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**Adapting to a World of Change:  
Inuit Perspectives of Environmental Changes in Igloodik, Nunavut**

By

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## Abstract

Climate change is becoming one of the most important foci of scientific research. The Arctic is particularly sensitive to changes in climate, and Inuit are in a good position to experience such changes as they interact with their environment on a daily basis while traveling, hunting and camping on the land and sea ice. The perceptions of what those changes mean, however, differ from the views predominantly held by scientists, especially when they relate to local observations.

Inuit in Igloodik, where this research has been focused, do not see local environmental change as a new event. Inuit and their ancestors have inhabited the Arctic for thousands of years, adapting to and enduring many periods of climatic variability and change. Inuit knowledge of the environment constitutes a unique aspect of their culture and has been crucial to their own adaptive capacity.

This thesis shows that Inuit in Igloodik see the environmental changes experienced today as part of a cycle. They also believe that they will adapt to those changes, and that animals are equally capable of adapting. This thesis also analyzes how Inuit in Igloodik relate these experiences to larger debates of global climate change. It contrasts the local narratives of change with those produced by scientific reports, the media, and Inuit organizations. In this sense, this thesis helps develop a better understanding of the process of knowledge construction in situations where the local and the global intersect. Finally, this thesis aims to show that although research studies increasingly acknowledge the value and utility of local indigenous knowledge, cultural and linguistic barriers continue to persist to permit fruitful collaboration.

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**List of acronyms**

ACIA – Arctic Climate Impact Assessment  
AMAP – Arctic Monitoring and Assessment Program  
COP – Conferences of the Parties  
GN – Government of Nunavut  
GPS – Global Positioning System  
HBC – Hudson Bay Company  
ICC – Inuit Circumpolar Council  
ILUOP – Inuit Land Use and Occupancy Project  
IPCC – Intergovernmental Panel on Climate Change  
IPY – International Polar Year  
IQ - Inuit Qaujimajatuqangit (Inuit knowledge)  
ISIUOP – Inuit Sea Ice Use and Occupancy Project  
ITK – Inuit Tapiriit Kanatami  
NIC – Nunavut Implementation Commission  
NRI – Northern Research Institute  
NSTP – Northern Scientific Training Program  
OHP – Oral History Project  
RCMP – Royal Canadian Mounted Police  
TEK – traditional ecological knowledge  
UNFCCC – United Nations Framework Convention on Climate Change

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## **Chapter 1: Introduction**

### **1.1 Overview**

Climate change is one of the most significant and pressing global issues of our time. Ongoing national and international discussions are taking place. For instance, the issue is the centre of debate for the United Nations Framework Convention on Climate Change (UNFCCC) through such forums as the annual Conferences of the Parties (COP). The COPs, which originally used to discuss a variety of international concerns, now focus mainly on producing international binding policies to deal with climate change and environmental impacts. The Kyoto Protocol (UN 1998), to legally bind countries to reduce their greenhouse gas (GHG) emissions to below 1990 levels by 2012, was their first attempt to find a solution to these environmental problems. Many governments and organizations, including some initiated by the UNFCCC, have stimulated natural and social scientific research to investigate the changes observed around the world. A considerable amount of this research has focused on the polar regions, since "the impacts of this climate change in the polar regions over the next 100 years will exceed the impacts forecast for many other regions and will produce feedbacks that will have globally significant consequences" (Anisimov et al. 2007:655). Organizations and projects engaged in research on climate change in the Arctic include the Arctic Climate Impact Assessment (ACIA), the Intergovernmental Panel on Climate Change (IPCC), the Arctic Monitoring and Assessment Program (AMAP), ArcticNet, as well as various projects associated with the 2007-2009 International Polar Year (IPY). The IPY has been a major driving force in facilitating diverse multidisciplinary research in Arctic and Antarctic environments, including studies on ocean biodiversity, sea ice formation,

marine mammal populations, and the health and vulnerabilities of northern communities. There are also overarching projects investigating how and why these changes are occurring, providing results to inform policy-makers of the current climate-related challenges, and recommending possible solutions.

Beyond the scientific and political debates, the indigenous peoples of the Arctic are living the reality of these changes on a daily basis. Change, however, is not necessarily seen as a new event. Inuit and their ancestors have inhabited the Arctic for thousands of years, adapting to and enduring many periods of climatic variability and change. Inuit knowledge of the environment constitutes a unique aspect of their culture and has been crucial to their own adaptive capacity. Developed through observation, interaction, repetition and transmission, this knowledge is both deeply cultural and richly empirical. Research projects undertaken in Nunavut (in particular social science projects) are encouraged under Nunavut Research Institute (NRI) licensing, to include the expertise of local indigenous peoples and their traditional environmental knowledge in order to enrich the depth and understanding of the studied environments (NRI 2009)<sup>1</sup>.

This thesis looks at how Inuit in Igloodik, Nunavut, perceive and talk about environmental changes, and how these perceptions can be compared to current debates of climate change. In a sense, this thesis will explore what climate or environmental change means to the Inuit of Igloodik, and how their view can be connected to their complex

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<sup>1</sup> In the context of Nunavut, the new political and cultural reality of the new territory made it necessary for Inuit to create a term that reflects Inuit values and established ways. The term *Inuit Qaujimaqatugangit* (IQ) was coined, meaning the principles of knowledge that are thought to be particularly Inuit (Government of Nunavut, 2005a). In the context of this thesis I will refer to “Inuit knowledge,” considering it the most descriptive and the least politically and ideologically charged. Besides, “Inuit knowledge” reflects well the particular ways in which Inuit interact with their environment and their knowledge.

knowledge of the environment, developed through many generations of living in the Arctic.

Projects documenting Inuit knowledge of climate change generally recognize its complexity and reliability (Duerden 2004; Ford et al. 2006; Furgal & Seguin 2006; Laidler 2006; Laidler 2007). The Arctic is particularly sensitive to changes in climate, and Inuit, by virtue of their daily activities of travelling, hunting and camping on the land and sea ice, are in a unique position to notice these changes. This knowledge is possessed and developed by Inuit, but it is also changing in the face of social and cultural changes. At the local and national levels, Inuit knowledge of the environment interacts with new narratives of climate change spread by Western media and Western scientific data.

Since the perception of climate and weather involves people's relationship with their surroundings, my thesis considers how Inuit experiences of their environment have changed since migration and contact with Europeans/Euro-Canadians to the present day. The focus of this thesis is the analysis of how environmental changes are perceived by the Inuit of Igloolik. Are they experienced as the result of an extraordinary global phenomenon, or rather in light of local knowledge? How do Inuit talk about climate change in Igloolik? These questions are analyzed in the larger context of socio-economic transformations that Inuit in Igloolik have experienced since the development of settlements. The thesis also analyzes how local narratives of change relate, differ and intersect with other narratives (e.g. the views of Inuit organizations, and the more prevailing views of Western science). For instance, Inuit are exposed to scientific research through contact with researchers and the media, and these interactions and information shared between the groups will intersect with Inuit knowledge and

experiences of their own environment. Therefore, another goal of my thesis is to investigate how scientific and public discourses compare with Inuit perceptions of environmental change.

## **1.2 Case study context**

The focus of my research is the community of Igloolik, home to about 1500 people, of which approximately 95% are Inuit (Stats Canada 2006). The hamlet of Igloolik is located in the eastern Canadian Arctic on the island of the same name. Igloolik Island is situated in Foxe Basin, between Melville Peninsula and Baffin Island (Figure 1.1).

One of the reasons for choosing this community was related to the activities of the Igloolik Research Center (IRC), an institution that hosts a number of scientific projects and attracts many researchers each year. Furthermore, as a research assistant for the Inuit Sea Ice Use and Occupancy Project (ISIUOP) during 2007-2009, I was assigned field work in Igloolik for five weeks. Given the strong research relationships that the main researchers of the project already had in Igloolik (my co-supervisors Dr. Claudio Aporta and Dr. Gita Laidler), I was able to gain access to a valuable network of people in the community, which helped to facilitate this research.

Igloolik attracts many researchers interested in studying Inuit environmental knowledge in the Canadian Arctic, as community members still hunt on regular basis, make intensive use of the sea ice, and it is widely recognized as one of the cultural centers of the Inuit of Nunavut.

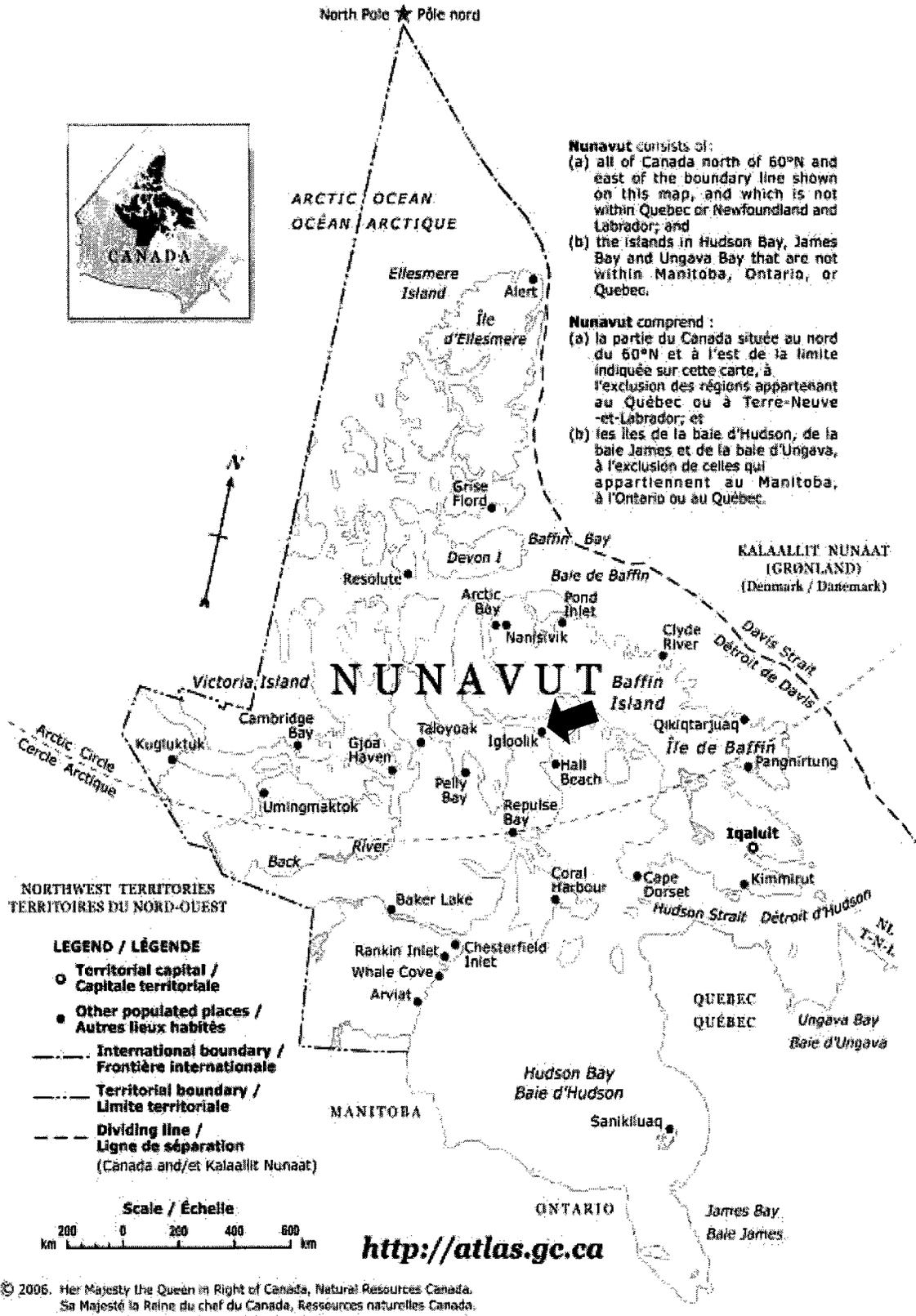


Figure 1.1 – Map of Nunavut

Archaeological evidence suggests that the area was first inhabited by the Dorset, who are thought to have come across the Bering Strait from northeastern Asia about 4000 BP (before present) (Friesen 2004), and later by the Inuit ancestors, who settled there approximately 1000 years ago. Igloolik was a place favoured by both Inuit and pre-Inuit groups due to the abundance of local wildlife (including walrus, seal, narwhal, beluga and bowhead whales, polar bear, caribou, fish and waterfowl), still important today. Inuit have lived in this environment for many generations, and the culture of the Iglulingmiut (Inuit of Igloolik) continues to be strongly influenced by their interaction with the environment, the natural resources of the region, seasonal changes, and related hunting practices.

The Iglulingmiut first came in contact with Europeans in 1822 with Sir William Edward Parry's expedition in search of a Northwest Passage (Aporta 2009). Parry was accompanied by George Francis Lyon and they both recorded their experiences and their interactions with the Iglulingmiut in their journals (Lyon 1824; Parry 1824). The members of the expedition made use of Inuit knowledge for exploring and navigating the land and seas surrounding the Foxe Basin region. After Parry and Lyon left, Igloolik was not visited by any other non-Inuit until Charles Francis Hall's trip in the early 1860s (Hall 1864). The Iglulingmiut continued to have indirect contact with Europeans through travel to other communities visited by whalers or inhabited by the traders of the Hudson's Bay Company, but it was not until the 1920s that Igloolik was visited by Europeans again. The Fifth Thule Expedition traveled across the Canadian Arctic from 1921 to 1924, led by the Greenlandic explorer and ethnographer Knud Rasmussen. He embraced Inuit culture, adopting Inuit clothing and dog teams for transportation on the land for his

expedition across Arctic North America. He also wrote about the material and oral culture collected during the expedition and published a number of ethnographic works including one on Iglulingmiut culture (Rasmussen 1976[1929]). Another significant member of the expedition was Danish archaeologist Therkel Mathiassen, who did ethnographic and archaeological work in the Igloodik area (Mathiassen 1976[1928]). He also collected oral histories, knowledge, and all sorts of stories and information from the Iglulingmiut. These works have been essential for understanding the Igloodik Inuit culture before sustained contact with Euro-Canadians.

The Inuit of the Igloodik region were known to lead a semi-nomadic life, settling in different camps through the year, according to seasonal differences and availability of food (Mathiasen 1976[1928]; Parry 1824). However, by the 1950s and 1960s, the Canadian government's new policies on the Canadian North led to the foundation of permanent settlements, where Inuit populations were persuaded or coerced to move. Among the reasons for this policy was the enforcement of justice among aboriginal peoples, and also the increasing public pressure for the government to take responsibility over Inuit through medical services and policing (Rasing 1990). With the development of these settlements, European goods, such as guns, ammunition and, eventually, snowmobiles, became more accessible to the Inuit populations. In fact, Inuit were quick to adopt these new hunting techniques, once they were satisfied with their effectiveness and efficiency (Aporta & Higgs 2005). The most dramatic change connected to this period of sedentarization was the increasing dependency on the services provided by the settlement. New ways of social and economic organization were also implemented, as Inuit had to obtain wage employment and pursue formal education (Aporta & Higgs

2005). These settlements are now important elements in people's lives, and in how Inuit experience their own culture and identity.

Igloolik also experienced more changes after the creation of the territory of Nunavut in 1999, as the hamlet became a regional center for the government administration, attracting Inuit from other communities and people from southern Canada (NIC 1995; Hicks & White 2000). Despite all these changes, Igloolik is still known across the territory as one of the centers of Inuit culture. Igloolik is also a good place of research because of its unique Oral History Project (OHP) that has been documenting Inuit knowledge since 1986 through the Inullariit Elder's Society (Bravo 2008).

### **1.3 Objectives and rationale**

As stated previously, the focus of this research is on Inuit perspectives of climate change. I aim to address the following research questions:

1. What does climate change mean to the people of Igloolik?
2. How do Inuit in Igloolik talk about climate change and how do their narratives compare to other perspectives?
3. Are Inuit experiencing environmental changes in Igloolik and how are they trying to adapt?
4. To what degree does Inuit culture affect the way in which they view climate change?

This thesis will also address how the narratives of change produced by some key scientific reports, the media, and Inuit organizations relate to, or differ from, local Inuit observations and perspectives.

Climate change, however, is not as straight forward a concept as many may think, and it has come to encompass a multitude of meanings. It often brings to mind images of smokestacks and smog-covered cities in the South and, as a consequence, melting ice caps and drowning polar bears in the North. Just as one's perspective of climate change is

shaped by one's experiences with the environment and perceptions of change, it is also influenced by prevailing discourses. Arctic communities, like southern ones, are exposed to media coverage of climate change through their access to satellite television, radio, newspapers, and the Internet. As climate change has become part of the public consciousness, it is increasingly difficult to distinguish between our own perceptions of change and those communicated by the media (Peterson & Broad 2008). This thesis seeks to understand Inuit perceptions of climate change, not only as a consequence of their connections to the environment, but also in the larger context of prevailing, and scientifically-based, discourses of climate change.

There is an increasing amount of research related to climate change being conducted in Arctic communities. For example, in Igloolik alone there are projects on climate change and sea ice (Laidler & Ikummaq 2008, Laidler et al. 2009), on vulnerability to climate change (Fox 2002, Ford et al. 2006, Ford et al. 2007, Ford et al. 2009), and on the complexities of social, technological and environmental changes (Aporta 2002, Aporta & Higgs 2005, Bravo 2008). Although they study specific local processes, these projects also attempt to relate their findings to larger contexts of global climatic and local cultural changes. Given the increasing research interest in the vulnerability of Arctic ecosystems, it is legitimate to ask whether Inuit share this concern, and if they relate the environmental changes they experience locally to global issues such as over-consumption and greenhouse gas emissions.

Although a thorough discourse analysis of how different narratives interact with each other at a local level is beyond the scope of this thesis, while in the field it became obvious that scientific and media narratives of change were also part of people's lives; it

is important to recognize that there is variation not only *between* Inuit and scientific perceptions, but also *within* these groups. For this analysis, however, I will refer to three levels of perception and discourse. The main focus of this thesis (the local Inuit views) will be analyzed based on interviews and my own participant observation while in Igloolik. A second level relates to public Inuit perspectives, and my analysis is based on a sample of documents and speeches produced by Inuit leaders and Inuit institutions, such as the Inuit Circumpolar Council (ICC) and the Inuit Tapariit Kanatami (ITK)<sup>2</sup>. Finally, the third level of discourse is related to scientific literature on climate change, and this will be analyzed through major international scientific reports such as those from the Intergovernmental Panel on Climate Change (IPCC 2007)<sup>3</sup> and the Arctic Climate Impact Assessment (ACIA 2004). While this thesis focuses on local perception of climate change, it will be important to analyze how local perceptions interact with the other two levels of discourse.

Perceptions of the environment and climate are not developed in isolation; increasing trends toward globalization result in processes where local realities are intertwined with broader political and economic contexts. This interaction between the local and the national is not new. For instance, it was fairly common in Canada in the context of land use and development projects in the 1970s. From this period on, indigenous peoples gradually became more involved in issues and policies concerning their own lands and their voices were more commonly heard in various debates. In some

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<sup>2</sup> Observations of ICC and ITK will be based on their annual reports (ITK 2009; ITK 2008; ICC 2008; ICC 2007), press releases and speeches.

<sup>3</sup> I recognize the IPCC has undergone much criticism as of late for incomplete data collection and skewing of results by some studies under the IPCC, but this does not indicate that climate change is not happening or that the IPCC as a whole is fraudulent. Regardless, the IPCC reports have been and continue to be the leading perspective on climate change.

cases, such as the Mackenzie Valley Pipeline Inquiry (Berger 1974), indigenous oral traditions and local knowledge of the environment and animal species were taken seriously in the evaluation of development projects. In most cases, however, indigenous peoples have had to adopt the dominant discourse (i.e. scientific and bureaucratic) in order to have their concerns and interests acknowledged by governments (Nadasdy 2003).

Climate change in Canada's North, then, is a particularly complex and multifaceted issue, where the global and the local interact in different ways. There is great concern about the global effects of climate change on local environments, and there is agreement among climatologists that these changes will be most acute in the polar regions (Anisimov et al. 2007). In this context, most discourses of climate change label Inuit as a vulnerable population. The dominant climate change discourse as revealed in the documents analyzed in this thesis, posits the fate of Inuit livelihood – be it hunting and traveling on sea ice, or economic prospects such as mineral extraction and the sale of polar bear and seal products – as intimately intertwined with climate change policy decisions. Many scientists, environmentalists and even Inuit organizations such as the ITK and ICC share a similar view. As a result, it is emphasized that Inuit should be involved in the development of mitigative and adaptive policies in the Arctic. But how do local Inuit views of change, and adaptation to change, fit within the debates in public, scientific and political arenas?

This thesis will show that some Inuit organizations are using scientific narratives to make political claims that would benefit Inuit communities and people in Nunavut. The appropriation or adaptation of ideas is not a new event for Inuit. For instance, Aporta

and Higgs (2005) describe a process in which Global Positioning Systems (GPS) has been integrated within so called “traditional” practices, in order to deal with new social challenges. In fact, many hunters agree that the combined use of GPS and traditional wayfinding techniques can be quite beneficial. It enhances navigation performance in the face of time constraints for employed individuals who are only able to hunt on weekends and holidays, and it increases safety under certain weather conditions, such as fog or whiteouts (Aporta & Higgs 2005). Furthermore, some new technologies have complemented traditional Inuit knowledge of the land. Satellite imagery of sea ice conditions can provide hunters with important information concerning ice conditions before leaving for the hunt (field notes 2008; Laidler et al. in press). The adoption and adaptation of new technologies such as GPS or satellite imagery into broader, well established practices are examples of how the local and the global may interact in complex ways. Such complex relationships could be extended to other situations of change, including the ways in which people think about and interact with the environment or, more specifically, the ways Inuit may talk about climate change in different contexts (for instance, when Inuit are speaking with other Inuit in the community, with scientists conducting a research project, government officials or to news reporters). In effect, the integration and adoption of scientific climate change discourses by Inuit could be seen as a resilience strategy.

