently, with unintentional injuries relating to environmental accidents being four times higher than that of normal Canadians. Noticeably, the majority of those injuries are due to breaking of the sea ice, which has weakened and thinned from global warming. Incidents of drowning in Inuit settlements is reported to be six times higher than normal Canadians and snowmobile-related drowning and injuries are reported to be eight times higher. Those who are able to make it out of the fatally cold water are incredibly vulnerable to frostbite and hypothermia, which have become very commonplace in Inuit settlements. The number of Inuit injuries is predicted to rise as the food sources the communities used to depend on switch to more migratory and seasonal species, forcing the hunters to hunt for longer and farther away, putting them in more danger. With the loss of more traditional species, like the aforementioned ringed seal, the Inuit are forced to look elsewhere for food. The Inuit call animals like the ringed seal “*niqituinnaq*”, or real food – referring to the traditional species their ancestors relied on. Ringed seals, especially, are crucial – they are responsible for 54% of edible biomass caught by Inuit hunters and consist of over 50% of the winter and spring supplies of food. The Inuit do have other food sources, such as caribou, but

none are available year-round, as the seals are. This leads to an inevitable drop in food security over the cold winter months, which may lead to illness or even starvation due to lack of food. In addition to this, other animals found in the Inuit diet have decreased in abundance. The declining populations have forced the Inuit to turn to the un-traditional country foods, which have been found to hold contaminants not found in the animals they hunt. As a result, it's found that the Inuit have lacked several essential nutrients, such as Vitamin D and zinc.

Perhaps the largest threat the Inuit face is water-borne illnesses. The introduction of contaminants, such as lead, PBC, or waste found in traditional water systems – and, through biomagnification and bioaccumulation, the traditional food sources found underwater – is causing a variety of gastrointestinal illnesses. The Inuit do receive chemically treated tanks of water, as well as tap water, but many have been led to believe that their sickness comes as a result of drinking the tap water, so they turn to creeks, rivers, and other natural sources of water. In addition to this, drinking raw water is an Inuit custom, one that many community members continue to cling to. The biggest issue is that of wastewater – many communities dump their wastewater into small pools or streams a little way away from common water sources. However, with the permafrost melting, many of the pathogens found in feces and waste are filtering into common sources. Many researchers believe that this is the reason for the high cases of giardia reported in Inuit communities, which is acquired through bacteria found in feces. The warming temperatures also mean increased evaporation, intensifying the presence of the pathogens. Additionally, thousands of animals wade through that same water source the Inuits use for drinking, washing into the water whatever these animals may have carried into their journey, thus making the water unsafe for consumption. The Inuit have also noticed that higher levels of diarrhea and stomach upsets happen when the winter passes and the waters begin to flow again, indicating that the traditional water sources may not be entirely safe to drink from anymore. If the water is not cared for, it's very likely that infection rates will continue to grow. However, in the face of global warming, the chemically treated water tanks are not necessarily safe either. Global warming is increasing the temperature of the sub-arctic environment and chlorine does not function well in heat, allowing bacteria formation.

Environmental changes have caused the Inuit to experience physical injury, but the effects of climate change have caused a decline in Inuit mental health as well. In a survey conducted by Agata Durkalec, the Inuit people interviewed identified various connections to the sea ice. For many, the sea ice represented freedom – and now, with the sea ice melting and disappearing, that freedom is in jeopardy. For many of the Inuit, the sea ice became an escape and a source of rejuvenation. Now, with the more dangerous conditions of the ice, the Inuit are facing higher levels of depression and anxiety as a result of the restricted travel ability. When the interviewees were asked how they would feel if they couldn't venture into the ice, sample answers were: “go crazy”, “can't breathe”, “be lost”, and “sad”, indicating just how important the ability to move on the sea ice is in connection to the Inuit mental and emotional wellbeing. Before, the Inuit interviewees had a hard time making any negative associations with the ice; however, there is now a growing fear of physical safety due to weakening of the sea ice. One Inuit man mentioned that the location he had used to collect wood had thinned and two of his companions had died there as a result; since then, he has not gone back out onto the ice. The



unpredictable and extreme weather adds to this claustrophobia and lack of space to move, almost immobilizing the Inuit in their homes. The weakening sea ice has impacted Inuit social relationships as well. Many of the intricate interpersonal relationships are dependent on the ice, such as the activity of *Uummajusiutiit*, where two men hunt for seals. With the ice becoming more dangerous, the Inuit are not able to participate in such activities, contributing to the onset of depression. Additionally, traditional activities such as harvesting are impossible to do because of the lack of access to traditional grounds. In effect, climate change threatens the preservation, continuation, and strength of Indigenous cultural values and practices, largely due to the loss of sea ice.