#### **1.4 Significance of research**

Human induced climate change can no longer be viewed as a mere environmental issue. In a thorough analysis, climate change cannot be defined simply as a case study of the natural sciences as the social, political and cultural aspects of change are deeply

connected to the environmental changes in consideration. Multidisciplinary approaches to climate change are becoming more common (Furgal & Sequin 2006; Gearheard et al. 2006; Laidler 2006; Gearheard & Shirley 2007), and much of this research is uncovering the social complexities of global processes in local contexts. It is increasingly recognized that changes in weather, ecological processes, animal behaviour and human activities, for example, are all interrelated. The intersection between global (scientific) and local (Inuit) knowledge and perceptions of climate change is, however, less clear.

This thesis will help develop a better understanding of this process of knowledge construction. I aim to show that although research studies increasingly acknowledge the value and utility of local indigenous knowledge, cultural and linguistic barriers continue to persist at a local level.

### **1.5 Outline and content**

Chapter One introduces some of the main issues relating to Inuit and scientific perspectives on climate change, and provides the context and guiding research questions for my thesis. In Chapter Two, I describe the research methods employed, and I provide some theoretical considerations that guide my data analysis and interpretation of results. Chapter Three offers a description of the historical context of Igloolik, using archaeological and ethnographic accounts as well as Inuit oral history. This historical background will provide a basis for understanding contemporary Inuit environmental narratives and concerns for their community. In Chapter Four, I describe local observations and experiences of environmental changes in the Igloolik area. I also discuss how these environmental changes are taking place against a backdrop of social and economic change. Chapter Five is a discussion of Inuit perspectives of global climatic

change. I analyze and compare climate change discourses and narratives as expressed by local Inuit, as well as those developed by Inuit organizations and scientific assessments. Finally, Chapter Six offers some conclusions and a synthesis of my previous arguments.

## **Chapter 2: Methodology and theory**

My research was developed as part of the Inuit Sea Ice Use and Occupancy Project (ISIUOP). ISIUOP is an International Polar Year project led by Dr. Claudio Aporta at Carleton University. ISIUOP entails collaboration with Inuit communities in the territories of Nunavut and Nunavik (Northern Québec) documenting Inuit knowledge and uses of sea ice. I participated on this project as a research assistant, carrying out some of the fieldwork in Igloolik both for the larger project and for my own research.

My project obtained the ethics approval by the Carleton University Research Ethics Committee as part of ISIUOP's ethics clearance. With funds provided by ISIUOP and by the Northern Scientific Training Program (NSTP), I was able to travel to Igloolik, Nunavut for five weeks in May and June 2008 to continue previous ISIUOP work of documenting and verifying Inuktitut sea ice terminology. This trip also provided me with the opportunity to conduct my own research. Aporta and Laidler introduced me to a number of initial contacts, including government workers and local residents (hunters, elders, translators) who have worked with them previously. These contacts helped me with my integration into Igloolik, informed me of the activities going on in the community, and provided me with recommendations of other people to contact for my research.

This chapter outlines how I carried out my study employing qualitative ethnographic methods, including literature review, participant observation, semi-structured interviews, and archival research. It also describes the methodology employed for data collection and analysis. I begin with a description of current debates surrounding

the issues of change in general and indigenous knowledge, and related theoretical considerations.

## **2.1 Theoretical considerations**

### **2.1.1 Current debates on indigenous knowledge**

There are multiple definitions and terms used to express the meaning and nature of what I call here Inuit or indigenous knowledge. The Government of the Northwest Territories, which governed what is now Nunavut until 1999, uses the term traditional knowledge and defines it as “knowledge and values which have been acquired through experience, observation, from the land or from spiritual teachings, and handed down from one generation to another” (GWNT 2005:2). The term “traditional,” however, is problematic as it portrays knowledge as static and unchanging. According to this view, changes produced by, for instance, contact with other cultures, would “spoil” the traditional nature of this knowledge. To counter this, Abele (1997:iii) has suggested that

in the northern context, it might be clearer to refer to practical, land-based knowledge or hunters' and fishers' knowledge, on the one hand, and Dene or Inuit understandings of the biosphere and the cosmos, on the other -- depending upon which aspects of knowledge are being drawn into the discussion.

The terms “indigenous environmental knowledge,” “local indigenous knowledge,” and “local ecological knowledge” have also been proposed and used in a variety of contexts (Brook et al. 2006; Hotain 2006). For instance, the Nunavut Research Institute (NRI 1997), uses “traditional ecological knowledge,” as the term “is perceived as including virtually any aspect of research involving Inuit.” Brook et al. (2006) propose the use of “experience-based knowledge” to replace the different terms used to describe indigenous knowledge, and “expert-based science” to replace what we know as Western

science. It could be argued, however, that indigenous knowledge is also “expert-based.” No matter how these systems of knowledge are called, the terms often reproduce the power dynamics of a society where one knowledge system (science or “expert-based knowledge”) is more credible than the other (indigenous knowledge or “experience-based knowledge”). Brook et al. (2006:14) acknowledge that experience-based knowledge and expert-based science are both “fundamentally based on one’s world view.”

As evident in these definitions, traditional or indigenous knowledge is usually conceptualized by academics and policy-makers, not by those who possess the knowledge being referred to (Cruikshank 2008). This, of course, poses a problem, as the labeling and classification of indigenous knowledge often does not fare well in comparison with scientific knowledge. It is common that researchers, scientists, policy-makers or consultants arbitrarily decide what aspects of this knowledge constitute “legitimate” traditional or indigenous knowledge (Agrawal 2002). Agrawal calls this process “scientisation” in which extensive knowledge systems of plants, for example, are particularized, validated and generalized. For instance in a database of medicinal plants, the properties and uses of the plant are recorded while the ritual of words and actions involved in processing the plant are often omitted and viewed as non-essential (Agrawal 2002:291). Terms like traditional ecological knowledge or indigenous knowledge, continue “to present local knowledge as an object for science rather than as a kind of knowledge that could inform science” (Cruikshank 2008:21). Indigenous knowledge is not seen as a kind of knowledge with intrinsic value, but as knowledge that needs to be validated (by Western science). No matter what this knowledge is called, the act of documenting and defining it, in fact, reinforces the bureaucratic and scientific practice of

systematic categorization which, as Cruikshank (2008:18) notes, will “fracture and fragment human experience.” Documentation most often involves decontextualizing the knowledge from its environment of practice. The practical and land-based knowledge that Inuit have is interlaced with their epistemological approaches and cosmological understandings, but this interconnectivity often becomes lost in scientific documentation (Agrawal 2002; Wenzel 1999). Not only is Inuit knowledge highly valuable for scientific research, but Inuit perspectives provide alternative ways of seeing and understanding the world.

Although documentation and studies on indigenous knowledge (including this one) involve some degree of simplification and separation from more comprehensive contexts of learning, scientists have used different approaches to treat it, and such changes in attitude can also be seen through a historical analysis of indigenous knowledge research. It should also be mentioned that the examples I will mention below reflect (in some cases) the interest of indigenous organizations to document their own knowledge and stories.

According to Nadasdy (2003) interest in and recognition of local indigenous knowledge have grown considerably in the last 15 to 20 years. One of the first projects in Northern Canada to fully document and understand indigenous knowledge was led by Freeman (1976). The Inuit Land Use and Occupancy Project documented local environmental knowledge and patterns of land use. The documentation that resulted from this research was instrumental in facilitating Inuit land claims negotiations, and in developing the boundaries of the Canadian territory of Nunavut.

Bielawski (1984) was one of the first to emphasize the importance of harmonizing both indigenous knowledge and science. According to Wenzel (1999:116), Bielawski recognized that “Aboriginal Northerners” provide “the richness of traditional ecological knowledge information” to science research, while science facilitates “the sociocultural and practical needs of aboriginal Northerners.” Today, there are an increasing number of researchers who work directly with indigenous peoples and make an effort to investigate their knowledge on their own terms (Agrawal 2002; Cruikshank 2008; Blakey 2006; Bravo 2008; Brook et al. 2006; Marino & Schweitzer 2008; Nuttall 2008; Peterson & Broad 2008; Wenzel 1999). In this sense, researchers are investigating the epistemological conflicts that occur with the integration of the knowledge of Inuit and other indigenous groups in scientific and policy research (Freeman 1976; Gunn, Arlooktoo, & Kaomayok 1988; Duerden & Kuhn 1992; Bielawski 1996; Abele 1997; Wenzel 1999; Nadasdy 2003). Coming out of this extensive research of local knowledge is also “a move towards recognizing a plurality of scientific knowledge about the world” (Peterson & Broad 2008:75). As a result, a variety of knowledge and perspectives is increasingly becoming valued and required in the contexts of research and policy-making. In fact, indigenous peoples, including Inuit, have become more involved with scientific research, and many participate directly in project design and methods (Gearheard et al. 2008; Furgal & Seguin 2006).

In some cases, indigenous knowledge has become somewhat of a commodity, a form of data that scientists *must* consider for their research. This is especially the case now that local and indigenous knowledge are requirements for International Polar Year projects or for research licensing in both Nunavut and the Northwest Territories. When

simplified and commoditized, indigenous knowledge becomes generalized and universalized for the convenience of bureaucracy and science. This is particularly true in debates of climate change. As Cruikshank (2005:25) has explained:

in contemporary debates about climate, the universalizing discourse of science plays a significant role. However, resident peoples are aware that science is used both to attack and to defend local participation in management. They know that local knowledge is both advocated and opposed as a basis for making decisions. Reflections by indigenous northerners on the nature of science and scientists are recurring issues throughout the circumpolar North.

This presents an interesting and complex situation, where commoditized and simplified versions of indigenous knowledge may be used strategically by indigenous peoples in order to acquire rights to the land and legitimize their positions on local matters. What some could see as a contradiction, may also be understood as a form of resilience, in which indigenous groups adopt foreign tools (in this case, concepts) in order to deal with their new contexts. It is this process that can be observed in the way Inuit organizations appropriate some aspects of scientific knowledge, and adopt some elements of the crisis narrative (see Chapter Five) that are not really part of the local (Igloodik) views.

### **2.1.2 Understanding and talking about change**

*Change* has been the focus of anthropological research from the start of the discipline, but it was often seen in terms of external factors that would result in predictable outcomes. In the case of indigenous peoples, one such outcome was often acculturation. But anthropologists have since developed more complex understandings of how societies deal with change. Inuit have undergone immense cultural, linguistic, political, economic, and environmental changes throughout their history, but particularly since contact and most intensely since the 1950s. The period of the late 1950s and early

1960s was the time when Inuit moved to permanent settlements. In this context, it is helpful to refer to Salzman (1980) for understanding such processes of change. Salzman (1980:1) points out that there is frequently the assumption that:

socio-cultural change is irreversible, directional, and cumulative. Irreversibility is understood in two senses: that what has happened cannot be undone, and that a return to a previous state is impossible. Directionality is the sense that things change in a particular direction and continue to change in that direction, sometimes in an accelerating fashion. The cumulative nature of change means that previous change has an impact on all that comes after, and each new change feeds into the following development.

He goes on to explain that this assumption results from the common “world view centered on the notion of progress and its scientific crystallization, evolution” (Salzman 1980:2). For instance, organisms, as well as societies, are understood to change from one thing to another over time, but such changes, in Salzman’s view, are not transitions between discrete stages. In this sense, he proposes that “we should perhaps think of society as fluid and variable, as being loosely integrated, flexible and adaptable” (Salzman 1980:4).

One way in which societies (particularly hunter-gatherers) respond to external pressures, is through mobility (e.g. migrating to a new place that offers much needed resources or that is more accommodating). Historically Inuit were a semi-nomadic people who moved around to new camps according to seasonal and climatic variation, availability of game, and also due to social reasons (refer to Chapter Three). While those mobility patterns were altered through the different stages of contact with Europeans, the most dramatic changes were connected to the sedentarization process experienced during 1950s and 1960s, when Inuit communities were persuaded and in some cases forced to move into permanent settlements.

Salzman (1980) explores the processes of sedentarization and argues that societies which choose between nomadic and sedentary lifestyles do so by what he calls an “adaptation and response” model. By this he means that each society is “able to shift from less to more appropriate alternatives in response to pressures and exigencies” (Salzman 1980:4). Igloolik Inuit were not a fully nomadic people before contact and they have not given up on all of their nomadic lifestyle since moving to the settlement. Before sedentarization, Inuit alternated periods of intense mobility with others of relative residential stability. Since sedentarization, mobility is practiced through periodical trips from town, in order to find resources or to visit other communities. Seasonal spring and summer camping is also undertaken.

This resilience in view of external pressures could be seen as underlying Inuit attitudes to change, in general, and to climate change, in particular. Inuit attitudes to environmental changes (see Chapter Five) are clearly an example of resilience and adaptation to change as a normal part of life. Salzman’s theoretical views of society will help, throughout this thesis, to understand change not as a mere external force to which societies had to adapt, but as part of a process that is at the core of (any) culture.

Climate change debates often follow the Cartesian dichotomy of culture and nature. According to this view, culture may change nature and vice versa, but such changes are often simplistically viewed as discrete. However, the processes through which people and nature interact are more complex. Bourdieu explained that cultures are seen as “influenced but not determined, by material parameters,” and he recognized “that cultural beliefs and practices also affect the material environment and human interactions with it” (Bourdieu 1977:163). This relationship between nature and culture is at the heart

of debates around climate change. In the context of the topic of this thesis, climate change is often seen as an external pressure on Inuit society. The problem with this view is that it often identifies cultures as static organisms, and periods of change as responses to external factors, in much the same ways as experienced in biology. “Traditional” societies are, then, changed by these external factors. As Salzman showed, however, change is part of culture (as opposed to an external cause of cultural traits). To be sure, this thesis is not claiming that environmental changes are not having implications in people’s lives in Igloodik. The main issue here is in the framing of the debate. In the local narratives of change by Inuit, analyzed in Chapters Four and Five, it is clear that environmental changes are not seen as something separated from people’s lives, as the scientific narratives of climate change portray.

Analyzing change among Inuit today is complicated. First, because changes in the environment and climate have been a persistent reality for Inuit throughout their history; therefore, Inuit experiences of current climate change may be better understood in relation to a larger temporal context. Second, climate change is taking place in a context of ongoing social and cultural transformations. When Inuit talk about change, it is often the case that environmental, social and technological changes are discussed as part of the same reality. For instance, a hunter may talk about the ice being more dangerous, but that story of change may contain environmental aspects (the ice is more dangerous), cultural aspects (the hunter’s knowledge is less reliable), or technological aspects (the snowmobile is less reliable than dogs). It is a complex situation, and this thesis will focus on trying to understand how Inuit themselves talk about climate change, and how they relate their own views to other narratives of change.

When Inuit talk about climate change, do they rely on tropes from their own cultural narratives and experiences or do they adopt mainstream discourses from researchers and the media? Or do they integrate the scientific media discourse into their own framework and language? The functions of narratives are the “authorizing, founding, and setting in place ways of experiencing the world” (Cruikshank 1998:1). Cruikshank (1998:2) explains, in the context of Yukon indigenous societies, that narrative “meaning does not inhere in events but involves weaving those events into stories that are meaningful at the time.” As a result, the functions of narratives adapt to new cultural changes, and “personal narratives based on shared metaphors and responses to common problems in one generation may be reworked quite differently by the next” (Cruikshank 1998:2).

While often “narratives” are associated with stories, and scientific discourse with “objective” reality, this thesis treats both indigenous and scientific discourse as narratives, in the sense that they are both connected to ways of understanding the world, and they are both historically and socially grounded. The main difference between these two levels of narratives and discourses is the position of authority that scientific narratives possess. In this sense, it is clear that Inuit and scientific knowledge possess different statuses, and different validity, depending on the context. The power dynamics of a society is reflected in the dominant discourse, itself a cultural product. By analyzing discourse, one “investigates the rules about the production of knowledge through language (meaning) and its influence over what we do (practice)” (Waitt 2000:164). The dominant discourse is not the only means to express reality but it is frequently identified, over other discourses, as the legitimate one. Bourdieu (1977:164) remarked that “social

categories disadvantaged by the symbolic order... cannot but recognize the legitimacy of the dominant classification in the very fact that their only chance of neutralizing those of its effects most contrary to their own interests lies in submitting to them in order to make use of them.” He made this statement in regards to subordinate members of society, in particular women and youth; however, in the context of this thesis, this notion is useful in interpreting how Inuit and non-Inuit discourses interact. As we will see in Chapter Five, Inuit often appropriate dominant narratives in order to deal with broader political issues.

Indigenous peoples often need to adopt or use the discourse and practices of the dominant culture, in order to have their own knowledge legitimized or acknowledged. The dominant discourse in Western society is, more often than not, a scientific or bureaucratic one. Indigenous discourses compete with scientific discourses for political legitimacy. In fact, the scientific discourse is preferred in the fields of law, policy- and decision-making, and indigenous peoples have had to adopt it in order to have their views acknowledged, as most land use negotiations or court cases involving aboriginal rights to land show. The intermingling of these discourses sometimes takes complex forms. For example, Nadasdy (2003) found this to be the case with the Klane First Nation of the Yukon Territory when they engaged in cooperative management of wildlife since 1970s. Given that indigenous knowledge has increasingly been researched and promoted, scientists and governments have attempted to integrate it with the knowledge of scientific experts (Nadasdy 2003). However in this process, scientists assume that:

discrete elements of Aboriginal peoples’ culture (i.e., their empirical knowledge) can be extracted from their sociocultural context and then inserted into Euro-North American institutional and ideological contexts while, at the same time, retaining their utility, their meaning, and even their “Aboriginality” (Nadasdy 2003:61).

The nuances of Kluane knowledge were often lost or misunderstood by the scientists and resource managers. Kluane knowledge consists of an “entire constellation of values, beliefs, practices, and social relations that surround and give meaning to Kluane people’s subsistence strategies and their relationship to animals” (Nadasdy 2003:66). Many aspects of this indigenous knowledge proved incompatible with the scientific categories in which this knowledge was to be integrated, and consequently were left out, leaving only the information scientists found useful. However, indigenous knowledge cannot be separated without harm from the “everyday life” context from which the knowledge derives. In addition, Nadasdy (2003) suggests that when indigenous people adopt the scientific discourse, they may also need to adopt the scientific modes of thought which see animals in terms of numbers and land as property. He fears that this adoption of a way of speaking and thinking will in fact undermine the very cultural perspective and practices that indigenous societies are trying to protect. The adoption of dominant climate change discourse by Inuit, however, can be interpreted more as a political strategy than as a blind adoption of scientific epistemological premises.

Marino and Schweitzer (2008) also found this power dynamic to be the case among the Inupiaq of rural Alaska when they were asked to speak about climate change. The authors stated that “when hunters or other local experts are asked to speak in the language of science about the environment, it can require breaking strict hunting taboos of talking to the future or being irresponsibly presumptive about a changing and sentient natural world” (Marino & Schweitzer 2008:215).

While this thesis does not use a specific theoretical framework to systematically analyze the research data, it is my intention to rely on the previously discussed

understandings of indigenous knowledge, change and narrative production to frame the discussion of results, particularly in Chapters Five and Six. To summarize, change will be understood as an integral part of culture (and culture, in turn, will be assumed to be in flux). Indigenous or Inuit knowledge, by the same token, will not be considered in terms of “tradition,” but in its full dynamics. Finally, narratives and discourses (about change) will be understood in a broader process of negotiating people’s place in the world, while interacting with others, often in contexts of authority that are not equal. This understanding of cultures as fluid, change as part of culture, knowledge as dynamic, and narratives as adaptive, will allow us to explain how local Inuit can appropriate different discourses of climate change in different contexts.

## **2.2 Research methods**

### **2.2.1 Literature review**

Besides the literature on change and indigenous knowledge extensively cited above, I also relied on historic and contemporary ethnographic material to contextualize Inuit relations with the environment. This literature ranges from personal journals (Lyon 1824; Parry 1824; Hall 1865) and ethnographic studies (Boas 1964; Mary-Rousselière 1984; Aporta 2002; Aporta & Higgs 2005; Stern & Stevenson 2006) to archaeological studies (Mathiassen 1976; Morrison 1999; McGhee 2007). These sources are then complemented with literature discussing concerns and implications of climate change and related research on Inuit societies (Cruikshank 2001; Snow & Carpenter 2001; Krupnik & Jolly 2002; Duerden 2004; Furgal & Seguin 2006). Through this review of literature, I investigated how Inuit have lived in their environment over time and how this

relationship has changed with the influences of Europeans, the Canadian government and, more recently, different levels of government and global media.

### **2.1.2 Participant observation**

I spent five weeks in Igloodik from May 15<sup>th</sup> to June 18<sup>th</sup>, 2008. One of the reasons for choosing this time of the year was that most residents are in town while the children are still in school. In the summer, many families leave the community for camping and hunting activities and it becomes more difficult to do research in town. I used a “hanging out” approach to participant observation (Bernard 2002:346) in order to gain visibility, trust and rapport in the community. I did this by volunteering with the breakfast program at the elementary school, participating in extracurricular volleyball and basketball games weekly, and joining in social events. One such event was the public viewing of the Government of Canada’s National Apology<sup>4</sup> alongside former residential school students. I also attended the high school graduation and went on a number of sea ice trips by snowmobile and one by dog team. I was somewhat limited in my integration since I lived alone, house-sitting for a non-Inuit couple who were absent from town. I may have been more successful if I lived with an Inuit host family, but this may have brought new and unexpected challenges for a short and first fieldwork experience. I received a lot of support and guidance from Theo Ikummaq, a community researcher for ISIUOP and my interpreter and travel guide. Through him, I was able to connect with his family and many other Inuit and non-Inuit in the community. Additionally, a social

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<sup>4</sup> On June 11, 2008 the Canadian Prime Minister Stephen Harper presented a national apology on behalf of the Canadian government for past government initiatives that had forced Canadian indigenous peoples into residential schools where they experienced physical, mental and sexual abuse.

worker, working in Igloolik at the time, helped me to network with a number of people in the community and contributed to my involved and pleasant experiences in Igloolik.

Participant observation was important to my research findings and analysis since it allowed me to witness and experience Inuit knowledge of their environment first hand. Since this was my first field work experience, this trip was also an introduction for me into the reality of Inuit culture and society. Hence, it was a learning experience, both professionally and personally.

### **2.1.3 Field notes**

Field notes were a very important element of my ethnographic work. I kept a log of activities I participated in and of individuals I communicated with, in addition to an inventory of supplies and funds (Bernard 2002). I also kept a journal in which I included both diary entries of my personal experiences and feelings throughout my stay as well as analytic notes of my interpretations of events I witnessed (Bernard 2002). I wrote in my journal usually once a day, occasionally every other day, in the evenings or early mornings when I was by myself. I provided reflections on the interactions I observed and experienced during the day. Due to my reflexive concerns of appearing as the “anthropologist” in a community that receives numerous researchers every year, I did not write notes in public but would make mental notes of things of interest and write about them in my journal when I was alone. I also continued writing reflexive entries after the fieldwork experience, documenting recalled memories of events that occurred as well as documenting new information collected. My field notes were used for background information as well as to supplement my interviews in my analysis.

### 2.1.4 Interviews

During my stay in Igloolik, I conducted semi-structured interviews (Bernard 2002:205) using a digital recorder to record the discussions. Semi-structured interviews were used in order to allow flexibility in the types of questions asked and the manner in which they were asked. I interviewed nine Inuit, five men and four women, and one non-Inuit woman (Table 2.1)<sup>5</sup>.

Name	Gender	Age
Herve Paniaq	male	75
Julia Amarualik	female	73
Abraham Ulayuruluk	male	72
Lydia Qaumaq	female	66
Theo Ikummaq	male	53
Leah Otak	female	n/a
Michelline Ammaq	female	51
Jayson Kunnuk	male	29
Moshi Kotierk	male	29

**Table 2.1 – List of Inuit participants**

Of these, four participants were unilingual Inuktitut speakers and the interviews were interpreted by Ikummaq. The remaining interviews were conducted in English. Ikummaq, an active hunter, consultant and researcher for ISIUOP, recommended the participants based on their knowledge. Ikummaq himself was also an interview participant. The selection of the English speaking participants was done through recommendations by interview participants and through my own connections. The interviews were conducted in a variety of locations: three at the Government of Nunavut building, three at the participants' place of work, two at their homes and two during sea ice trips. These interviews set on the sea ice were suggested by Ikummaq with the

<sup>5</sup> Each interview participant signed consent forms and received monetary compensation for their time and knowledge, according to IPY research regulations. Two participants, however, did not receive the fees due to their own accord.

rationale that responses to questions about environmental knowledge would be enriched by being out in the context which the knowledge was based. The interview participants ranged in age from 29 to 75 years old at the time of the interviews.

In the context of my research, it was important to include varying ages and both genders to learn from different Inuit perspectives in the community. Inuit have experienced immense social changes over the last 60 years, from being semi-nomadic and living in seasonal camps, to living in permanent settlements, and in some cases going to residential schools. Therefore there are generational differences with individuals who have varying degrees of exposure to a southern education system, different comprehensive levels of English and even different conceptions of Inuit identity. I assumed that the differences in life experiences and education may likely have an impact on individual perspectives on local observations of environmental change or global climate change.

Through my interviews I asked the participants a variety of questions regarding climate change, social change, and scientific research. I asked individuals about their knowledge of the environment, including their perceptions and knowledge about the weather, sea ice, wildlife and observed environmental changes (Appendix A). After the first couple of interviews and from discussions with Ikummaq, it became evident that these questions needed to be phrased differently depending on the participant's gender and age. Therefore, in the interviews, I asked about gender roles in the community and how men and women interact differently with their environments, and what are their different roles and expectations. I asked how these roles and expectations have changed over time. Additionally, I inquired about what social or economic issues were of concern

in the community and how these may compare by level of concern to climate change. I also asked about individual opinions on media representations of climate change and the scientific/media predictions of future climate change impacts. Other questions related to individual awareness and involvement with scientific research projects taking place in the community and about science in general relating to climate change. These sorts of questions were posed in order to assess whether social and economic factors and exposures to scientific studies may influence individual perspectives and concerns about climate change. This variety of perspectives is important for understanding the complexities of people's perceptions and experiences of climate change at the local level.

In addition to the interviews described above, I also spoke with the Nunavut leading polar bear biologist Elizabeth Peacock. She works for the Government of Nunavut's Department of Environment stationed at the Igloolik Research Centre. The purpose of this interview was to attain a scientific perspective concerning the impacts of climate change on wildlife, other than what is represented in literature and the media. She also provided a helpful perspective for understanding the complexities of Inuit/researcher relationships. Through this interview I gained insight into what is involved in the research and methods used for studying polar bears. As well, Peacock discussed the complex hierarchy of decision-making and funding stakeholders in wildlife studies in Canada. This interview revealed the differences between Inuit and non-Inuit perspectives on wildlife and wildlife management. A main focus of the interview was to discuss the controversies of polar bear research in the community, how the researchers on this project are trying to overcome these conflicts and to what extent they incorporate local knowledge. Since polar bear research in Igloolik is still a contentious topic, this interview

was important for filling in the gaps of knowledge on Inuit involvement in science research and the research process as a whole.

### **2.1.5 Archival research**

To supplement these interviews, I consulted the Igloolik Oral History Project (OHP) database where I collected sixteen additional interview transcripts. The OHP has accumulated an extensive collection of Inuit oral histories and traditions since 1986 through an initiative by the Inullariit Elders Society and the Igloolik Research Centre to preserve the extensive knowledge of their elders. The interviews consist of life stories and discussions on varying topics addressed by elders. As well, the database conserves the Inuktitut language and its “specific and technical meanings” which may no longer be spoken today (Bravo 2008:167). While investigating the database, I identified relevant interviews which had corresponding themes and discussions with the interviews I conducted. I used a variety of keywords for my searches and they are listed below:

- Weather, weather change
- Temperature, temperature change
- Climate change, global warming, environmental change
- Seasons
- Survival
- Science, scientists
- Animals, wildlife
- Media, news, radio, television

Out of the sixteen interviews selected, Shari Fox had conducted seven of these in 1997. She asked directly about climate change and about environmental changes experienced by local Inuit. The remaining interviews provided stories and observations of past and recent environmental processes and human experiences with wildlife and nature without questions directly asking about climate change. In addition, I also relied on academic

publications by researchers who have conducted fieldwork in Igloolik for additional data (Bravo 2009; Laidler & Ikummaq 2008; Ford et al 2006; Aporta 2002; Gearheard 2002).

## **2.2 Analysis**

### **2.2.1 Transcribing and coding**

After returning from the field, I transcribed and organized the interviews. The interviews I conducted were documented with a digital recording device that stored the audio in MP3 format. This method made using and storing this digital data easy and accessible. However, digital files can be lost or corrupted. I had the unfortunate experience of losing one of my interviews due to forgetting to ensure I had backed up all my files. The file lost was the last interview I conducted with Leah Otak, an employee of the Oral History Project at the Igloolik Research Centre. To recover the data, I used my field notes and reviewed the main themes discussed in the interview and I verified these with the informant.

I transcribed all the interviews using Express Scribe software and typing up the text in word processing software. I transcribed the English spoken verbatim in the interviews, identifying in brackets when Inuktitut was spoken. Each document includes the names of the interviewer, the informant, the interpreter (if present) as well as the date, time and location of the interview.

Once all the interviews were transcribed, I used the qualitative analysis software Atlas.ti to manually code and organize my data. I developed a list of codes and groupings of codes called “families” (Appendix B). I went through each document and highlighted sections of text that related to a particular code, or created new codes to attribute to the selection based on emerging themes. This program allowed me to identify themes within

a particular interview as well as to collate them across the grouping of interviews.

Although the process of transcribing and coding was often tedious and time consuming, it made analyzing the transcripts easier and made this information more accessible for future use.

### **2.2.2 Narrative analysis**

Lastly, I identified different levels of narratives used in the climate change debate, and I analyzed how local and national Inuit, and scientists perceive climate change. It is important to make clear that my use of the term “narratives” also includes scientific documents, as the term takes into account the contextual aspect of knowledge, be it produced by Inuit or scientists. For the scientific narratives, I analyzed the reports commissioned by the IPCC, focusing mainly on their Working Group II report called “Impacts, Adaptation, and Vulnerability” (Parry et al. 2007), and especially its chapter on the polar regions (Anisimov et al. 2007) (see Chapter Five). This report provides scientific understandings of the dynamic processes of climate change and the potential effects on human populations. I also consulted the ACIA (2004a) to investigate scientific views on Arctic climate change impacts and how these are affecting Arctic communities. The ACIA summary for policy makers (ACIA 2004b) provides a good overview of the main issues confronting Arctic communities which require acknowledgement by different levels of government and research initiatives. These reports were chosen to assess global scientific understandings and concerns about climate change as well as the language used to express and frame these concerns. As I will mention in the concluding sections of this thesis, what is interesting is how Inuit organizations have adopted some of the language used in these reports in order to take some political stands.

The local Inuit narratives are developed from the interviews I conducted and ones collected through the OHP. These local narratives do not represent a uniform perspective on behalf of the community but provide a sample of narratives that are present in Igloolik. The national Inuit narratives are based on select reports, speeches and press releases by ICC and ITK, and a set of reports carried out by the GN that investigated local experiences of climate change. All of the selected documents are from within the last 10 years. For ICC and ITK, in particular, I focused on documents written between 2007 and 2009, which coincide with IPY and the peak of intensive climate change research and discussions. The climate change issue during this time period was a politically charged topic of discussion for scientists, governments, environmentalists and indigenous groups. Therefore, I thought these documents would be representative of how scientists and Inuit attempt to legitimize their perspectives.

### **Chapter 3: Ethnographic context**

Today, the expression “climate change” is associated with particular scientific understandings of ecological processes which have been altered by human action. Environmental and climatic changes, however, have always occurred, and are part of how humans have dwelt in the world (Lamb 1977). As long as humans have existed, they have had to adapt to the dynamics of their environments and their cultures helped them shape their understanding of how and why these changes occur. It is clear that “culture frames the way people perceive, understand, experience, relate to, and respond to the social and physical worlds around them” (Nuttall 2008:297). Therefore, culture, along with social, political and economic factors will shape how societies understand climate change.

In order to understand Inuit perspectives on climate change, I first explore the more general issue of how Inuit relate to their environment. In this chapter, I investigate Inuit perspectives of their environment, including their perceptions of how humans relate to animals, through an analysis of ethnographic works that have described Inuit oral traditions in the Igloodik region (i.e. Parry 1824; Mathiassen 1924; Rasmussen 1929). I also review archaeological and historical documents to show how non-Inuit have interpreted and used Inuit environmental knowledge. This historical description will help in making sense of Inuit contemporary attitudes towards environmental changes.

Inuit and pre-Inuit groups have lived in the Arctic for thousands of years and thus have a long history of interaction with this environment. The intricate relationships that Inuit developed with their environments enabled them to adapt and thrive in the Arctic. In his attempt to get away from conceptual dichotomies of nature and culture, Tim Ingold (2000) argues that an environment cannot be considered without the organisms that

inhabit it and an organism cannot be conceived without its environment. Culture then becomes the means by which a society connects itself with the environment, and also the way in which this connection is interpreted. As Ingold (2000:20) says, “my environment is the world as it exists and takes on meaning in relation to me, and in that sense it came into existence and undergoes development with me and around me.” As well, the environment is continually under construction since the living things which develop that environment are constantly performing daily activities and evolving over time (Ingold 2000:20). Therefore, Inuit cultural practices, social demographics and organizations exist and develop in their environment, while people’s perceptions and knowledge of that environment are discovered<sup>6</sup> through these interactions (Ingold 2000:22). Moreover, these cultural perceptions and knowledge “do not merely describe or represent the world, they also shape people’s feelings and desires” (Ingold 2000: 161). For this reason, describing some key elements of Inuit culture will provide a better understanding of the nature of Inuit relationship with their environment, and, ultimately, of how Inuit interpret environmental changes.

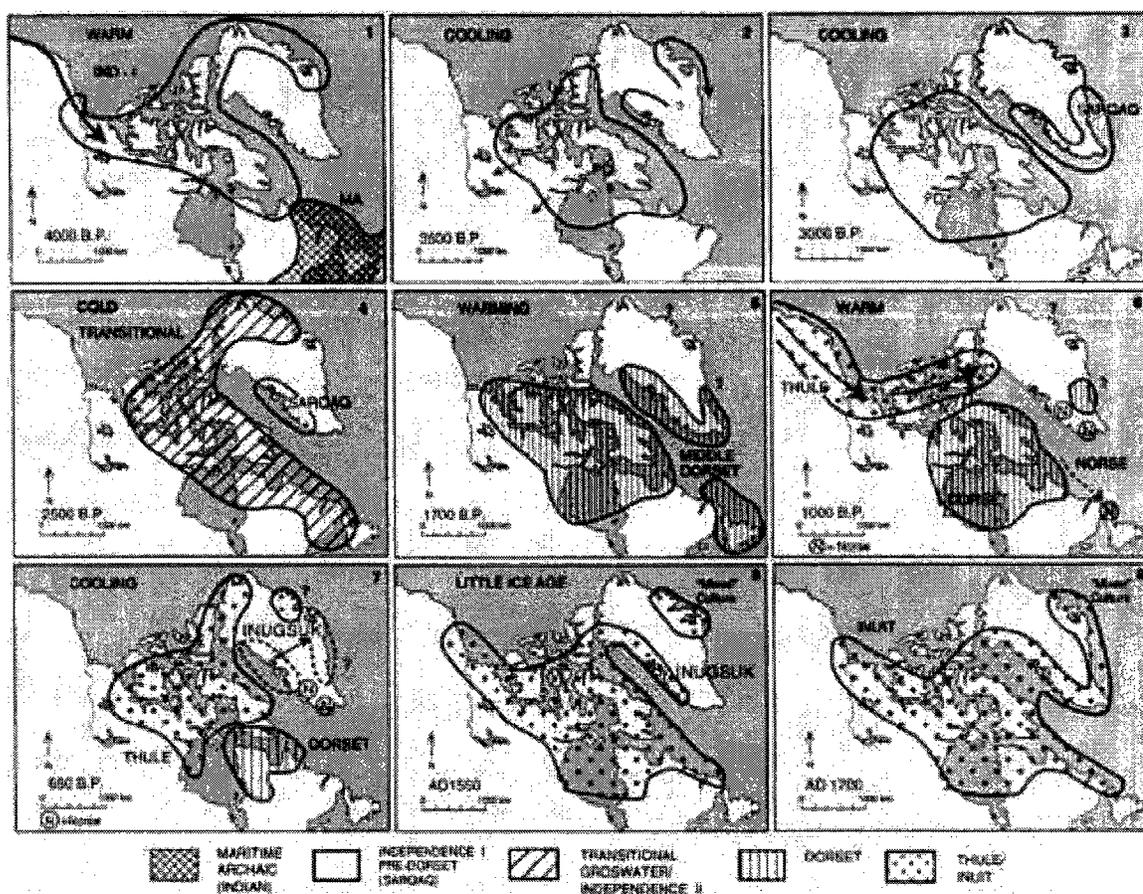
### **3.1 First Arctic inhabitants**

Despite the common perception of the Arctic as inhospitable, it has been inhabited for thousands of years. The first inhabitants of the Canadian Arctic were those known in archaeology as pre-Dorset people that migrated into the Central Arctic by means of the Bering Strait approximately 4500 years ago (Friesen 2004:685). They moved east in subsequent migrations (see Figure 3.1) and were widespread from Alaska

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<sup>6</sup> Ingold suggests that knowledge of the environment is “discovered” or “unveiled” as people dwell in the world. He opposes the idea of culture “creating” or “framing” nature. Nature and culture, in Ingold’s view, are deeply intertwined.

to Greenland (Rowley 1940:498). They continued to adapt and maintained a strong presence until the culturally and genetically different Thule people arrived from the Bering Strait approximately 1000 years ago (Morrison 1999:139). Thule is the name that scientists use to refer to the ancestors of the current Inuit populations. Inuit themselves retain stories of a people who inhabited the Central Arctic before them and whom they called the “Tunit” or “Tornit” (Mathiassen 1927), most probably referring to Dorset groups.



**Figure 3.1: Distribution of Eastern Arctic cultures from 4000BP to 1700 AD. (Fitzhugh 1997:398)**

Legends of the Tunit are widespread among Central Arctic Inuit, including in Igloodik. The Tunit were a coastal people who were “big, strong, who lived in permanent winter houses and hunted the whale and the walrus; their men wore bearskin trousers and

their woman long boots” (Mathiassen 1927:186). Inuit, in fact, attribute the ruins of ancient stone houses, tent rings and animal remains of many sites to the Tunit (Mathiassen 1927:186-187). A Netsilik<sup>7</sup> Inuk explained to the explorer Knud Rasmussen that Inuit were grateful to and respected the Tunit as “it was the Tunit who made our country inhabitable, who discovered where the caribou crossed the water and made hunting grounds there, found the fish in the rivers and built salmon dams, built fences here and there and forced the caribou to follow certain paths” (Mathiassen 1927:187). However, the Tunit were known for being timid and “easily put to flight” and are believed to have been driven out of the area due to quarrelling with Inuit (Mathiassen 1927:189). These written accounts of oral histories suggest that the sharing of knowledge between cultural groups may have been important to enable survival in a new environment.

In addition, some scholars believe that the Thule may have adopted some technologies and techniques from the Dorset culture. For instance, Max Park (1993) suggests that a variety of harpoon head styles, breathing-hole sealing techniques and extensive use of iron by Thule were derived from Dorset people. However, it is still unclear to what extent there was direct contact between the Dorset and Thule cultures. Max Friesen (2004) suggested that there were direct interactions since exchanges of manufacturing techniques between the two groups took place and Inuit oral histories recall encounters with a different type of people when they arrived. Park (1993), on the other hand, found that carbon dates for later Dorset sites were unreliable due to cryoturbation which disrupts the stratigraphy in the permafrost and thus thought it more

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<sup>7</sup> Netsilik Inuit are from western Canadian Arctic

likely that the Thule people took over many abandoned Dorset camp sites, which may explain the adoption of Dorset housing features. It is widely accepted that the Dorset culture seems to have died out with the introduction of the Thule culture, though whether this was the result of assimilation or extinction is still uncertain.

### **3.2 Thule migration**

It is interesting to see how Inuit and their ancestors actually went through periods of dramatic climatic changes. The Arctic went through three major climatic phases during the Thule habitation. These phases are described by Peter Schledermann (1976:39) as follows:

**Period I** – A.D. 800 to 1200, warming to warmer than present;

**Period II** – A.D. 1200 to 1550, cooling (close to present?);

**Period III** – A.D. 1550 to 1850, cooling to colder than present<sup>8</sup>

There are a number of theories to account for what provoked the migration from west to east of the Thule people, and some are in fact connected to climatic changes. One common theory is that warming in the Arctic climate allowed easier access into the Central Arctic for both animals and humans. Some archaeologists suggest that this warm phase, called the Medieval Warm Epoch, reduced the extent of sea ice allowing the Thule to move eastwards following the migration of bowhead whales (Lamb 1977; Bryson and Wendland 1967). Bowhead whales, based on archaeological evidence, were a quintessential resource for these first Inuit as a source of food and for building materials. However, this theory was later disputed when genetic testing found that Pacific and Atlantic bowhead whales were not genetically related (Morrisson 1999:140). However,

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<sup>8</sup> Schledermann determined these periods based on Norse accounts of ice free oceans during Period I, historical and archaeological evidence of increased drift ice during Period II, and ice core samples from glaciers that showed a prolonged cold phase during Period III.

the possibility of a migration generated by the existence of more favorable whaling conditions elsewhere is still seriously considered (Savelle & McCartney 1999).

The archaeological evidence of bowhead whale remains does indicate how the Thule adapted to these phases of climatic change. For example, there was a shift in winter house constructions. The original structures of the first climatic period were “small, single-family, semisubterranean winter dwellings built from sod, stone, driftwood, and/or whalebone” (Schledermann 1976:42). During the second period the Arctic experienced a cooling climate. This shift to cooler temperatures consequently decreased the availability of bowhead whales in regions inhabited by the Thule and, as a result, it produced a shortage of the primary building materials for the Thule house structures (Schledermann 1976:41-43). During this phase, the Thule dwelling became a “snow-house complex,” or *quarmat* “a skin-roofed sod/stone, snow or ice-block structure” which was larger and could accommodate multiple families (Schledermann 1976:42). With bowhead whales less abundant, the Thule relied more heavily on seals and caribou for food. This dramatic environmental change, therefore, did not provoke the disappearance of the Thule culture, but triggered a series of adaptation strategies.

The pre-contact Inuit shared practices and traits with the early Thule people in a number of ways. For instance, the first Thule inhabitants tended to settle along the coasts, which offered close proximity to marine mammals, their main sources of food. Another advantage for remaining along the coastal regions was the availability of sea ice which was essential for sled and open water travel (Aporta 2002). Mobility patterns varied from group to group, but some Thule appeared to become somewhat sedentary when local resources were abundant and reliable based on seasonally permanent houses (Damas

2002:15; Schledermann 1976). However, as a general rule, the Thule followed different resources offered by seasonal variability. Around 1500 A.D. there were again climatic changes that altered the movements of the whales, diverting them away from Thule camps. As a result, some Thule groups returned to a more nomadic lifestyle (Damas 2002:7) based on a more diversified diet that included seals, walrus, fish and caribou. The Thule and pre-contact Inuit livelihoods were largely connected to the local availability and accessibility of resources. Inuit culture then required flexibility in order to adapt to ongoing climatic and environmental changes.