While impacts are largely negative, it's important to acknowledge that the Inuit have adapted to climate shifts in the past and are likely to be able to do it again. The issue of global warming has been seen in the past, in a period scientists labeled the Warm Arctic. Data reveals that the Thule – the Inuit ancestors – changed their lifestyles to match the new climate and did so effectively. For one, the bowhead whales had a new range because of the loss of the ice that previously trapped them closer to land, so the Thule followed the movement of the whales. The housing styles shifted from bones and skins, previously supplied by the whales, to igloos. The loss of the whales decreased food security, so the Thule incorporated more land animals into their diet. As a result of targeting migrating mammals, they also became less sedentary. Evidence has shown that the Inuit have been very successful at integrating newer systems and technology into their daily life, without compromising traditional habits. It is possible that the current-day Inuit, similar to their Thule ancestors, will use their traditional knowledge of the land to adapt to the new environment.

One of the Inuit interviewees said that Nain, the settlement capital of the Inuit, is becoming very much like the non-Inuit settlements, allowing the Inuit to engage in non-traditional activities. For her, the sea ice represents a place where she can regroup and reconnect with her roots. The Inuit are adapting to the new world, perhaps not entirely of their own volition, and many of their cultural values and practices are getting lost in the transition. The environment is the setting and the foundation of nearly their entire existence and culture, which is now threatened in the face of our changing planet. While adaptations have been successful and more are slated to come to fruition in the future, the Inuit are experiencing a decrease in their wellbeing thanks to the loss of the world they once knew.

Ford, James D. *Adapting to the Effects of Climate Change on Inuit Health | AJPH | Vol ...*, American Journal of Public Health, 2014, [ajph.aphapublications.org/doi/10.2105/AJPH.2013.301724](http://ajph.aphapublications.org/doi/10.2105/AJPH.2013.301724)

This article focuses on preservation of traditional Inuit knowledge and how it can be used to adapt to a changing planet. Ford emphasizes that looking at adaptive strategies is more proactive and beneficial to Inuit health. Ford labels the Inuit as “active agents” in the face of current climate strategies, suggesting the need to involve indigenous communities and utilize their unique perspective. Ford notes a lack of strong climate policy in the Inuit-occupied regions of Canada; he believes that evidence of health vulnerability in relation to climate change can provide a basis for effective policy in the Inuit areas.

Wenzel, George W. *Canadian Inuit Subsistence and Ecological Instability - If the Climate Changes, Must the Inuit?*, Department of Geography, McGill University, 2009, [www.tandfonline.com/doi/epdf/10.1111/j.1751-8369.2009.00098.x](http://www.tandfonline.com/doi/epdf/10.1111/j.1751-8369.2009.00098.x).

Wenzel takes notice of the attention of climate effects in the circumpolar world but suggests that there should be a focus on the vulnerability created by increased issues with hunting and harvesting as a part of the traditional Inuit food system, otherwise labeled as “subsistence system”, thanks to the loss of traditional food stocks. This article hones in on the social economy that comes as a result of the hunting bounty. The paper also goes as far as to assess traditional Inuit animal populations in relation to climate patterns to give an estimation of the future of the subsistence system.

Durkalec, Agata, et al. *Climate Change Influences on Environment as a Determinant of Indigenous Health: Relationships to Place, Sea Ice, and Health in an Inuit Community*, Elsevier, 28 Apr. 2015, [pdf.sciencedirectassets.com/271821/1-s2.0-S0277953615X00116/1-s2.0-S0277953615002555/main.pdf](http://pdf.sciencedirectassets.com/271821/1-s2.0-S0277953615X00116/1-s2.0-S0277953615002555/main.pdf)

Durkalec examines how environment factors into Inuit mental health, zoning in specifically on the impact of the sea ice. The article is a case study and concludes that there are more benefits of sea ice use than harmful health effects, indicating that the Inuit find peace of mind and a healthier mental state in relation to their surroundings. Durkalec seems to believe that the sea ice is a manner of freedom, one that is necessary for the collective society and social health of the Inuit as well. The article urges a shift of focus away from the actual injuries resulting from changing sea ice conditions but to the idea of displacement of the sea ice and the attachments the Inuit form with it.