Another theory of migration was that the Thule people were drawn into the Western Arctic by the iron ore of northwest Greenland (McGhee 1984). The Dorset people were already using Greenland iron. It has been speculated that some communication between the Dorset and Thule peoples could explain how the Thule discovered the iron ore in Greenland. This connection between the Thule and Dorset could also explain how the Thule gained familiarity with the landscape allowing them to navigate the Central Arctic within a short amount of time (Morrison 1999:140).

It seems likely that the Thule migrations were based on a multitude of factors. David Morrison (1999) suggests that likely there were multiple migrations of small groups rather than one large group travelling together. Morrison (1999: 142) also suggests that by considering them separately “different migrational episodes” of different groups would support why some migrations appear to point towards Lancaster Sound while subsequent migrations were aimed towards Greenland. Whatever the motivations for migration, the Thule successfully traversed the Central Arctic over sea, land and ice,

and their ingenuity enabled their survival in the Arctic environment and coping with several profound environmental changes.

The Thule and Inuit are in fact of the same people but are distinguished by archaeologists based on their adaptive practices. This transformation is believed to have occurred between the 16<sup>th</sup> and 18<sup>th</sup> centuries as a result of Inuit adaptations to the Little Ice Age (McGhee 1994:567). Inuit culture then has been shaped by dealing with significant climatic and environmental changes throughout their history. Environmental changes, however, were not the only transformations that Inuit have to deal with. Dealing with external pressures of change increased with Inuit contact with Europeans, starting in the 1820s in the Igloodik region.

### **3.3 Inuit and European contact**

With the arrival of European explorers, Inuit were confronted with new pressures and offered new possibilities in terms of technology and trade. Inuit around the Arctic had different levels of exposure to European influence. In some areas, such as Greenland and Labrador, Inuit had direct encounters as early as 985 A.D. when the Norse, led by Eric the Red, landed in western Greenland and developed settlements (McGovern 1980:246). However, by the 13<sup>th</sup> century the Norse experienced much hardship due to their poor adaptation to the harsh central Arctic climate and competition with the Inuit and, as a result, the settlements were abandoned or went extinct (McGovern 1980:247-248). It would not be for another few hundred years until Inuit would come into contact with Europeans again.

The next European encounters occurred during the 16<sup>th</sup> century, with explorers Martin Frobisher, John Davis, and William Baffin (Damas 2002:8) who were the

beginning of a long chain of Arctic exploration. Most of these early explorations were inspired by the search for the Northwest Passage, which was believed to connect the Atlantic and Pacific Oceans and permit more efficient passage from Europe to Asia (McGhee 2004:26).

Although European explorers arrived in the North American Arctic by the 16<sup>th</sup> century, they did not reach the Foxe Basin region, where Iglulingmiut live, until the 19<sup>th</sup> century. The first explorers to reach Igloodik were William Edward Parry and George Francis Lyon during their expedition of 1821-23 in search of the Northwest Passage. During the two years they spent in Winter Island and Igloodik, Parry and Lyon relied heavily on Inuit knowledge of the land, sea and sea ice. Parry was amazed at “how valuable the geographical information received from the Esquimaux had now proved to us” (Parry 1824:276) during their explorations of the region, uncharted at the time. The weather encountered by Parry and his expedition was quite varied and unpredictable, which frustrated their intention of sailing west. Parry and his crew exchanged hospitality with the Inuit by giving gifts and sharing supplies. In return, Inuit provided dry clothing and shelter when Parry’s crew travelled inland, or when they were stranded ashore during extended and frequent periods of inclement weather (Parry 1824:270-274, 289).

It is interesting to see how explorers and Inuit view the Arctic environment, and, in particular, the sea ice, with very different eyes. Parry was often frustrated by ice conditions that prevented his ships from exploring further (Parry 1824:269), while the Inuit saw the sea ice as a platform for travel and a place to make a living (Aporta 2002).

Sea ice travel was, and still remains, essential to the Inuit way of life. As they were a semi-nomadic people and the sea was frozen for a large portion of the year, Inuit

would make use of this extension of the land to travel to different locations. They lived in different camps depending on the season and environmental conditions, often reusing such locations in subsequent years. While Parry and Lyon wintered in Igloolik, most Inuit lived in their traditional camp southeast of the island, but they would also move to other locations with the progression of the seasons (Parry 1824:280). Parry (1824:285) noted that the island he called Tern Island (after its numerous birds) appeared to not have been occupied for a number of years although an Inuk had described the place as inhabited.

This practice of utilizing and abandoning camp sites was also observed by Mathiassen when visiting Igloolik in the 1920s (Mathiassen 1924:31). Therefore, it is clear that Igloolik Inuit had the flexibility to move at will if environmental conditions such as animal migrations or environmental conditions changed. An example of this, recounted by Julia Amarualik (2001), refers to when the former camp *Avvqija* was abandoned. She remembered that the elder Ittusarjjuat, “just before he passed on, had made it known that this place had heated up from all the use; he wanted this place abandoned to give it a chance to cool down; it might be only for a year. That means no one was to stay there during that period; if they so wish they could come back and live there again” (Amarualik 2001). In addition, camps would be abandoned because “they used to get sicknesses when the land was occupied too long” (Qunnun 2001). As a result, the rotational use of camps was a means of social control to avoid sickness and to avoid depleting resources within a given area. Inuit were receptive to the changing environment and adapted their migrations and living patterns accordingly. This feature of Inuit culture remains essential in order to understand today’s Inuit perceptions of climate change. In a sense, people change with the environment, and the environment changes with people,

and this has been a backdrop in which Inuit culture developed. As we will see in Chapters Four and Five, this may be one of the reasons for which scientific discourses of climate change, based on the Cartesian dichotomy of nature and culture seems at odds with Inuit attitudes to change as something they just have to adapt to.

Inuit groupings were quite dynamic in number and in location. Iglulingmiut congregated on the island of Igloodik for up to five months from early autumn to mid-winter and then moved to large camps on and around the sea ice (Mathiassen 1924:31, Aporta 2002). In the summer, there was a significant demographic change, as the younger men, women and children travelled on land to hunt caribou and the older men hunted for marine mammals in their kayaks (Mary-Rousselière 1984:432). The two groups later shared their catches when they returned to live in camps on the sea ice over the winter (Mary-Rousselière 1984:432, Mathiassen 1924:30). Inuit camps were often located in proximity to the floe edge for hunting walrus, seals and whales, or by particular lakes known for good fishing, or near caribou migration routes (Mathiassen 1924:30-33). At the same time, Inuit were also known to adapt their environments for their own needs. Parry described how the Iglulingmiut cleared rocks and created pathways to lure caribou to within accessible reach to enable hunters to ambush them (Parry 1824:285). Hunting practices were regulated by the availability of animals but also by social organization. Inuit had a reciprocal relationship with the environment, in a sense that through observation and experience they created knowledge and techniques that allowed effective utilization of resources. Through these experiences, they developed and practiced particular rules and taboos that reflected their beliefs and their relationship with animals. For instance, a taboo against the killing of marine and terrestrial mammals together

established limitations in hunting practices (Mary-Rousselière 1984:441).

One of these taboos described by MacDonald (2000:123) is the “prohibition against playing string figures while the Sun was above the horizon.” String-figures (*ajagaq* in Inuktitut) is an Inuit game involving a looped piece of string which the player can manipulate with his or her fingers to create particular figures. These string games are only supposed to be played during the “dark period” when the Sun is set for the winter or once the Sun, in its entirety, is in the sky (MacDonald 2000:123-125). If string games were played during the transitional phase, “the period between the sun’s return and its rising fully above the horizon,” it was believed that the string “might lacerate the sun” preventing the sun from returning (MacDonald 2000:124). Occasionally the sun would return earlier or later, and set earlier or later than expected and this was believed to be caused by human actions. Again, this practice shows how human and environmental events are actions part of the same realm of experience. During the winter of 1822, Parry witnessed the sun returning after it had already set in Igloodik. He described that:

At apparent noon, on the 2d of December, six days after the sun had independently of the effects of refraction set to us for a period of more than seven weeks, we caught a glimpse of its upper limb from the deck of the Fury, about one-sixteenth of its whole disk being visible above the low land to the southward. (Parry 1824:383)

Parry found this experience was an explanation to these taboos. Due to such variability, “the remarkable and unsettling effects of refraction may in fact have lent some credence to the notion that Inuit actions – such as playing “cat’s cradle” (*ajaraaq*) in the late fall or “cup-and-pin” (*ajagaq*) after the Sun’s return – could delay its setting or speed its rising in the sky” (MacDonald 2000:107). However, some Inuit have been known to intentionally play string figures in the fall in order to delay the sun from setting for the

dark period (MacDonald 2000). This taboo example demonstrates how Inuit understand human and natural dimensions of the world as inseparable and how actions by humans can directly affect the natural cycle.

Lastly, although the availability and access to food sources and materials were important in the location, timing and dynamics of settlements, Inuit settlement practices were also influenced by social and psychological factors. These included the sharing of news and renewing bonds of kinship between groups, and the undertaking of some social activities including singing, dancing, games, and shamanistic performances (Damas 2002:16). Aporta (2009) has described how the extensive travel undertaken by Inuit families resulted in the formation of trails as geographic and social networks within and between regions. These congregations allowed for the transmission of cultural practices and knowledge, reuniting groups and strengthening their relationships. These settlement patterns would change with the arrival of whalers, Hudson's Bay Company (HBC) traders, missionaries and the Royal Canadian Mounted Police (RCMP) (Rasing 1994), but many of these underlying aspects of how Inuit relate to and see the environment, are still valid today.

### **3.4 Economic and social changes**

Inuit contact with Europeans resulted in very significant cultural, political and economic changes, although in various degrees at different given times. Through the 19<sup>th</sup> and 20<sup>th</sup> centuries, Inuit had dealings with explorers, whalers, traders, missionaries, and Canadian government officials represented by the RCMP (Damas 2002; Rasing 1994). Each of these groups influenced the dynamics and mobility of Inuit populations by

encouraging trade, activities or settlement practices that required Inuit to congregate in specific locations.

European or American explorers such as Parry, Lyon and Hall interacted with Inuit through limited periods of time, but the first outsiders that had more significant and permanent influence on the Inuit way of life were the whalers, as they stayed for long periods of time, employed local Inuit, and returned on a regular basis. The whalers arrived as early as the 18<sup>th</sup> century and expanded their operations throughout the 19<sup>th</sup> century (Damas 2002:8). The traditional nomadic lifestyle of Inuit was often difficult to conciliate with Western practices of whaling. Since whalers required the assistance of Inuit hunters they promoted the establishment of temporary centralized settlements with some Inuit groups in order to have them available for work at whaling stations (Damas 2002:17). By the mid-19th century, whalers had started wintering over in the Cumberland Sound and Baffin Bay areas, and this initiated somewhat permanent settlements among nearby groups of Inuit. Besides altering settlement patterns, the European and American whalers brought with them trade items such as firearms, rum and other liquors, as well as many infectious diseases that were detrimental to Inuit populations (Mathiassen 1924:241). The whaling stations were the first major institutions to have a lasting impact on Inuit, but it was the trading outposts that had the most significant and far-reaching influence on the Central Arctic Inuit.

Trading posts were initiated by the Hudson's Bay Company in the early 20<sup>th</sup> century and by the 1920s trading posts had replaced whaling stations as the main congregational points for Inuit (Damas 2002:20). These outposts supplied Inuit with guns, ammunition and fishing nets which were quickly adopted and adapted into Inuit

hunting practices (Aporta and Higgs 2005; Wenzel 1991). The Inuit of Igloolik had not had significant interaction with the whaling stations, but with the opening of trading posts, they started traveling long distances in order to trade for the new necessities. There was also a transformation of trapping practices, which went from supplementing hunting to influencing land use patterns. Trapping was originally practiced by creating stone or ice structures to catch foxes, wolves and sometimes bears for their fur, and the animals' meat was used for dog food (Mathiassen 1924:62-63). With the introduction of trading stations, trapping soon became a major trade activity for Inuit men. They adopted European steel traps and developed extensive trap lines and cache sites along the coastline. Many of these trapping sites were within a day's travel from their usual camps, but attending to other trap lines required long trips that kept men away from their base camps for extended periods of time (Damas 2002:20-21). With the adoption of improved technology, obtained through exchange in the trading stations, Inuit groups were able to remain in close proximity to trading posts while still hunting for caribou and sea mammals (Damas 2002:21). A gradual process towards a more sedentary pattern of life was in effect.

In addition to HBC trading posts, police stations run by the RCMP were established in a number of communities. In 1922, an RCMP station was established in Pond Inlet and this station also patrolled Igloolik and Arctic Bay (Mary-Rousselière 1984:443). The purpose of these RCMP stations was to enforce federal justice, provide medical care, family allowances and relief when necessary (Tester & Kulchyski 1994:205). However, most often relief was distributed by the Hudson's Bay Company, consisting of ammunition, flour, baking soda and tea. Other items such as milk, butter,

bacon and patent medicines were considered luxuries that had to be paid for (Rasing 1994:151-152). The Government of Canada instructed for the distributors of relief to give out ammunition before food in order to encourage Inuit to rely on their own means for food, in attempts to promote their principle of “keeping the native native” (Rasing 1994:151-152). However, Inuit culture was already changing and new technologies had already been adapted into Inuit practices.

Due to its geographical location, Igloolik was fairly isolated from Europeans until the mid twentieth century. Iglulingmiut had to travel long distances to Repulse Bay, Pond Inlet or Arctic Bay, where trading outposts were established, in order trade their hides and furs (Aporta 2004:30). Therefore, until the establishment in Igloolik of a trading post in 1938-39, Igloolik Inuit actually became more nomadic, as they had to travel longer distances in order to trap and trade (Aporta 2004:30).

Inuit in Igloolik were not passively affected by the new trading posts. On the contrary, they incorporated the new institution into their seasonal movements, their economy, and their social dynamic. Mathiassen reported that the Hudson Bay Company posts brought together groups of Inuit who previously had had limited contact or even conflicting relations. These seasonal congregations at the trading posts served to increase social interactions between distant groups and created long-term bonds (Mathiassen 1924:102).

The Inuit who lived by the outpost camps were deemed the responsibility of the HBC and RCMP. When hunting was poor, they became more dependent on the relief from the outposts. In the late 1950s, a change of federal policy towards Inuit took place, which had significant impact on Inuit. At this time, Inuit were undergoing significant

cultural and technological shifts. In some regions like Ennadai Lake and Baker Lake, Inuit had replaced traditional hunting techniques for modern guns. However, due to poor instruction on the proper use of guns and insufficient supply of ammunition coinciding with a change in caribou migration patterns, Inuit experienced hardships and incidences of starvation (Tester & Kulchyski 1994). In response to this, the Canadian Government was pressured to develop a more active policy towards the inhabitants of the north, who had been largely overlooked before. The episodes of starvation around the Baker Lake area prompted the government to see Inuit as vulnerable, requiring assistance for their own survival (Damas 2002:49). By the late 1950s, the Canadian Government began initiatives to centralize Inuit into permanent settlements in order for Inuit to have improved access to health facilities, the RCMP and trading co-operatives (Damas 2002, Rasing 1994). These settlements became the start of a new series of dramatic changes for Inuit. For instance, their children were required by Canadian law to attend residential schools, removing them from their cultural, environmental, and family contexts.

It is important to briefly analyze the situation generated by residential schools, as they had profound impact in a generation of Iglulingmiut, and altered some of the ways in which Inuit relate to and learn from their environment. Residential schools were a nationwide initiative first carried out by church missionaries with support from the Canadian government to “Christianize” and “civilize” the Aboriginal people (Stout & Kipling 2003). In fact, the schools were to ensure that “education must consist not merely of the training of the mind, but of a weaning from the habits and feelings of their ancestors, and the acquirements of the language, arts and customs of civilized life” (cited in Claes and Clifton 1998:15). Consequently, the end goal was to eradicate the language,

culture, spirituality and historical bonds of aboriginal nations (Claes & Clifton 1998:1).

By the early 20<sup>th</sup> century residential schools were established in Arctic Canada.

Iglulingmiut children were mainly sent to the residential school at Chesterfield Inlet

which opened in 1928 although the peak of attendance was during the 1950s and 1960s.

The psychological pain and major culture and language loss from these experiences have had long term effects for subsequent generations.

Ikummaq (2008), a former residential school student, remembers that

[a]t 6 years of age I was carted off to residential school for the next 7 years. So I was out of my culture, out of my language for the next 7, and that's how [the nuns] wanted it. And then after that, I went back to Igloolik and then we lived in a camp for the next 7 [years], to get my culture back, to get my roots back, to get my knowledge about the land back. And I was fortunate in that my brother decided that was good for me. It was. And he taught me the ways of the land again, the terminology associated with it, the survival traits that go with it, so on and so forth.

Ikummaq, who now helps run a survival land-skills program for youth in Igloolik, also stated that

those of us who went from residential school came back without our culture, without our language, so we made a push for them to be taught. And then having been taught in the school system ourselves we were quite good at organizing how the instruction was going to take place. So at least the nuns gave us that advantage, at least. Otherwise life was the pits in that part of the world.

Residential school is one of the most dramatic, in a large chain of changes experienced by Inuit since the late 1950s. These social changes were a major disruption in how Inuit lived and are important to consider when looking at current environmental changes. To a large extent, cultural changes are viewed as more disruptive than environmental changes. However, and as it has been explained in this section, change has been part of people's lives since time

immemorial. And it is, perhaps, this connection to change as a normal aspect of people's daily experience, what makes Inuit dismiss the dramatic forecasts contained in climate change discourse, as we will see in the next chapters.

### **3.5 Inuit worldview**

I will now briefly describe in more detail Inuit cultural beliefs and mythology, as they are important aspects of the Inuit approach to the environment that is of interest in this thesis. Despite Inuit having undergone immense cultural changes over the last hundred years, Inuit worldviews are still present today and significantly shape how Inuit perceive new and recurring phenomena in their physical and social environments.

During in the 1920s, the Fifth Thule expedition, led by Rasmussen, produced a comprehensive ethnography of the Igloodik Inuit culture (Rasmussen 1929; Mathiassen 1924). Through his own interactions with Inuit, Rasmussen described different aspects of their spirituality and conceptions of natural life cycles. He noted that Inuit did not believe in a God in the Judeo-Christian sense, but rather believed in “powers or personifications of natural forces, acting upon human life in various ways, affecting lives through foul and fair weather, disease and perils of all kinds” (Rasmussen 1929:62). These powers of nature did not have any evil intent but were recognized as “nevertheless dangerous owing to their unmerciful severity where men fail to live in accordance with the wise rules of life decreed by their forefathers” (Rasmussen 1929:62). These “rules of life” or taboos were followed in order to live untroubled by the perils of nature, which were “based on the experience and wisdom of generations” (Rasmussen 1929:56). Since both animals and humans alike were considered to have souls, these taboos were observed in order to not upset the souls of the animals that were hunted or the success of future hunts. This

respect was integral to Inuit survival since they were dependent on a variety of animals for their food and clothing. Despite Inuit respect for animals, their first priority was sustaining themselves, physically and culturally, and so hunting was quintessential to their wellbeing and livelihood. Therefore, these taboos were in place to allow Inuit to thrive as well as “to keep a right balance between mankind and the rest of the world” (Rasmussen 1929:62).

Rasmussen noted that no Inuk “fears death in itself, for all are convinced that it is merely the transition to a new and better form of life” (Rasmussen 1929:93). Death was an inevitable process that everyone had to eventually face, but Inuit believed that the souls of living things lived on. After death “we awake to consciousness again, we come to life again, and all this is effected through the medium of the soul” (Rasmussen 1929:60). The souls of animals and humans moved on to another life, reincarnated into a new living thing. Rasmussen recounted numerous Inuit stories where animals turned into humans and humans turned into animals. One particular story told of the soul of a miscarried human child that had to travel through a variety of animal bodies before it was able to return to a human carrier again because his human mother had concealed her miscarriage (Rasmussen 1930:41-45). Inuit had a respectful relationship with their fellow animals and particular taboos were observed as a means of recognizing that these animals have a soul and also have agency in their own affairs. Inuit, through Rasmussen’s depictions, also seemed to assume that animals held the same characteristics and worldviews as humans did. For instance, the concept of reincarnation after death was believed to be shared by animals too since they “allow themselves to be killed by good hunters who observe their taboos” (Rasmussen 1930:43). A seal that went to a breathing

hole and was killed by a hunter, would not feel pain “as they are resurrected in another seal immediately afterwards” (Rasmussen 1930:43).

Inuit also believed that “death by violence has a purifying effect” (Rasmussen 1929:96). In Inuit mythology there were two Lands of the Dead: one is Udlormiut or Land of Day where people went who had had a violent or accidental death and there they hunted land animals; the other was Qimiujârmiut or Narrow Lands where people who had a natural death went and they hunted marine animals there (Rasmussen 1929: 94). Life was precious when it was useful and productive for the community, and death was a means of renewal and purification. As more Inuit took on Christianity many of the traditional taboos were disregarded although many of the traditional Inuit ideas continued to influence daily life (Mathiassen 1924:234).

Tim Ingold (1986:217) suggests that hunting was “a rite of renewal,” a process which helped continue the cycle of life. Humans were dependent on animals for food and clothing, while animals needed humans to hunt them in order to regulate their populations so they were able to thrive. It was believed that by killing off the weak animals, humans maintained a healthy and strong grouping of animals. Ingold (1986:218) called this concept the “delayed return system,” in that “the returns on hunting in the present are viewed as the outcome of previous hunts in the past.” The hunting of animals thus maintained the biological sustainability of humans and non-humans alike. Ingold also related hunting and the kill with the “consummation of sexual intercourse” (Ingold 1986:151). In Inuit mythology there were a number of stories that depicted cross-species relations, humans and animals changing form and having sexual relations (D’Anglure 1967). These stories, again, help us understand the intertwined connections between

humans and animals, and between humans and animals and the environment, which are present in Inuit cosmology.