Middleton, Jacqueline. “‘we’re People of the Snow:’ Weather, Climate Change, and Inuit Mental Wellness.” *Social Science & Medicine*, Pergamon, 17 June 2020, [www.sciencedirect.com/science/article/pii/S0277953620303567](http://www.sciencedirect.com/science/article/pii/S0277953620303567).

Middleton acknowledges that climate change as a whole impacts the Inuit but seeks to find how shifts in weather patterns influences the mental wellbeing and sense of place attachment in the Inuit. The study concludes with the takeaways that daily experiences, mental health,



emotional expression are all affected by changing weather. Middleton believes that the correlation found should be considered in the face of new climate policy but that there should also be adaptations that are more specific to the cultural and place of that area.

Rosol, Renata. "Impacts of Decline Harvest of Country Food on Nutrient Intake among Inuit in Arctic Canada: Impact of Climate Change and Possible Adaptation Plan." *International Journal of Circumpolar Health*, U.S. National Library of Medicine, 5 July 2016, [pubmed.ncbi.nlm.nih.gov/27388896/](https://pubmed.ncbi.nlm.nih.gov/27388896/).

Rosol takes note of the fact that there is a general decline in the nutrient-rich, traditional foods of the Inuit, calling it a "public health" issue. The article underscores an important, perhaps overlooked fact: that of invasive species, or those that are able to move north thanks to the warming temperatures. Rosol states that turning to country foods is the only option. The paper assesses changes in nutrient intake with a variety of hypothetical solutions; the paper aims to provide a glance of what nutrient content the Inuits may be lacking in and what needs to be supplied, if or when they turn towards country foods.

Martin, Daniel. "Drinking Water and Potential Threats to Human Health in Nunavik: Adaptation Strategies under Climate Change Conditions." *JSTOR*, Arctic, June 2007, [www.jstor.org/stable/40513135?casa\\_token=O3fTX-zotTEAAAAA%3A7rBjcwWdiLJDnODeTYAELAI-xiPxshx8cjJ0ro38J2ltchmaxl9\\_x\\_qbyWkiXH2qnPKeP-nK4VEk7L6KjIL1e0hoZglIKGgjkLS8qMf2yJ7UGnmBL-k](https://www.jstor.org/stable/40513135?casa_token=O3fTX-zotTEAAAAA%3A7rBjcwWdiLJDnODeTYAELAI-xiPxshx8cjJ0ro38J2ltchmaxl9_x_qbyWkiXH2qnPKeP-nK4VEk7L6KjIL1e0hoZglIKGgjkLS8qMf2yJ7UGnmBL-k).

Though chlorine-treated water tanks are delivered to the Inuits in Nunavik, many rely on the traditional sources, which are unfortunately untreated and potentially dangerous. Data showed that the water at usual collection sites were normally of healthy quality, yet Martin suggests that frequent testing be done in case contamination does happen, whether it be from a source or from algal blooms thanks to temperature changes. It's noted with alarm that the individual tanks have contamination as well. Martin goes on to explain the further changes that should be made; the focus seems to rest on more frequent monitoring and an increase in awareness.

Harper, S. L., et al. "Acute Gastrointestinal Illness in Two Inuit Communities: Burden of Illness in Rigolet and Iqaluit, Canada: Epidemiology & Infection." *Cambridge Core*, Cambridge University Press, 20 Feb. 2015, [www.cambridge.org/core/journals/epidemiology-and-infection/article/acute-gastrointestinal-illness-in-two-inuit-communities-burden-of-illness-in-rigolet-and-iqaluit-canada/D3B2750729356BE85CEC13032A858E0E](https://www.cambridge.org/core/journals/epidemiology-and-infection/article/acute-gastrointestinal-illness-in-two-inuit-communities-burden-of-illness-in-rigolet-and-iqaluit-canada/D3B2750729356BE85CEC13032A858E0E).

With this paper, Harper hopes to increase understanding of AGI, or acute gastrointestinal illness within two Inuit communities in Canada. The data was self-reported, and Harper concluded that while there were a variety of factors that contributed to the AGI rates in the two communities, water sources and changed food sources seemed to be consistent across both sets of data. Harper aims to create awareness towards the need for systemic data collection, as well as a study to understand the unique factors that impact the Inuit AGI rates.