One of the most significant of these stories was the Inuit creation story of the mother of sea beasts, *Takánâluk Arnâluk* (Rasmussen 1929:63-66), also spelt *takanna-luk* 'the one from below' (Mary-Rousselière 1984:441). She has also been called *uiniyumayuituq* 'the one who did not want a husband,' *aviliayuk* or *nuliayuk* (Mary-Rousselière 1984:441), though most commonly referred to as *Sedna* (Laugrand & Oosten 2008). The story tells of Takánâluk Arnâluk who was cursed by her father to be married to a dog who comes to the girl in man form to marry and bed her. Half of their offspring took the form of Inuit while the other half appear as dogs<sup>9</sup> (Rasmussen 1930:55-58). The story says that the father became overwhelmed with guilt for cursing his daughter to be married to a dog, so went to rescue her from their camp, and killed the dog by tricking him into eating stones which caused him to drown, sinking to the bottom of the sea. In the second part of the story, the same girl was tricked into a second marriage with a sea bird. When she attempted to escape her husband by latching onto her father's boat, her father chopped off her fingers, hands, and arms to prevent his boat from capsizing. Each of her limbs then turned into the forms of seals, bearded seals and walrus, as are known today, and these became the staple foods for Inuit. This story provided an analogy for the intimate relationships that humans and non-human beings have. The underlying concepts of the story show how difficult it is to conciliate Western/scientific and Inuit understandings and opinions on such topics as climate change and wildlife management, and it will be shown in my later chapters

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<sup>9</sup> In some versions of this story the dog-form offspring turned into Europeans while other versions the dogs turned into a rival Aboriginal group.

In this chapter I have provided a basic outline of Inuit history from the first migration into North America up to the major events of the 20<sup>th</sup> century that had the greatest impact on Inuit culture. Inuit experienced numerous environmental as well as cultural and economic changes over time, which have thus shaped Inuit culture, past and present. This relationship with change, however, also shows Inuit ingenuity for being resilient during difficult times. The description of some Inuit beliefs, of their knowledge of the land and their relationship to animals also reveals a complex connection with the environment, in which clear distinctions between nature and culture disappear. These views of the world, part of the Inuit understanding of the environment, will take a very important place in our analysis of how Iglulingmiut conceptualize environmental changes.

#### **Chapter 4: Inuit observations of local change**

Inuit have a long history of relating to their environment through living, travelling, and hunting on the sea and land. Even though Inuit have moved to permanent settlements, many of these activities are still practiced today on a regular basis. In Igloolik, hunting and fishing remain important activities for both cultural and economic reasons. When Igloolik Inuit leave their settlement, they must traverse large bodies of water to cross to Baffin Island or to the mainland on Melville Peninsula, some of which is frozen up to eight months of the year (Aporta 2002). Sea ice, for travel, hunting and recreation, is instrumental to the Igloolik Inuit way of life and identity (Laidler & Ikummaq 2008, Laidler et al, in press). As a result, the ability to read ice and weather indicators, developed over generations of experience and practice, is not only important for Inuit culture but also crucial for safe and successful travelling to hunting areas. Changes in environmental conditions can impact the accessibility and availability of animals to hunt. These changes include the timing and quality of the formation and break up of sea ice, unpredictable and variable weather, and diversions in animal migrations. The safety conditions of the hunt and other outdoor activities may also be affected. For these reasons, environmental changes are readily noticed by Inuit.

A number of studies have documented Inuit perspectives of environmental changes and Inuit vulnerability to these changes in Igloolik (Ford et al., 2006; Ford et al. 2007; Fox 2002; Laidler et al., 2009; Laidler et al. in press). These studies suggest that Inuit in Igloolik are noticing changes that range from the timing and quality of ice formation and melt, to weather patterns and animal behaviours and migrations. These environmental changes were also discussed in the interviews I conducted. This chapter

describes some of the changes that local Inuit are observing and the implications they are having on local travel and community life.

I use the phrase environmental changes here instead of climate change for two main reasons. First, in the interviews I conducted it seems that hunters and elders feel more comfortable talking about changes they personally observed, not only in temperature and weather, but also in ocean temperature, ice dynamics, and animal migration and behaviour (see, for instance, Ulayuruluk 2008). Local experts noted that environmental changes have always happened and variability in the environmental processes is expected (Arnattiaq 1997; Ikummaq 2008; Kappianaq 1997). The second reason is to make a distinction between the changes personally observed and interpreted by local people, and the concept of global climate change as represented by the media and scientific studies. This chapter explores how Igloolik Inuit understand local environmental changes they have personally experienced, through an analysis of their narratives. It is largely based on my own ethnographic research and interviews, but it also draws on interviews of the Igloolik Oral History Project. In Chapter five I interpret how Igloolik Inuit understand global climate change in comparison to their personal experiences of change, and the factors that shape these perspectives.

One of the most important environments for all Inuit coastal communities is constituted by the sea ice. The sea ice, at the same time, is one of the most susceptible environments to climate change. The sea ice is influenced by a variety of factors, such as ocean temperature, tides, currents, air temperature, winds, snow, rain, and cloud cover (Gough et al. 2003; Gough et al. 2004; Laidler 2006; Laidler 2007). These processes are subjected to considerable variability and they influence each other which in turn affect

sea ice cover as well as the local human and animal inhabitants who utilize the sea ice. The sea ice is a very dynamic environment, but changing weather patterns make its processes less predictable. Iglulingmiut identify a number of these changes and explain how they are affecting their activities.

#### **4.1 Changes in sea ice**

##### **4.1.1 Freeze-up timing**

The exact timing of ice formation has always been a difficult process to predict since it varies from year to year, depending on a series of factors. These factors include strong winds that pile up ice to create multi-year ice which enables ice formation (Ikummaq 2008; Ulayuruluk 2008); currents which break up or pile up ice; water temperature that can erode ice from underneath (Ammaq 2008; Ulayuruluk 2008); and snowfall which covers new ice, insulating the ice and preventing it from forming (Ikummaq 2008; Qaumaq 2008; Ulayuruluk 2008). Due to the many processes involved in the formation of sea ice, and their effects on each other (e.g. strong currents combined with warmer temperatures cause more erosion of ice), variability and change is accepted as normal by local Inuit (Ikummaq 2008; Paniaq 2008; Qaumaq 2008; Ulayuruluk 2008).

Despite this variability, Inuit recognize that the freeze-up process often occurs in predictable ways, forming in the same locations at particular times of the year. Local experts explained how the freezing begins on the land, and once the land is frozen the water begins to freeze, starting in the bays and continuing outward (Kunnuk 2008; Ikummaq 2008; field notes 2008). Local hunting activities are then organized accordingly with the timing of the ice formation. The sea ice usually starts forming in October (Ford et al. 2009; Kunnuk 2008). In the traditional Inuit moon-calendar, the first stages of

freezing occur during the *ukiulirut* moon phase of October/November. The sea then completely freezes over during the moon phase *tusartuut* or *tusaqtuut* about November/December (Iyerak 1997; Kappianaq 1997; MacDonald 2000:198). Hunters have to be patient for the ice to form adequately before venturing onto the ice for safety reasons, and also to not scare the seals away from their breathing holes close to land (Qaumaq 2008). Once the ice has formed, Igloolik hunters are able to leave the island and access hunting areas on the ice, or across the sea on Baffin Island or Melville Peninsula. For example, hunters cross Fury and Hecla Strait from Igloolik to Baffin Island for caribou hunting generally around December and January. However, in 2008 the ice did not form until later, and the most direct trails to Baffin Island were not accessible until February 14 (Kunnuk 2008; Ulayuruluk 2008).

Local Inuit notice that the freeze-up is occurring later and that the ice is forming more slowly than before. Typically, if there was a late freeze-up the elders could predict that the break-up would be late as well (Paniaq 2008). However, one of the most significant changes that people have noticed within the last few years is that even when the freeze-up is late, the break-up is occurring earlier, and this is creating problems for the community. For example, Qaumaq explains that:

life has really changed in the hunting scene, in that if you look at Igloolik, it becomes isolated in the fall, so therefore you can't really venture off the island, and that it's taking a longer time for it to freeze up. After you can stop using the boat to the time that you can cross to the main land [Melville Peninsula], that now is taking a lot longer time (Qaumaq 2008).

There seems to be an agreement that the freeze-up is occurring later and the break-up is happening earlier now (Paniaq 2008, Qaumaq 2008; Ulayuruluk 2008), which

is confining Igloolik residents to the island for longer periods of time during the year and restricting sea ice hunting.

#### **4.1.2 Ice thickness**

Inuit are also noticing that the sea ice is not forming as thick as it did in the past. As mentioned above, ice formation is greatly dependent on temperature, currents, winds and snowfall which either wear down the ice or prevent the ice from forming further. If these environmental elements change, the ice thickness changes as well. Some Igloolik Inuit suggest that the water below the ice has actually become warmer and is wearing the ice down from underneath more than usual (Amarualik 2008; Ammaq 2008; Qaumaq 2008). Part of this wearing down is caused by air pockets forming in the ice, making the ice less stable and less safe for travel:

[W]hen the ice starts forming, it would form in stages. . . freezing up a little further, a little further, and so therefore [we] were hunting at the floe edge, following it as it progresses. At one time [we] were travelling back and forth very safely, and then [I] was walking with [my] rifle on [my] shoulder, and all of a sudden [my] foot went through the ice. It looked really safe. . . but because the wind had created waves the ice pans were moving up and down and air pockets had formed under the ice. . . The [movement] did not allow the ice to freeze right through. So therefore, it was because of one of those air pockets that [I] went through the ice. (Aqiaruq 2004, quoted in Laidler & Ikummaq 2008)

Others have noticed that the currents are much stronger now than before and that the ice is not piling up to make thicker ice or multi-year ice (Ulayuruluk 2008; Ikummaq 2008). Most notably, there is much more snowfall now than in the past. The snow acts as an insulator preventing the ice to form fully and can cause the ice to melt from the warmth of the ocean waters and currents (Laidler et al. in press). The snow also makes it hard for travellers to identify thin ice (Ulayuruluk 2008; Qaumaq 2008). Qaumaq (2008) has noticed that,

in the fall especially, it might cool down but then it's not really cold in that the ice is not forming and there's insulation on the ice as well so the ice is not forming as well in the fall. And again it's noticeable in the springtime. Like this time of year [early June], where you have snow acting as insulation, that the ice wears out from underneath to the point where there's stronger currents, there might be just snow on there as opposed to snow and ice before you get to the water.

Consequently, sea ice is not reaching optimal thickness because the ice is wearing down or unable to form due to warmer ocean temperatures, stronger currents and wind, and the warming effect of early snowfall.

#### **4.1.3 Floe edge and moving ice**

One of the most distinguishable and significant ice features of the sea ice is the floe edge, which delimits the landfast ice from the open water and moving ice. It is at the floe edge that a lot of hunting around Igloodik takes place from fall to spring as this is where walrus, seals and polar bears congregate. The formation of the sea ice is very important for safe travel and Iglulingmiut wait with anticipation for the ice to form completely so they may venture out for hunting. However, in 2008 the ice did not reach an adequate extent and thickness for travel until February (Kunnuk 2008). Sea ice travel was possible before this time but the ice that was formed was very rough and made travel difficult, forcing hunters to travel close to the coast line which is often a lengthier route to the floe edge and to the main land (Kunnuk 2008). Laidler & Ikummaq (2008) also found this to be the case in 2004-2005.

Sea ice is particularly dynamic at the floe edge. Where the ice is thin, it may deteriorate from the flow of currents, winds and moving ice. The fact that the ice is not forming as well means that travel to the floe edge is thus becoming more dangerous.

Some elders are discouraging young hunters from venturing to the floe edge entirely. For instance, Ulayuruluk (2008) notes that:

those who are now starting to actively participate in hunting are not venturing down to the floe edge, because, again, there might be wear from underneath or something might be happening that they're not aware of with the snowfall having fallen, that's a contributing factor to the dangers of travelling on, let's say, close to the floe edge.

For safety reasons some Iglulingmiut choose not to venture to the floe edge or moving ice at all. Many young hunters, especially those who may have full time jobs, will not travel close to the floe edge, not trusting their own ability and knowledge to travel safely by themselves (Kotierk 2008). Hunting at the floe edge and on moving ice used to be very important activities for Iglulingmiut, as this is the place where walrus and seals are hunted. Some Inuit are concerned that this form of hunting, as well as the knowledge connected with this environment, are being lost or will deteriorate substantially (Ikummaq 2008). There is some cautious optimism regarding documentation of this knowledge through the Igloodik Oral History Project, and the Inuit Sea Ice Use and Occupancy Project, in which some of this information has been preserved for future generations to learn from (Ikummaq 2008).

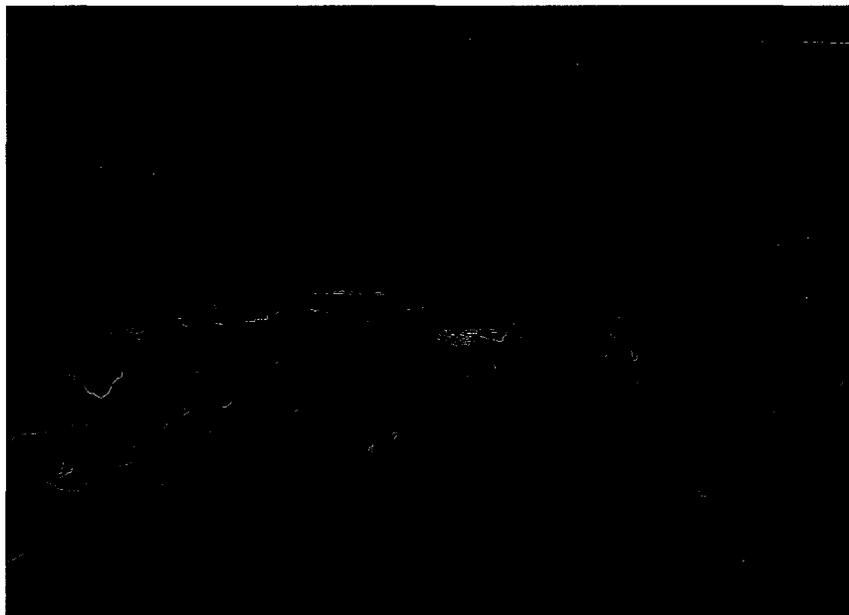
#### **4.1.4 Multi-year ice**

Due to its stability and safety as a travel surface, the multi-year ice is one of the most important elements of this dynamic environment. Multi-year ice is old ice that does not completely melt during the summer and often stays intact for years (Laidler & Ikummaq, 2008). Some multi-year ice piles up and then becomes grounded on shallow reefs and then promotes new ice to freeze around it, enlarging the ice platform. This grounded multi-year ice becomes an anchor for the floe edge, preventing the ice from

breaking off or preventing new ice from floating away (Laidler & Ikummaq 2008:135-137). In Inuktitut this anchoring ice is called *kikiak*, which literally means nail since the ice “nails” or anchors itself to the sea bottom (Laidler & Ikummaq 2008:135; Ulayuruluk 2008). This *kikiak* then holds the ice in place, quickening the freezing process and allowing the ice to form. A *kikiak* also anchors the positioning of the floe edge.

There’s a reef [*Ivunirarjuq*] that assists in getting this ice, or this part frozen over. A lot of years the floe edge is right there, from here to about here [referring to map]. And that’s a majority of the years. But some years when [ice is not piled up at the reef], the floe edge tends to stay here, right along the shore. So therefore, this pretty much determines how this ice is going to form (Ivalu 2005, quoted in Laidler & Ikummaq 2008).

On May 27, 2008, I travelled with Ikummaq and Ulayuruluk on a sea ice trip to the floe edge and to the reef *Ivunirarjuq* (69°24’N, 81°35’W) off the northeast coast of Melville Peninsula. Here, a *kikiak* had formed from new ice (field notes 2008) (Figure 4.1).



**Figure 4.1 – The *kikiak* formed at *Ivunirarjuq* by the floe edge, with moving ice in the distance. May 27, 2008.**

However, in 2008 there was no multi-year ice. This *kikiak* was formed by new ice and as a result formed much later that winter.

[T]his year is unique in that we don't have multi-year ice. And with the lack of multi-year ice it took forever to freeze over to the point that February 14 was the [first] time you could cross Fury and Hecla to Baffin Island. And normally it freezes earlier than that (Ulayuruluk 2008)

Multi-year ice does not form near Igloodik but flows through the Fury and Hecla Strait or *Ikiq* either from the north through the Labrador Narrows or from Foxe Basin in the south (Laidler & Ikummaq 2008:137). There has been a sharp reduction in multi-year ice formed and general ice thickness since 1979 (Ford et al. 2009). Some Iglulingmiut suggest that one reason there has not been multi-year ice is that there has been less piling up (Ulayuruluk 2008; Ikummaq 2008). The piling up of ice requires strong currents and winds at certain times of the year, but the changing patterns of winds and currents are causing the ice to break up rather than pile up (Ulayuruluk 2008). Ulayuruluk (2008) explains that

there's a time in the past, in April, where the current tends to slow down, in that the ice is not breaking off anymore. It tends to add on and add on, and you can see ice for quite a ways. That doesn't happen anymore. It's constantly open now as opposed to the time when you noticed that April was a time when the currents would ease off therefore not mov[e] the ice as much. Now that doesn't seem to take place anymore.

A second reason for lack of multi-year ice is that there have been more overcast and wet days recently and this is affecting the ice cover (Paniaq 2008; Qaumaq 2008). Elders notice that overcast days are warmer, and that clouds provoke different patterns of melting. While on clear days the ice would melt in the direction the sun is shining, on overcast days the snow and ice melt on all surfaces (Paniaq 2008; Iyerak 1997). The weather, then, greatly affects the lifespan of multi-year ice. Paniaq (2008) has noticed

that “the multi-year ice that is free floating in the summer doesn’t last at all anymore, like it doesn’t take very long for it to [go] from a large size to melting away to nothing in a very short time.” The fact that the multi-year ice is melting faster and is not forming as regularly is having significant implications on the whole freezing and melting processes of sea ice. Multi-year ice is integral to ice formation in the fall by anchoring the floe edge, preventing the floe edge from receding, and allowing for more extensive sea ice for travel.

#### **4.1.5 Break-up timing**

The timing of the break-up of the ice, as with the freeze-up, is naturally quite varied, though it often follows a particular pattern. The break-up happens when the land fast ice, or *tuvaq* in Inuktitut, detaches completely and breaks away from the shore, although the melting processes begin long before this occurs. Occasionally the ice breaks late, sometimes early or other times it remains all year round (Amarualik 2008; Iyerak 1997). Amarualik (2008) recounted:

a time about [September 1972] where a ship came and it had to go through ice even though it came in the same time it always does. It had to go through ice in order to make it here and offload everything onto the ice and it was brought by snowmobiles and such over the ice... Actually [in] 1972 the ice didn’t melt at all here, it didn’t melt at all inside the bay or any of the bays at all. That was one cold summer.

The melting, like the freeze-up, begins from the land where it absorbs the heat from the sun. The warmth of the sun first melts away the snow, which forms puddles on the surface; when cracks begin to form in the ice these puddles are drained and the ice becomes dry again (field notes 2008; Ikummaq 2008; Kappianaq 1997; Kunnuk 2008; Laidler & Ikummaq 2008). The sea ice by the shore recedes further away from the land, although Inuit will continue to utilize the ice as long as they are still able to drive their

snowmobiles across to the solid ice (or land) skimming the pools of water (Ikummaq 2008). This is done for sea ice and lake ice as well (Qaumaq 2008). The sea ice continues to melt and break up in stages:

Around when it's melting all together you have these holes [*killait*] that are created on the ice, and ice is now starting to break up. The wind with the current moves the ice back and forth, so therefore it breaks it up even more. . . And then this process that's happening is called *siruttiq*, 'it's breaking up.' And then if the ice is constantly breaking off here it's *tuvaijaq*, 'the *tuvaq* is coming off' so [it is] *tuvaijaqtuq*. Whereas here it would probably be more *siruttiq*, where it breaks up first and then it eventually goes out (Arnatsiaq 2004, quoted in Laidler & Ikummaq 2008).



**Figure 4.2: (left) Ikummaq pointing out a large *killaq* (singular for *killait*) on the sea ice. June 7, 2008.**

Normally, the melt would begin during the moon phase *nurrait* of early June and then the *tuvaq* breaks off completely by the end of July or early August during the *saggaruut* moon phase (MacDonald 2000; Ulayuruluk 2008). However, the timing of the melt has changed dramatically in the last 30 years. During an interview that took place on May 20, 2008, Ikummaq (2008) reflected these changes:

This [year's melt] is quite normal, [if you consider] the last 5 years. [It's] abnormal for let's say 20 years ago. If you look at 20 years back, OK, this would still be winter. Or even if we go further, 30 years back, that would be right about the end of our life in residential schools... we come home on about May 10<sup>th</sup>, it's still winter. There's no melting of snow at all back then. But here if you look at what's happening now, it's now melting.

The melting of snow and ice starting in mid-May has now become common and even expected (Paniaq 2008; Ulayuruluk 2008). Ice formation and break-up have always been variable and so Iglulingmiut emphasize the importance of adapting to these changes as they occur (Amarualik 2008; Ikummaq 2008; Paniaq 2008; Ulayuruluk 2008). However, these changes are shortening the overall season that Iglulingmiut are able to hunt, as the boating season has not significantly increased (Ulayuruluk 2008).

#### **4.2 Changes in weather**

The weather plays a significant role in the freezing and melting of sea ice. Therefore, weather forecasting has always been an important aspect of Inuit culture. Traditionally, Inuit were taught to observe the weather from an early age and both boys and girls were instructed to go outside in the mornings to check the sky, the wind, the clouds and other important indicators (Ikummaq 2008; Paniaq 2008; Ulayuruluk 2008). The reasons to go outside were quite different for boys and girls. A girl went outside in the morning because it was believed that this action would aid her when she would go through childbirth later on in life (Amarualik 2008; Qaumaq 2008, field notes 2008). Boys, on the other hand, were instructed to step outside to observe the direction the wind was coming from, whether it was overcast and if they noticed any animals around in order to learn about favourable hunting/travelling conditions (Ikummaq 2008; Paniaq 2008; Ulayuruluk 2008). In the past, the men had to completely exit the igloo or tent in order to observe these conditions, as these living structures did not have clear windows to

view through. Today, however, Inuit who still rely on traditional weather forecasting can observe wind direction and whether the sky is overcast through the glass windows of their homes (Paniaq 2008). At first, when the boys are young they may not realize the importance of the questions they are asked by their elders, but over time and with repetition they habitually search for these weather indicators and notice their trends (Ikummaq 2008, Paniaq 2008). The local experts, in particular the men, said that part of their morning routine is to check the weather explaining that this activity was honed into them from their upbringing (Ikummaq 2008; Paniaq 2008; Ulayuruluk 2008).

Although women may have general knowledge of weather patterns, they were rarely requested as children to observe weather conditions directly except if they were the oldest or the only child in their family (Ammaq 2008; Qaumaq 2008). Traditionally, men were the main hunters while women were occupied in many other tasks (Ammaq 2008). Women did participate in seal hunting and fishing, but these activities were usually done as a family since women would rarely travel alone on the sea ice (Amarualik 2008; Ammaq 2008; Qaumaq 2008). However, this is slowly changing since some women are hunting more now if they are single parents or their partners have full time work in town (Ammaq 2008; Qaumaq 2008). These women also have to teach their children about hunting and Inuit knowledge of the environment and wildlife. In fact, there are some exceptional cases where women are both full time wage earners and the main hunters in the household. In these cases, these women, like other working individuals, would only be able to go hunting on weekends and holidays (Amarualik 2008; Ammaq 2008; Qaumaq 2008). This modification in gender roles is one of many social changes occurring in the community.

The skill of weather reading used to be developed over time through continuous observation, experience and practice and was mostly self-taught with the guidance of older and experienced individuals (Ammaq 2008; Ikummaq 2008; Paniaq 2008). Through this process individuals identify trends in weather patterns and may share these insights with each other helping to enrich their knowledge for planning hunts and evaluating conditions. For instance, a common observed trend is that the weather in one season or one year can indicate what the weather will be like in the following season or year (Amaa 1997a; Inuksuk 1997; Kappianaq 1997). For example, Kappianaq (1997) explained that “sometimes when the weather was not so good in the winter time it is normally followed by a good summer and sometimes it is the other way round.” These weather patterns also affect the health and behaviour of animals. Inuksuk (1997) added that he has:

experienced many different kinds of weather conditions but each year is always changing. For instance some years it is very dry and when that happens it is usually followed by a rainy summer and that causes the caribou to become healthy and fat. The weather seems to have control on the animals.

As a result, weather patterns are believed to follow a reciprocal pattern of good and bad weather; while the year to year changes may differ, the overall patterns allow knowledgeable Inuit to make fairly accurate predictions.

Since the early 1990s, however, the weather has changed in unpredictable ways and the once familiar weather patterns are now much harder to anticipate. Kappianaq, a knowledgeable elder, stated that “the weather is changing for the worse because the patterns are never the same each year” (Kappianaq 1997). The weather patterns are changing and the weather intensity is changing as well. Iqallijuq (1997) noted that “that

the stormy weather and the heat of the sun, they seem to hit extremes from the time I was a child.” Also it has been reported that there are more days with bad weather than in the past (Paniaq 2008). Inuit in Igloolik have observed a variety of environmental changes including variations in overall temperature, wind patterns and intensity, snow and rain fall, sun intensity and changes in the sky, including colour and cloudiness. Despite these observations, local Inuit do not always connect these changes with global climatic changes. Each of these changes will now be discussed in more detail.

#### **4.2.1 Temperature**

Some Inuit note that during the winter, temperature lows are more extreme than before, and that seasonal temperature variations are more dramatic (Ammaq 2008; Ikummaq 2008). Ammaq noticed significant temperature changes when she and her husband participated in the dog sled race from Igloolik to Arctic Bay during the spring of 2008: “when we were coming from Arctic Bay [in May] we were travelling very cold. And then the next day it’s so warm that it’s melting. Weird... Then it froze again” (Ammaq 2008). The temperature in the summer also seems to be warmer and this is attributed to the sun feeling much stronger (Amaa 1997b). However, dramatic changes in weather are known to have occurred in the past. For instance, Iqallijuq (1997) recalled that

Some people that I knew use to always say that a long time ago the temperatures used to be warmer, in fact I had a call from someone in Keewatin saying that the temperatures have been back to what they used to be in the past. It feels very warm now. Here the temperatures never became very warm even in a summer time as compared to the present. Maybe it worries some people, maybe it makes others happy, it’s hard to say. When we lived in Chesterfield Inlet we used to go play in the water in a small lake on hot sunny days to cool off when it was too warm. (Iqallijuq 1997)

In addition to warm air temperature, a number of local experts suggested that the ocean temperature seems to be rising as well (Ammaq 2008; Paniaq 2008; Qaumaq 2008; Ulayuruluk 2008). The warmer water temperatures are believed to be the cause of the deteriorating sea ice, as mentioned previously. Overall, it could be said that the community has noticed that the air and water temperatures have increased.

It is said that in the past warmer temperatures were predicted (Kotierk 2008; Qaumaq 2008). When asked whether elders used to forecast environmental change, Qaumaq (2008) recounts that:

the elders from the past used to say that some point in our future the north will become warmer but the south will be cooled down. In that, because it's warmer in the north the animals that had adapted to cold weather will be gone, so therefore food sources will be diminished somewhat. And because the south is colder growth on vegetation won't do as well, so therefore the food source of the south will go down as well. In that, they even predicted a famine to occur sometime in our future where these two extremes have changed.

This prediction is most interesting since it illustrates the reciprocal relationship in environmental processes in which to achieve balance. In this case, the cold Arctic becomes warm and the temperate south becomes cold. Also, change in time and space is understood as cyclical and since the environment changed before, it is assumed that it will change again. Furthermore, Inuit do not feel they have any control over these changes and that they can only prepare themselves and adapt the best they can (Ikummaq 2008; Kotierk 2008; Kunnuk 2008; Paniaq 2008; Qaumaq 2008; Ulayuruluk 2008). These examples may explain why some Iglulingmiut are not greatly concerned about a new warm climatic phase (Amarualik 2008; Ammaq 2008; Ikummaq 2008; Kunnuk 2008; Paniaq 2008; Qaumaq 2008; Ulayuruluk 2008).

### **4.2.2 Winds**

A commonly observed change in the weather relates to variations in winds. When the winds change they bring with them different types of weather (Aporta 2002:348; MacDonald 2000:180). For instance, when the prevailing north-west wind blows there is generally less snowfall (Ulayuruluk 2008). South-easterly wind brings more overcast days and more precipitation (Ammaq 2008). The north-west wind used to be the prevailing wind in most of the Arctic, and wind shifts were predictable (Ulayuruluk 2008). Today the south-easterly wind is becoming more common as a prevailing wind. Ammaq (2008) notices “we always seem to get south wind now. There’s no north wind. Like after the south wind came, the north wind always came. It comes, but that’s it. It’s usually the south wind day after day.” Since there is more south-easterly wind, there is also more wet cool weather. Paniaq (2008) also finds “the wind is more from the south-easterly in the spring and summer now than before, and with that comes overcast weather and cooler temperatures and yet the ice is going out faster, melting faster.” The increase of overcast days with precipitation, in the form of snow or rain brought by the south-east wind, is having detrimental effects on the sea ice. In these conditions the sea ice takes longer to form in the winter, and melts faster in the spring. Strong winds themselves can also make hunting difficult, since high winds that can cause ice break-off at floe edge and whiteouts, can delay hunting trips or cause hunters to become stranded while out hunting (Iyerak 1997; Kunuk 1997).

### **4.2.3 Snow**

In connection with this change of winds, people report more overall snowfall and snow accumulation than before (Amarualik 2008; Ikummaq 2008; Iqallijuq 1997; Paniaq

2008; Qaumaq 2008; Ulayuruluk). Inuit hunters have always had to be cautious when travelling on sea ice covered with snow since snow insulates the ice while also concealing thin spots. Therefore, with increased snowfall, these hazards are becoming more frequent. Ulayuruluk (2008) explains that the snow is now falling earlier in autumn, insulating the new sea ice and preventing the ice from forming:

The major difference in today's time is the snow falls soon after the ice forms and it never used to occur that way. But now with the snow falling, you cannot see where the thin spots are so again you need the use of a harpoon in order to feel your way onto the ice. (Ulayuruluk 2008)

In the spring, the snow is having similar effects as fresh snow makes the ice and old snow melt faster (Paniaq 2008). Therefore, the snow is making sea ice travel increasingly dangerous during the freeze-up and break-up periods and is shortening the time Iglulingmiut can safely travel and hunt on the sea ice. With a shorter hunting season, local Inuit will have to become more reliant on store bought food which is much more expensive and would require a job for cash. Amarualik (2008) recognizes that "if meat is not brought in and... if no employment does arise somewhere around this area then, you know, there'll be some hardships down the road."

#### **4.2.4 Rain**

Rain also has an impact on sea ice quality. A number of community members have observed wetter weather overall due to the more frequent south-east winds (Ammaq 2008; Kappianaq 1997; Paniaq 2008). There also appears to be more sleet, mixed rain and snow than in the past (Paniaq 2008; Kappianaq 1997). Kappianaq (1997) noticed

earlier on in this spring we have had some mixed rain and snow. In Inuktitut it is called *misullijuq*. If the mixed rain and snow was falling hard in the spring and if a person was faced with this weather condition, and if he didn't have a shelter with no proper change of clothing and no heating when his clothing becomes wet he could die quickly of hypothermia.

Rain and sleet in the spring contribute to sea ice melt, and this weather is also associated with the return of migratory birds (Paniaq 2008). However, there is some concern about the possibility of increased rainfall in the winter. For instance, “there would be a problem if [more rain fell in the winter time] because even a thin layer of ice on the snow would cause the rabbits, ptarmigans and the caribou to be unable to feed in the winter time” (Iyerak 1997). This build-up of ice on the snow could make access to food difficult and would lead to starvation for some local wildlife (Amaq 1997a; Amaq 1997b). Iyerak (1997) remembers a time when the rain came, formed ice on the snow and greatly affected the rabbit population:

I remember there was rain in the wintertime when we had taken a trip over to the Agu area. I forget exactly how long it rained, not many hours. During that time there was no sun because it was in the month of December but after the rain, the rabbits disappeared and there was none for years following the incident. It took years before the population was back.

#### **4.2.5 Sun, clouds and sky**

With the changing weather, people have also observed changes in sky colour and cloud cover, and the intensity of the sun. A number of Inuit notice the sun being stronger and hotter than before (Amaq 1997a; Amaq 1997b; Iqallijuq 1997; Kappianaq 1997; Qaumaq 2008). Kappianaq (1997) found “the direct heat from the sun is warmer, it is not the same anymore and you can’t help but notice that. It is probably not warmer overall but the heat of the sun is stronger.” The heat and the strength of the sun have major effects on the melting of ice and snow:

The sun has been shining sharper that shows things happen earlier. When there is a good summer or a bad summer it depends on the warmth of the summer. When the sun is hardly shining it would delay the melting of the snow if the sun is shining all the time it would help the snow melt fast and

therefore it would be a good summer (Amaq 1997a).

The intensity of the sun and higher ultraviolet radiation indexes are causing more sun burns, which were quite rare in the past (Ikummaq, personal communication 2008; Steger 2004). Iglulingmiut have to now be careful when drying animal skins outdoors, where they normally would have kept them, because the stronger sun is now burning and drying out the skins (Qaumaq 2008). The sun is also feeling warm earlier when there still may be a lot of snow on the ground (Iqallijuq 1997).

Hunters are noticing recently that the snow will melt even on overcast days (Iyerak 1997). In fact, the ice is now melting more on overcast days than sunny days.

In the past it would be a really sunny day and yet on the sun side of the ice pan it was melting and on the other side it wasn't. But with the overcast weather that we have now with the rain and what-have-you, it's melting from all sides and that's why they're not lasting as long. (Paniaq 2008)

Since the south-easterly winds are more predominant in recent times, people are noticing more overcast days. In the fall, Qaumaq observes, "when the weather becomes overcast, the sky will remain overcast for longer periods of time, sometimes up to two months at a time, whereas in the past the sky would alternate between overcast and clear skies" (Qaumaq 2008). Additionally, when the sky is clear, Qaumaq notes that its colour is no longer bright blue but is more a hazy blue colour. She believes that this may be due to pollutants and contaminants coming from the south. Conversely, the sky has been known to become hazy when a storm is approaching or the winds blow from the south. For instance, Eli Amaq (1997) noticed that "when there is going to be a storm, the sky is hazy and the sun is not as sharply shining as usual. This was known as *isirianngaktuq* (hazy). That is the way to know that there is going to be a storm." Furthermore, Kappianaq (1997) observed that "usually when there are going to be some strong winds

from the south the sky becomes hazy and then the clouds start to layer when the winds are going to be blowing for a long time.” Since southern winds have become more prevalent in recent times this may explain why the sky appears to have a lighter colour.

Another observation that was brought up during two interviews is a change in the position of where the sun rises and sets (Qaumaq 2008; Ulayuruluk 2008). For instance, Qaumaq has noticed “the [sun] rising further south than it used to, not east. It doesn’t go from east to west anymore. It goes from southeast to northwest... That has shifted” (Qaumaq 2008). These two individuals are not sure of the cause of this variation in the sun’s locations but it is an observation they have noted.

#### **4.3 Changes in animals**

Inuit identity and culture are closely tied to hunting and, therefore, Iglulingmiut have developed a profound knowledge of animals, their patterns and behaviour. Hunting is important for nutritional, economic and cultural reasons. It is not surprising that Igloodik hunters notice when there are changes in animal behaviour, patterns of migration and availability. Inuit also understand the relationships between animal behaviour, weather shifts and ice conditions. Animals change their locations depending on particular weather patterns, and Iglulingmiut use these indicators to forecast what weather to expect. For instance, walrus, seals and caribou are very useful in weather forecasting. Eli Amaaq and Alain Iyerak provide examples of this type of weather forecasting:

The movement of walrus and caribou are used to tell the weather changes. The walrus, even when the winds are not blowing yet but when the clouds at this time are forming, will start to go in one direction when there is going to be strong winds blowing soon. And in the winter time when the moving ice is going to move closer to the land fast ice, the walrus will go further ahead of this time also when the moving ice moves away from the land fast ice. That is when there are strong winds from the north blowing. Also the caribous are the same, they don’t all walk in the same direction

but you begin to see them in herds walking towards where the winds will start to blow from. (Amaq, E. 1997)

In the spring, when we are hunting on the ice if [seals] start to go down their holes before we could get within a shooting range, it means that the weather is going to change. All the animals are affected by weather changes, for instance if the caribou start to go in one direction this means that the direction where they are going to is where the winds will start blow from for a long period of time. (Iyerak 1997)

This knowledge of walrus behaviour used for weather forecasting is still used today by Igloolik hunters. Ikummaq (2008) demonstrates this, explaining how

[Inuit] rely on the walrus to tell us what the weather is going to be like... If the walrus are getting to the [floe] edge the wind is going to be from the north-west for some time, in that they're not going to get trapped by moving ice from the south-easterly wind. So therefore we know the south-easterly [wind] is not going to hit for the next week, two weeks. The walrus doesn't per se tell us exactly, but we watch the habits of the animal and that tells us what the weather is going to be like. (Ikummaq 2008)

Iglulingmiut observe animal behaviours to predict weather patterns, but they can also use weather indicators to predict animal behaviours and locations. For instance, in the spring, when the weather produces a lot of snow, sleet, and rain, the hunters know that the migratory birds are returning to the area and laying their eggs (Paniaq 2008). Hunters and their families look forward to this weather and the return of the birds so they can go egg collecting. Also, certain types of weather coincide with the birthing of certain animals. For instance, seal pups tend to be born on overcast warm days while caribou calves tend to be born when the weather becomes cold and wet (Paniaq 2008). Therefore, Inuit understand the connections between changes in animal behaviour and weather changes. However, when unattended changes occur in the weather and sea ice, the habitat, migration and location of animals are affected, as well as the Inuit ability to access them.

#### 4.3.1 Effects of diminishing ice on animals

As previously mentioned, sea ice is essential as a platform for travel and hunting. Hunters rely on the formation of the sea ice in order to access animals that are important for their diet, and also for economic reasons. When the ice is slow to form, hunters must be patient:

In the past when the ice first formed the hunters would wait, be instructed to wait until it formed well enough that they wouldn't chase the seals away... Even though that was the only food source they had, they waited for the ice to form better so that the seals wouldn't be able to move out easily... But now, even though the youngsters, the hunters are instructed not to go after the seals right away, they tend to do that. So therefore the seals might be moving out as soon as it's freezing up because of the traffic that's occurring on the sea ice. (Qaumaq 2008)

With the ice forming much later as of recently, this is really testing hunters' patience to wait for the ice to be safe enough. Consequently, if hunters do not wait for the ice to form to a safe thickness, they risk their own safety in order to hunt (and they affect seal numbers near the shore).

The changes in weather and sea ice cover and extent are also affecting the animals, particularly seals, walrus and polar bears. Although the animals will adapt to these changes, the changes in sea ice are displacing animals and making access to these animals more difficult for Inuit hunters.

[T]he animals have been different for part of the year. In that if you look at earlier this winter when the currents were stronger than they are today with the lack of ice forming... walrus and seals were inaccessible. Therefore they didn't seem to be around, but with the current easing off and the ice forming, again, the walrus and the seals became available. You could hunt them again. So their presence was there once that formed. As for the other animals, they're pretty much doing what they've always done. (Ulayuruluk 2008)

Due to the later freeze-up, areas where hunters regularly hunt, such as bays for walrus and seal breathing holes close to the Igloolik settlement, become inaccessible and hunting opportunities delayed. As a result, Inuit often have to travel further or over dangerous ice and terrain in order to access animals.

#### **4.3.2 Migration and arrival of new species**

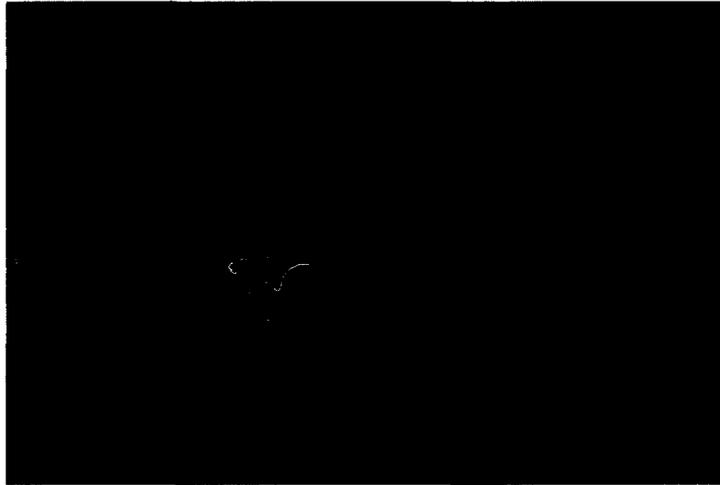
With seasonal changes and temporal variability of weather or environmental change, animals will migrate to different locations. Animals will follow food sources, and would move out of places where conditions have become harsh (Paniaq 2008). These changes are not necessarily new, and there are examples in the oral history of Igloolik. For instance, during 1947 or 1948 only one caribou was caught during a caribou hunt season on Baffin Island in the regular hunting area (Amarualik 2008). Amarualik was unsure why there were no caribou that year but suggested they may have migrated further south and that was why the hunters were unable to find any more. Although animals have regular migratory patterns, Igloolik hunters are aware of occasional changes over long term cycles. “My husband has been saying that the seals have been further away. I think this happens all the time that they change locations. For instance the caribou move to different locations sometimes” (Amaq 1997b). In the past, before the establishment of permanent settlements, Inuit had the flexibility to shift their own locations to where the animals went and did not have to worry about running out of fuel when travelling with dog teams. But now that Inuit live in towns and may only be able to hunt weekends and holidays, they cannot freely move to new locations if animals migrate elsewhere. As a result, if caribou change their locations away from their ordinary migration route, Inuit

must travel further distances and risk getting stranded from running out of gas or supplies, trying to reach the new hunting areas.

The biggest observed change in animal migrations and sightings that Iglulingmiut have noticed is that of polar bears. Polar bears were rare in the past in areas around the settlement. Today, however, polar bears are more numerous and are coming closer to Igloolik (Paniaq 2008; Qaumaq 2008). Many community members do not believe biologists' claim, based on estimates they calculate through a "catch-and-release" method, that polar bear numbers are decreasing, as they themselves are observing polar bears more frequently near town (Paniaq 2008; Qaumaq 2008). Paniaq (2008) stated that due to diminishing sea ice, the polar bears are staying more on the land. Polar bears may also be attracted into town due to the garbage dumps and meat brought into the community by hunters (Qaumaq 2008). In fact, during the winter of 2009 a mother polar bear and her cubs were found right in the community. Also during the winter of 2009, a hunter's full dog team that was tied up near town was killed by a polar bear (Ikummaq 2009, personal communication). The presence of polar bears is becoming a major safety hazard for the community and causing individuals to fear for their personal safety when travelling or camping (Qaumaq 2008).

Polar bears require the sea ice as a platform to hunt seals and walrus but because the sea ice is deteriorating, especially in the summer, they are travelling further inland in search for food (Paniaq 2008). Some polar bear biologists fear that the ice is melting faster than the polar bears will be able to adapt and they worry for the future of the polar bear population (Peacock 2008). While local hunters recognize that polar bears are being affected by the changing in sea ice, they also believe that they are very strong and

resilient animals and that they are already adapting and finding new sources of food (in this case relying more on human communities for food) (Ikummaq 2008; Paniaq 2008; Qaumaq 2008; Ulayuruluk).



**Figure 4.3: Polar bear spotted on the rough ice near the floe edge. The bear had just finished eating a seal he had caught from a breathing hole. May 27, 2008.**

As the environment changes, local animals either adapt to the changes or migrate to different locations while new animals may also migrate from the south. The Arctic has experienced changes in animals and birds over different time periods. In Igloodik, Inuit have noticed new species integrating into their local environment within their life time. For example, “[w]hen we were children there were no geese over here. I had only seen them in *Kangir&imajuq* [sic] area but I had never seen them here” (Kunuk 1997). Geese are now a common species of the Igloodik region and their eggs are regularly collected by Igloodik families in the spring. In addition, Ikummaq (2008) noted that “ground squirrels have migrated to the reaches of Igloodik, where if you look at 60 years ago, they were 150 miles or 200 miles south of here.” More recently, there have been new species like squid and octopus found in the sea around Igloodik, which had never been seen before (Ikummaq 2008). Inuit hunters have found these cephalopods in the stomachs of bearded

seals in the last three years. However, “nobody knows what effect they will have on the ecosystem. We know for a fact that they have to eat in order to survive. What are they eating? Are they competing with other animals for their food source?” (Ikummaq 2008). Furthermore, Ikummaq (2008) is also worried about chain reactions produce by those changes:

the lack of ice cover is affecting the animal world as we know it. The microscopic creatures are affected right there and then. When those get affected it gets a chain reaction on the food chain. I mean, drastic chain reaction. And then when new animals come in, they do even more drastic changes to the environment.

Some of the current environmental changes that people are experiencing are not fully understood and the present trends may bring more changes with unknown effects. Despite this, changes in animal migrations and weather have been an ongoing occurrence in the Arctic. Before settlements, Inuit had to be attentive to these migration patterns and changes in order to adapt. In fact, Inuit culture was largely based on being adaptable to change. It could be said that change was part of the Inuit culture (as opposed to being conceptualized as external factors or pressures). The fact that, in the Inuit worldview, the boundaries between nature and culture are fuzzy means that social and environmental changes may not necessarily be seen as discrete phenomena, in the sense that western science understands them to be. This may explain the difference in views that Inuit and scientists have of climate change.

This chapter described a number of environmental changes that Inuit are experiencing in the Igboalik region. These range from declining in extent and quality of sea ice cover to changing weather patterns, and changing animal behaviour and accessibility. As will be explored in the following chapter, however, local Inuit do not

necessarily conceptualize these changes as an exceptional global climate change, in the sense that scientists, politicians and the media do.

## **Chapter 5: Climate change narratives**

While Chapter Three offers a detailed ethnographic view of the Inuit of the Igloodik region, including their critical connections to the environment through their mobility patterns and their world views, Chapter Four describes how local Inuit perceive and talk about change, showing that Inuit are observant of a multitude of local changes. Those changes are not necessarily viewed as global phenomena that are putting pressure on community practices. While hunting, fishing and traveling are being affected by changes in animals, weather and the sea ice, Iglulingmiut are simply trying to adapt to the new reality. This resilience to change has been a constant feature of Inuit culture through their history. The new, contemporary, reality involves social, cultural and technological changes as well, which are relatively new occurrences for Iglulingmiut. People's relationships with the environment, therefore, are lived against a backdrop of multi-faceted transformations. One of these changes is that Iglulingmiut are not isolated from the rest of the world, as they are connected to larger contexts through the media, political organizations, and visitors. The narratives of environmental change that were shown in Chapter Four are often mingled with other narratives, including those produced by scientists, the media, and national and international Inuit organizations. In situations that go beyond the local experience, Inuit may assume different narratives. For instance, the language of such Inuit organizations as ICC and ITK incorporate both Inuit and scientific views of climate change. These different narratives of change are not necessarily in discrete opposition to each other. At times, they overlap and intersect. However, my research shows that the local narratives (and

perceptions) of change, are quite different from scientific and Inuit-national narratives represented in the media and in political debates.

While the main focus of this thesis is an ethnographic description of how change is perceived locally, local perceptions must also be understood in relation to other narratives of change that also make their way into Igloolik. Clearly, it is overly simplistic to come up with such labels as “Inuit local,” “Inuit national”, or “scientific.” Reality shows a multitude of voices in all three levels, but it could be said that each of the three levels has its own distinguishable traits. A larger, more comprehensive study of Inuit and scientific discourses of climate change in the Arctic should be attempted, but in the context of this thesis I will limit the task to the analysis of certain documents and speeches that seem to represent these two levels of narrative, and contrast them or compare them with local narratives of change.

Through analyzing the interviews I conducted, it became apparent that Inuit in Igloolik understand local environmental changes and global climate change in very different ways (for a similar finding in Alaska, see Marino & Schweitzer 2008). Local environmental changes are personally and socially experienced through daily practices and observations, while global climate change is often referred to as an abstract concept, mostly connected to media representations of scientific research. No matter the degrees to which individuals are more or less connected to personal experiences of change (e.g. active hunters) or to less tangible discourses of climate change (e.g. younger people with little hunting experience), both realities play a role in how the environment is perceived and talked about.

Everyday experiences of local or global change are not only perceived individually, but also communicated socially through narratives. These narratives are often rich in metaphors and meaning. Scientific or political narratives of climatic change and local observations of environmental changes are often entangled in very complex ways. Narratives are ways of expressing and articulating people's experiences, and of "making sense of our place in the social world" (Esterberg 2002:181). To make clear cut distinctions between Inuit local narratives and scientific narratives is tricky, as each narrative is often the context for the other (at least in the sense that local changes are sometimes connected to global change narratives). A narrative, then, is personalized by the narrator's interpretation of reality and, accordingly, a narrative's "meaning is fluid and contextual, not fixed and universal. All we have is talk and texts that represent reality partially, selectively, and imperfectly" (Riessman 1993:15). Narratives are shaped by "human agency" and "imagination" that "determine what gets included and excluded in narrativization, how events are plotted, and what they are supposed to mean" (Riessman 1993:2). As a result, it is clear that there are different types of narratives. Even the same actors may produce different narratives when contexts change and, because of this, their messages may appear conflicting. As Riessman explains:

[g]enres of narrative, with their distinctive styles and structures, are modes of representation that tellers choose (in concert with listeners' expectations, of course) just as filmmakers decide, based on their intentions and the market, what form the script will take, and what conventions will be used to represent character and action. Different genres persuade differently; they make us care about a situation to varying degrees as they pull us into the teller's point of view. (Riessman 1993:18)<sup>10</sup>

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<sup>10</sup> The fact that same actors can produce different narratives depending on the context, make the analysis of local opinions (such as the ones described in this thesis) difficult, as the context of the interview, and the

Igloolik narratives reflect local experiences of changes in the physical environment, but also local experiences with the climate change discourse transmitted through the media, government, Inuit national organizations and scientific research. Through the analysis of local narratives, connections and differences between local and global climate change perceptions and concepts can be seen.

### **5.1 Ideology in Inuit and scientific narratives**

A comprehensive discourse analysis is not within the scope of this thesis, but it will be useful to briefly discuss some characteristics of discourse that will inform my analysis of different narratives. Discourse is understood here as the connection between language, power and ideology (Fairclough 1995). Consequently, discourse analysis reveals the power relationships and the underlying meanings that a particular discourse infers. Rules and structures in society become normalized through discourse as “commonsense” and “truth” (Waitt 2000). In other words, people’s discourses reveal their ideologies, or views of the world. In fact, Fairclough (1989:27) notes that:

[i]nstitutional practices which people draw upon without thinking often embody assumptions which directly or indirectly legitimize existing power relations. Practices which appear to be universal and commonsensical can often be shown to originate in the dominant class or dominant bloc, and to have become naturalized.

This might be the reason for which Inuit organizations (as we will see below) adopt some elements of the scientific discourse. In the global and national scenes, it is clear that scientific perspectives on climate change have more authority than Inuit local perspectives. In the local context, the ideological power of scientific views is also perceived, as the climate change debate is installed in the media and in political

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presence of the researcher will certainly affect the type of narrative being created. I attempted to minimize this problem through the use of different interview sources.

discussions that involve the Arctic and its inhabitants. It is interesting, however, to see how local Inuit often clearly separate the two levels of discourse (one based on their personal experience of the environment, and the other on what they hear).

Inuit and scientists differ significantly in the ways in which they perceive the world. Although it is difficult to make generalizations, one can safely say that Inuit approach the world in more holistic or comprehensive ways, while scientists (particularly natural scientists) use the Cartesian model that separates culture from nature, customarily ascribed to by the dominant Western culture. Bielawski (1996:216) explains “Inuit do not separate people from nature, but Arctic scientists do. This contrast has resulted in incomplete science, management detrimental to Inuit, and conflict between Inuit and scientists in the Arctic.” The understanding of humans and the natural world as having a reciprocal relationship is absent from scientific research discourse (Cruikshank 2004). This understanding, however, is prevailing in Inuit and other Arctic and sub-Arctic indigenous peoples’ ways of approaching the world. For Inuit, like for many Arctic indigenous societies,

[h]umans, animals, spirits and several geophysical agents are perceived to have qualities of personhood. All persons engage in a reciprocally communicative reality. Human persons are not set over and against a material context of inert nature, but rather are one species of person in a network of reciprocating persons. These reciprocative interactions constituted the events of experience (Scott 1996:72-73).

This reciprocity between humans and nature is still apparent in Igloolik today. For example, Ikummaq (2008, personal communication) explained that, for Inuit, sea ice is understood to be a living thing as it follows a process from forming (i.e. birthing) to breaking up (i.e. dying). In addition, he describes *Ikiq*, the Inuktitut name for the Fury and Hecla Strait and Northern Foxe Basin, as *hungry*, in the sense that it requires human

lives periodically in order to be content. According to this idea, Inuit who are traveling across *Ikiq* must take extra caution since they do not know when *Ikiq* will take a human life. In sum, the Inuit view of the world does not clearly differentiate between the social and the natural, while scientists, on the other hand, do.

Natural scientists, and governments/organizations that rely on scientific research, see nature as something that can be dominated and manipulated. This view of “the technical mastery of an objectified nature is metaphorically connected to centralized social hierarchy and control” (Scott 1996:74). These metaphors of hierarchy and control are central to Western civilization ideology and are present in dominant scientific discourse of climate change. This hierarchy is most apparent in the unequal treatment of indigenous knowledge and scientific knowledge. In Western societies, science is the dominant method for measuring and understanding the world around us, while the knowledge of indigenous peoples is frequently deemed as being “magical,” “mystical,” and “not empirical” (Scott 1996). As a result, indigenous knowledge, along with the people who possess this knowledge, becomes subordinate to the authority of science and scientists. This dichotomy between science and indigenous knowledge is problematic as indigenous peoples

are described entirely in terms of their mystical beliefs, ignoring much of their empirical behaviour in everyday life [while] Europeans are described entirely in terms of scientific rational-logical thought, when they too do not inhabit this mental universe all the time (Tambiah 1990:90).

Scientific discourse is dominant among modern Western societies and is frequently used (implicitly or explicitly) by the media and in public policy, political debates, and government decisions. Furthermore, scientific discourse is often a means to

legitimize the validity and credibility of the information being transmitted. The legitimizing power of scientific discourse is most evident in media coverage about climate change. Climate change is measured by scientific standards (not by people's experiences of change), and hence the emphasis on, for instance, the "human carbon footprint" based on the amount of carbon dioxide in the atmosphere and using glacial ice core samples to measure these changes over time. Such scientific rhetoric is dominant in political debates and scientific assessments (ACIA 2004ab; Curran 2007; Hall 2007; IPCC 2007). However, Western science is not the only means to understand empirical information about the world we live in.

Inuit knowledge, for example, has also been found to be "consensual, replicable, generalizable, incorporating, and to some extent experimental and predictive," all of which are qualities generally attributed to science (Bielawski 1996:218). Social scientists are increasingly recognizing that Western science is *one* method for inquiring into the natural world. Despite the proven reliability and utility of indigenous knowledge, its value is usually accepted *only if* it is validated by scientific knowledge. Indigenous knowledge is often valued as a pragmatic approach to understanding the physical world, but it is also placed at a lower level on a hierarchy of knowledge that has science at its highest point. However, indigenous knowledge is an important contribution to world knowledge. Not only does indigenous knowledge provide alternative ways of understanding and perceiving social and physical environments but it also provides in-depth empirical knowledge and understanding of relationships between social/cultural, political, environmental and economic processes of local environments. Thus, by analyzing how Inuit characterize climatic and environmental changes one can understand

how Inuit relate to these changes, and how they negotiate their views within their continually evolving social and political contexts.

Instead of considering Inuit as having a uniform voice, this chapter shows levels of different and even conflicting opinions, especially when considering local Inuit and Inuit organization narratives. There are also differences among Inuit within the community, but it seems possible to claim that while most local Inuit are concerned with local changes, and see them as part of life, Inuit political leaders often use a scientific rhetoric to legitimate their positions in wider political and public debates. Within the community, there are also differences (and even tension) between local Inuit and temporary residents (i.e. seasonal workers, scientists, resource developers, Inuit who have been away from the community). These differences are also part of the context in which Inuit experience and talk about climate change. The following sections are based on interviews I conducted and interviews collected from the Igloodik Oral History Project (OHP), as well as on the analysis of selected documents produced by the Inuit organizations Inuit Tapiriit Kanatami (ITK) and Inuit Circumpolar Council (ICC), the Government of Nunavut (GN), Arctic social scientists and international scientific assessment research such as the Arctic Climate Impact Assessment (ACIA) and the Intergovernmental Panel on Climate Change (IPCC).

## **5.2 Climate change narratives of scientists**

It is not within the scope of this thesis to attempt a comprehensive analysis of scientific discourse of climate change. The volume of literature on climate change increases daily and there is also diversity of opinions. However, it is possible to select a representative sample of scientific studies based primarily on two factors: the focus or

emphasis on polar regions, and particularly in the Arctic, and the political importance and public prominence of such studies, as they are continually cited by the media. The analysis of these documents will permit the delineation of some common traits of the scientific approach to understanding climate change, and to compare them with Inuit local narratives at the end of this chapter.

The studies I will focus on in this section are the Arctic Climate Impact Assessment (ACIA) report and the Fourth Assessment report from the Working Group II of the Intergovernmental Panel on Climate Change (IPCC). The ACIA claims that the report is “designed to make the scientific findings accessible to policymakers and the broader public” (ACIA 2004: Preface). The IPCC full report identifies itself as providing “an authoritative international statement of scientific understanding of climate change” directed at students, researchers, policymakers and managers in government, industry and other organizations (Parry et al. 2007: i). I have chosen these studies in particular because both use an academic and scientific voice to communicate conclusive knowledge about climate change to a larger public. They were written for a broad audience and they are meant to provide a “consensus” perspective on climate change. For this reason, these documents convey an aura of authority, and as such they are widely cited in the media and in recent academic publications. These reports are powerful narratives which define climate change (and its causes) to a global audience. These reports also have a clear political message, as they provide recommendations on the actions nations should take in order to avoid or mitigate negative climate change impacts.

The IPCC and ACIA reports do not represent the views of the entire scientific community, but they do provide indications of the most common features of the scientific

discourse on climate change. Scientific literature on climate change has dramatically increased in the last few years. For instance, Oreskes (2004) found 928 published papers on global climate change between 1993 and 2003 in the *ISI Web of Science* database. Of these, 75% of the papers explicitly or implicitly accepted the scientific consensus of an anthropogenic climate change due to high levels of greenhouse gases. None of the papers outright rejected this view. However, between 2003 and 2007, she discovered in the same database that about 6% of the papers now implicitly or explicitly rejected the consensus view of a human-caused climate change. Despite this relatively small level of dissent, there appears to be a strong acceptance of the existence of anthropogenic climate change<sup>11</sup>. Kane (2004:536) is cautious of skeptics' conclusions as these "are politically useful to the oil industry and others who oppose mandatory reductions in greenhouse gas emissions." Regardless, it is important to acknowledge that even among scientists there are analytical discrepancies about climate change data and this variation of opinions can also be observed in narratives of indigenous groups like the Inuit. Here I will analyze how climate change is constructed in these narratives, and how these views are communicated to a broader public.

### **5.2.1 Arctic Climate Impact Assessment**

The Arctic Climate Impact Assessment (ACIA) (2004) was commissioned by the Arctic Council. The Arctic Council is an intergovernmental forum consisting of the arctic nations (Canada, United States, Denmark, Sweden, Norway, Iceland, Finland and Russia), indigenous peoples' organizations from these nations (Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit

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<sup>11</sup> For critical analysis of climate change science consult: Callaghan et al. 2004; Kane 2007; Michaels & Knappenberger 1996; Oppenheimer et al 2007; Schulte 2008.

Circumpolar Conference, Russian Association of Indigenous Peoples of the North, and Saami Council), official observers from additional European countries, non-governmental organizations and the scientific community. The Arctic Council's working groups, the Arctic Monitoring and Assessment Program (AMAP) and the Conservation of Arctic Flora and Fauna (CAFF), along with the International Arctic Science Committee (IASC) implemented the assessment. ACIA was written collectively by a large community of Arctic social and natural science researchers with some participation of indigenous representatives. ACIA provides a report that focuses entirely on the Arctic regions and includes "the special knowledge of indigenous people" (ACIA 2004a). The assessment produced two reports, a synthesis volume and a full report, both of which provide extensive information and analysis on the ecological and social processes affected by climate change. For the purpose of this thesis, I will analyze the synthesized report (ACIA 2004a), as it is the one that is most often cited by the media, and the one in which the authors make the effort to communicate their messages to different audiences.

The report states that there is "international consensus that most of the warming observed over the last 50 years is attributable to human activities" (ACIA 2004a:2). This warming is caused by increased concentrations of greenhouse gases (GHGs) (i.e. carbon dioxide, methane, nitrous oxide, and industrial gases: hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride), as a result of such activities as burning fossil fuels and clearing land, in particular in the industrialized world. As a result, "these changes are projected to lead to wide-ranging consequences including significant impacts on coastal communities, animal and plant species, water resources, and human health and well-being" (ACIA 2004a:2). The document also recognizes that even if extensive and

dramatic effort is taken by industrialized countries to adjust their human energy consumption to reduce GHG emissions, “the world will face some degree of climate change and its impacts for centuries” due to current GHG levels (ACIA 2004a:2). Therefore, climate change is a cumulative process, and the effects are already being felt around the world.

ACIA explains that climate change is being felt most intensely in the Arctic regions. This statement is supported by the fact that the “Arctic average temperature has risen at almost twice the rate as the rest of the world in the past few decades” (ACIA 2004a:8). The report makes clear that while Arctic communities are positioned within some of the most industrialized countries in the world, they contribute very little to GHG levels or to climate change as a whole. They are, however, positioned to experience the greatest consequences of climate change.

The ACIA also notes that the “climatic processes unique to the Arctic have significant effects on global and regional climate” (ACIA 2004a:8). Therefore, “people outside the Arctic have a great stake in what is happening there” (ACIA 2004a:8). This ACIA narrative attempts to motivate industrialized countries to care about climate change by using the Arctic as a barometer for change in the rest of the world. The ACIA recommends that adjustments in how industrialized countries produce GHG emissions are required to avoid future extreme climatic changes in the Arctic and the rest of the world. One of the most important aspects of the ACIA is the establishment of connections between the Arctic and global environmental problems. In other words, climate change in the Arctic is analytically linked to broader trends in the rest of the

world. Thus, it could be safely said that the climate change discourse is a globalizing discourse (Bravo 2009).

The biggest concern in climate change discourse is how changes affect human populations. The ACIA report discusses how Arctic indigenous peoples will be affected by climate change<sup>12</sup>. However, the report refers to “indigenous peoples” generically and does not highlight the diversity among Arctic populations. The report credits Arctic indigenous peoples as being resilient, stating that they “are uniquely adapted to what many outside the region would view as a very severe climate” (ACIA 2004a:4). These indigenous peoples have extensive knowledge and practical experience which have allowed them to adapt over time in the Arctic. However, the ACIA report also describes Arctic populations as very vulnerable. This vulnerability is partly due to the fact that Arctic communities have experienced an influx of non-indigenous people to the north, largely for resource development, to the point that now only 10% of the Arctic population is of indigenous descent (ACIA 2004a:6)<sup>13</sup>. This change in the Arctic social dynamic has put pressure on both the local cultures and physical environments. ACIA explains that even though many indigenous communities “continue traditional activities and adapt to the modern world at the same time” (ACIA 2004a:6), the traditional and modern ways of life are not always compatible. The ACIA is concerned that climate change will threaten traditional practices.

An important aspect of the ACIA’s narrative, therefore, is this assertion that indigenous groups are being threatened by Arctic climatic changes. The narrative of the ACIA clearly states that climate change is challenging the indigenous way of life and

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<sup>12</sup> Although the ACIA acknowledges many issues that Arctic communities face, only four pages of the 140 page report directly address human populations.

<sup>13</sup> This situation is different in Nunavut, where most of the population continues to be Inuit.

exacerbating the vulnerabilities of communities. The argument is that traditional practices of Arctic populations are the ways by which these communities thrived in the Arctic environment; yet as the climate and environment change, the knowledge of these processes changes as well. The report states that “climate change is occurring faster than indigenous knowledge can adapt and is strongly affecting people in many communities” (ACIA 2004a:96). The types of changes occurring include more “variable” and “unfamiliar” weather that “is behaving unexpectedly and outside the norm” (ACIA 2004a:96); the “sea ice declining” and the “stormy seas” becoming “more violent and dangerous” are making travel more “hazardous” and “endangering lives” (ACIA 2004a:96-97). The report goes on to say that the animal populations are declining and becoming less accessible and this is having effects on indigenous peoples’ diet and cultures. These assessments are supported in the document with some interviews with indigenous individuals across the circumpolar world. This narrative that describes the industrialized countries as the perpetrators of climate change and indigenous populations as victims to climate change is also found in the IPCC study.

### **5.2.2 Intergovernmental Panel on Climate Change**

The Fourth Assessment Report<sup>14</sup> of the Intergovernmental Panel on Climate Change was established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) to provide the world with comprehensive scientific information on climate change. This report differs from the ACIA in that it assesses climate change at a more global scale and describes the processes and effects of climate change in a number of geographical regions. There are

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<sup>14</sup> The Fifth Assessment Report is currently underway by the IPCC and parts of the report will be finalized for 2013 and 2014.

three Working Groups in the IPCC: Working Group I (IPCC 2007a) focuses on the physical sciences, Working Group II (IPCC 2007b) considers the impacts, adaptations and vulnerabilities of human and non-human populations, and Working Group III (IPCC 2007c) concentrates on the mitigation of climate change. Mitigation, in fact, “has been the primary focus of academic and political attention as a response to climate change” (Ford et al. 2007: 151). Adaptation to climate change has received less attention in the scientific literature, and adaptation policy is a relatively new phenomenon (Ford et al. 2007). Since Arctic populations contribute very little to GHG emissions, mitigation strategies are of minimal significance to Arctic inhabitants. Adaptation<sup>15</sup>, on the other hand, is a much more pressing issue. Here, I will focus on the IPCC report produced by Working Group II, as it is specifically concerned with adaptation and human dimensions of climate change. The Working Group II report is divided into twenty chapters, of which I focused particular attention on the chapters “Industry, settlement and society” (Wilbanks et al. 2007) and “Polar regions (Arctic and Antarctica)” (Anisimov et al. 2007) as they pertain most closely to this thesis.

The IPCC, like the ACIA, claims that industrialized countries are responsible for most of the GHG due to their lifestyle (Wilbanks et al. 2007). Mitigating the effects of climate change is also the responsibility of industrialized countries. Developing countries, on the other hand, are more likely to lack the financial, institutional and infrastructural capacities to cope with associated stresses and, as a result, are more vulnerable to climate change impacts (a situation also found in remote communities and indigenous

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<sup>15</sup> At the international level, the UNFCCC has established several programs to support adaptation, including the National Adaptation Programme of Action, the Kyoto Protocol Adaptation fund, the Least Developed Countries Fund, the Strategic Priority on Adaptation, and the Special Climate Change Fund (Huq 2006).

populations of Arctic countries) (Wilbanks et al. 2007). At the same time, IPCC recognizes that these developing societies are less likely to be worried about climate and weather as their concerns would be more focused on “survival, security, well-being, equity and progress” (Wilbanks et al 2007:361). IPCC notes that many societies can be resilient to change when this is gradual, but that they have difficulties to adapt when change is more dramatic, as it will be the case according to projections of climate change (Wilbanks et al 2007). Therefore, the IPCC recommends international collaborative efforts in mitigation and adaptation to climate change, including the sharing of knowledge and technology.

Like ACIA, IPCC recognizes the importance of the polar regions for the global ecosystem. Anisimov et al. (2007:655) describe the polar regions as “geopolitically and economically important; extremely vulnerable to current and projected climate change; the regions with the greatest potential to affect global climate and thus human populations and biodiversity.” IPCC notes that the most rapid warming has occurred in the Antarctic Peninsula (Anisimov et al. 2007:657). The authors state the North Atlantic seas show little evidence of warming, but they explain that this is likely due to their cold deep waters. The Arctic, the authors assert, is only in the early stages of human-induced climate change (Anisimov et al. 2007:656). The Arctic is becoming increasingly important to global politics and economies because, as the sea ice recedes, natural resources become more accessible. In the IPCC report, the Earth is represented as an interconnected and interdependent ecosystem. This connectivity is not only physical, through biological and ecological systems, but also social, due to international relations, economic interests and investments. IPCC states that there is an obligation for all

countries to cooperate in dealing with climate change. As stated before, much of this responsibility falls on industrialized nations.

According to the report, although indigenous peoples' culture and practices were assets to their survival in the Arctic in the past, now they contribute to their communities' increased vulnerability to climate change. Anisimov et al. (2007:661) state that:

the vulnerable nature of Arctic communities, and particularly coastal indigenous communities, to climate change arises from their close relationship with the land, geographical location, reliance on the local environment for aspects of everyday life such as diet and economy, and the current state of social, cultural, economic and political change taking place in these regions.

This statement, as we will see below, sharply contrasts with most people's views in Igloolik, but its main idea is often used by Inuit organizations. The report states that communities are already adapting to these changes, having retained a substantial capacity to adjust, but climate change is merely "one of several problems affecting Arctic communities and livelihoods today" (Anisimov et al. 2007: 661). These problems include social changes, culture and language loss, economic pressures, and the reliance on the wage-economy that is causing indigenous peoples to spend less time on the land "observing and developing the knowledge that strengthens the ability to adapt" (Anisimov et al. 2007:661). According to the study, the modernization of indigenous populations that made communities more sedentary and less active on the land and more dependent on settlements also makes them more vulnerable to climate change. IPCC explains that due to the complexity of factors affecting Arctic communities, the limits of the adaptive capacity of Arctic populations is currently unknown (Anisimov et al 2007:661). One implication of this narrative about modernization is that because nation

states dramatically altered the cultures of indigenous peoples, it is their responsibility to enable these indigenous peoples to adapt to current climate change.

A common thread in the discourse of both IPCC and ACIA is the emphasis on the issues of local community vulnerability and on identifying international responsibility in both causing and solving the problem. As Arctic communities are becoming more vulnerable, their knowledge of the land is considered inadequate on its own to adapt to climate change. Anisimov et al. (2007:674) note that “current social, economic and cultural trends, in some communities and predominantly among younger generations, towards a more western lifestyle have the potential to erode the cycle of traditional knowledge generation and transfer, and hence its contribution to adaptive capacity.” This suggests that Arctic communities require outside assistance to supplement their adaptive strategies.

While both ACIA and IPCC contain some important differences, it is possible to find some common elements that underlie both studies, and that are useful to consider in order to understand how these relate to Inuit local (experiential) and national (political) narratives. It should be noted that this thesis is not concerned with the validity of the climate change discourse, but with underlying assumptions regarding climate, people and nature. Some of these assumptions are as follows:

1. Inuit and other indigenous populations are seen as victims of climate change, and their livelihoods and cultures are understood as threatened;
2. social, cultural and technological changes are seen as factors that will result in erosion of “traditional” adaptive capacities. This idea about change and tradition in aboriginal groups could be also seen in environmentalist campaigns against sealing (e.g. Wenzel 1991);
3. agency to Arctic communities is reduced to a minimum, and is mostly connected to the much stereotyped adaptive capacities of Inuit;
4. local (Inuit) observations are merely anecdotes in both reports, although the ACIA contained more indigenous voices; and,

5. most importantly, both documents clearly treat nature as separated from humans. To be sure, both reports describe the complex ways in which human action affects natural environments, but this relationship is far from the intricate entanglements implicit in Inuit cosmology, as described in Chapter Three of this thesis.

The above points are connected. One of the problems with the categorization of Inuit as victims, and of climate change as provoking environmental and cultural crises, is that in such analyses the victims are often deprived of agency. Roe (1999) calls this type of assertion “crisis narratives”, and he defines them as:

the primary means whereby development experts and the institutions for which they work claim rights to stewardship over land and resources they do not own. By generating and appealing to crisis narratives, technical experts and managers assert rights as “stakeholders” in the land and resources they say are under crisis. (Roe 1999:1066)

This is not different from what seems to be happening in the climate change debates, where the environmental and cultural crisis is often seen as a reason for more government intervention.

The climate change narrative allots the power in decision making and action to governments and scientists. Although Inuit knowledge of the Arctic environment contributes to some of the research facilitating policy-making, the dominant climate change narrative describes Inuit as vulnerable and as a society that is losing their culture and specific practical knowledge due to the effects of climate change. These narratives present Arctic communities as the victims and international policy-makers and scientists as the protagonists in the climate change debate. As I discuss in the last section of this chapter, Inuit organizations and leaders borrow from this discourse in order to articulate their message in some political arenas.

### **5.3 Local Inuit perspectives of climate change**

A variety of observed environmental changes, including changes in weather, sea ice and animals, has been described in the Chapter Four. But how is the global climate change received and constructed by local Inuit in Igloodik? Do they see themselves as victims of a global climatic crisis? The answers provided by the people I interviewed, as well as information from other local sources, suggest that the emphasis in the community is connected to their own ability to adapt to the new changes in the same way that they adapted before.

In the interviews, community members seem to have different takes on the meaning of global climate change. It was also obvious that when specifically asked about global climatic change, the interviewees did not resort exclusively to their own experience of the environment. Their opinions reflect what they hear on a regular basis from the media and from scientists themselves. This section, however, is not concerned with establishing the “authentic” Inuit local discourse on climate change. The main goal of this section is to highlight some underlying assumptions in the Inuit local narratives that seem relevant, and, whenever possible, to contrast them with dominant global narratives.

#### **5.3.1 What is climate change?**

Some Inuit I spoke with believe that climate change is mostly natural and that the environment is only following the course that their elders had predicted long ago (Ikummaq 2008; Kotierk 2008; Qaumaq 2008). Climate change, my interpreter and informant Ikummaq explains, “...means life. Climate has been changing for over so many years. It’s constantly changing so climate change is natural, is how we look at it”

(Ikummaq 2008). One of the most common themes among my interviews is the observation that the climate and environment have always been changing with considerable year to year variability. Most Iglulingmiut see change as normal and expect continual weather and environmental changes to occur. For example, in 1993, an Inuk hunter, Hubert Amarualik (1993) described what he and previous generations have observed:

the snow started to melt which appeared to be early for some people, that is because the prevailing winds were from the southerly direction and it had overcast condition most of the time. When it reached this part then it was thought that the summer was early last year. This in fact is not something new that is part of the pattern and had happened before. It is not something irregular that causes concern, there are some years that usually melt about the same time as the last, and there are some years that are completely different. I know this because I have seen it and have heard about it from the people of the past.

Although Iglulingmiut have observed numerous recent environmental changes, many elders mention how similar changes had occurred in their own lifetime or in previous generations (Ikummaq 2008; Kotierk 2008; Qaumaq 2008; Paniaq 2008; Ulayuruluk 2008). Since these changes have occurred before, they are expected to occur again. This explains why in 1993 Amarualik, when asked if he believed the scientists' claim that the weather was getting warmer, stated that he did "not exactly believe them... It differs from year to year, there are some summers that are weak and there are those that are strong" (Amarualik 1993). This emphasis on the natural and cyclical variability of weather was also reflected in the interviews conducted by Shari Fox in 1997, as well as the interviews I conducted in 2008. When local Inuit were asked whether they believed that the climate is changing, there seemed to be a general consensus of uncertainty:

- “I can’t say. Before my time there were times when the ice did not melt or go away due to a cold summer season. That is the only thing I know that each year is always different from the year before” (Iyerak 1997)
- “I guess so if the scientists are saying it. The weather seems to change from year to year. If the weather is good one year then it is bad the following year, so for that reason I can’t say.” (Amaq 1997a)
- “It’s the same as it has always been, changing from year to year.” (Amarualik 2008)
- “I don’t think the people are too worried ‘cause every season it’s a different story and anywhere you are in the world or in Igloolik or camping, you always have to adapt to your surroundings, environment, and if you worry or complain about the weather it’s not going to help.” (Kunnuk 2008)
- “[I don’t] think of it as unusual. Like [I] said in the beginning, the weather is constantly changing from year to year. So no two years are the same.” (Paniaq 2008)

The most common observation is that the climate has always changed, and so for Inuit the fact that climate continues to change now is neither surprising nor something to be concerned about. Bravo (2009:277) also discussed similar local perspectives, including that despite Igloolik’s direct contact with global narratives of climate change by the flow of scientific researchers through the community, a number of Iglulingmiut “play down the idea of climate change crisis.” He concluded that Iglulingmiut emphasize that the changes are part of the “earth’s climatic cyclical variability” (Bravo 2009:277). Since Inuit have adapted to climate variability in the past, local Inuit deduce that they will be able to adapt in the future.

### **5.3.2 Focus on adaptation**

One of the recurrent themes in the interviews I analyzed is adaptation. Many believe that they will adapt to the environmental changes taking place and will continue to adapt as the changes progress. Ikummaq (2008) points out that “the Inuit accept that the weather, the climate, the animals are constantly changing. And we know, we keep that in mind, and with the changes we adapt to that. So with this warming trend, we adapt

to that as well. So again, everything is normal.” Even though the community has observed changes, they are often considered gradual and not happening fast enough to cause any alarm (Ammaq 2008; Ikummaq 2008; Kunnuk 2008; Ulayuruluk 2008). Ikummaq (2008) thinks that Inuit who leave the community for long periods of time may come back and find a lot changes, but he explains that the Inuit who deal with the local environment on a daily basis are adapting to these changes in a gradual way. This opinion is widely shared in the community. Kotierk (2008) observes that “people seem to be very matter-of-fact about [change]... we’ll adjust to this, we’ll deal with this. The adaptations to [climate change] will be there, you know, we’ll survive. We’ve survived other things and we’ll survive this.”

Many Iglulingmiut stated that not only people, but also animals will adapt (Amarualik 2008; Ikummaq 2008; Kunnuk 2008; Paniaq 2008; Qaumaq 2008; Ulayuruluk 2008). Inuit are not overly concerned about the well-being of animals because animals are themselves considered capable of change and of adjusting to environmental changes. This recognition of animal agency is remarkably different from the scientific perspective that sees climate change as a threat to many animal species (ACIA 2004a; IPCC 2007b). This scientific perspective has been adopted by many environmental groups and government agencies that push for action to protect “vulnerable” animals, most notably the polar bear (Greenpeace December 2005; ICC January 2008). Inuit conversely believe that polar bear numbers are increasing (Thompson 2007) and that they are in fact adapting to the changing environmental realities.

Some Iglulingmiut (Ammaq 2008; Ikummaq 2008; Ulayuruluk 2008) find that the changes occurring are not dramatic enough to prevent humans and animals to adapt. Ulayuruluk (2008) assures that "if you look at what's happening here, it's gradual. It's not as if it was this one year and this the next year. It's slow. It's gradual. So [I'm] not worried about it. [I] can adapt to it." In the same line, local hunters state that they have adjusted to the new characteristics and patterns of sea ice (Ikummaq 2008; Paniaq 2008). Some younger hunters, however, avoid going to the floe edge and moving ice all together, as they consider the sea ice to be more treacherous (Kotierk 2008).

Some local Inuit do recognize that potential changes could become problematic or even dangerous. Ammaq (2008) describes that "if every year the ice gets thinner and thinner and thinner, that's when I would start worrying." She notes that the ice is getting thinner but not to the point that the community finds it too dangerous. Other hunters discuss how the sea ice now forms later and breaks up early, but this lack of ice is more noted as an inconvenience than a concern since it shortens the hunting season considerably. "The way with the weather warming as it is of late, where you have late freeze-up and early melt, it's not beneficial to the hunters at all" (Ulayuruluk 2008). Since the hunting season is now shortened due to the reduced safe ice travel in the winter, hunters may take more risks, traveling further on land or over questionable ice.

### **5.3.3 Talking about change may provoke the change**

What is apparent among the Igloodik interviews is a level of uncertainty about climate change as something extraordinary and as something dangerous, as the "crisis narratives" described above portray. When answering direct questions about climate change or potential effects of climate change during interviews by Fox in 1997, a number

of the Inuit responded with such phrases as “I can’t say,” “I guess so,” “I cannot imagine,” “I don’t know” and “I cannot answer that.” In 2008 during my interviews, Inuit gave a range of responses about climate change. A number of local Inuit find that climate change has had a small impact, if any, on the community (Amarualik 2008; Kotierk 2008; Kunnuk 2008; Qaumaq 2008). For example, Kunnuk (2008) finds “here around [Igloolik], we see very few changes and we have a very small effect... maybe worldwide it has a big effect but locally we have a very small effect right now.” Kotierk (2008), a young adult Inuk who was away from Igloolik for about 15 years, says he has noticed little change in the Igloolik area from when he was a child:

I was away for 15 years, so maybe my sense of awareness of patterns is off or whatever. But from while I was away, here I would remember going egg picking, going camping, the mosquitoes, making *igunaq*<sup>16</sup>. I don’t know, just all these different activities and they’re still around. I come back and we still go egg picking, there’s still mosquitoes, there’s still *kanajuk*<sup>17</sup> in underwater, there’s still camping, there’s still walrus hunting. There [are] still all these activities still going on. We still go skidooning, we still go boating and so for me I want to say that no, as far as I’m aware, no [climate change] hasn’t had an effect.

Conversely, Kotierk (2008) explains that many Igloolik elders disagree with him saying that the Igloolik region has experienced a lot of environmental changes and he does not notice them because he has not been there. In general, however, most local Inuit seem to be skeptical of a cataclysmic climatic change process.

When current changes were noted by the Iglulingmiut interviewed, these comments were frequently followed by stories of previous environmental changes in the past or of how elders had predicted current changes (Amarualik 2008; Kotierk 2008; Kunnuk 2008; Qaumaq 2008). In fact, Qaumaq (2008) explained that when her children ask her about climate change she “tells them that it was foretold that the climate was

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<sup>16</sup> Fermented walrus meat.

<sup>17</sup> Arctic sculpins.

going to change. So [I] simply tell them to be able to adapt to changes as they occur.”

Generally, many Iglulingmiut explain that they do not give climate change much thought (Amarualik 2008; Kunnuk 2008; Paniaq 2008; Qaumaq 2008). Part of the reason for this is that Inuit, like the Inupiaq in Alaska (Marino and Schweitzer 2008), do not try (or prefer not to) anticipate the future (Ikummaq 2008; Paniaq 2008). Talking about the future or predicting future events is only done by skilled and experienced elders or, traditionally, shamans (Amarualik 2008; Ikummaq 2008; Inuksuk 1997; Iyerak 1997; Qaumaq 2008). To discuss or argue about the future was believed to greatly affect the outcome of events and thus such arguments are discouraged (Ikummaq 2008; Qaumaq 2008). For example, Qaumaq (2008) explained that:

[i]t has been known that there shouldn't be a disagreement on any animal at all, more so the fish. The fish is the first to go. But [I know], or [I] was instructed that even if disagreements are brought upon by polar bear, the polar bear is not going to budge. It's one of the hardest animals to talk about and then make it vanish, whereas other animals, if you have a disagreement, those tend to move out all together.<sup>18</sup>

As a result of this, local Inuit prefer to talk about current experiences of environmental changes but not about global climate change projections. For some local Inuit, climate change is understood as an abstract issue that might be affecting other communities around the world but has not yet affected Igloodik significantly (Ikummaq 2008; Kotierk 2008; Kunnuk 2008; Qaumaq 2008). Since current environmental changes fit within their oral history of variability in climate, these changes are not necessarily credible evidence for unusual climate change among the Inuit.

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<sup>18</sup> Qaumaq's statement can also be viewed as a critique of international discussions on endangered species. In this regard, the heated debates over the survival and preservation of animals may be more destructive than the actual environmental changes.

Some interviewees made the point of comparing their own observations to the climatic change discourse they hear in the news. For instance, Amarualik (2008) commented that “when [the news is] saying the environment is getting warmer, it’s not getting any warmer. There’s no global warming.” She continues, saying she hasn’t “really seen change in the environment. It’s the same as it has always been, changing from year to year.” Throughout her interview she also describes that the sea ice is now forming later, that there is more snowfall and that “once the ice forms, the snow comes and she knows for a fact that it’s now dangerous to travel on as well,” but these changes are assumed to be part of a cycle. Other Inuit also shared this attitude of noticing environmental changes but not attributing them to extraordinary climatic events (Ammaq 2008; Qaumaq 2008). Climate change is discussed, but often in connection to local and experienced changes, rather than to projected future transformations and dangers.

Hunters seem to prefer to talk about the past, instead of discussing the future. It should be noticed, however, that in the Inuit cyclical view of environmental changes, talking about the past may help in understanding the future. A good example of this is the discussion about the potential harm of freezing rain, mentioned by several hunters (Amaq 1997a; Amaq 1997b; Iyerak 1997). Freezing rain is dangerous as it prevents caribou and other animals from accessing to ground vegetation. The hunters talked about freezing rain in relation to their previous experiences and how it affected the wildlife. They were, in fact, talking about the past, but considering the perception of environmental change as cyclical, it is possible to argue that such narratives also contemplate future events. Past experiences, will, at any rate, help people to adapt to changes in the future.

To summarize this section, most local narratives of climate change in Igloolik share some or all of the following underlying assumptions:

1. According to oral tradition, there exists cyclical variability over long periods of time. Therefore, changes as remarkable as the ones experienced today have been dealt with in the past.
2. While climate change may exist, worrying about the weather is not going to help. The Inuit cosmology, in which environmental and cultural factors are related, suggests that talking about change may in fact create change.
3. Animals have agency. According to most Inuit consulted, both humans and animals will adapt. Animals know how to deal with changes in the same way that humans do.
4. Changes so far have been gradual and people have been able to adapt.

Some of these assumptions are shared by national Inuit organizations, but, as we shall see in the following section, Inuit leaders occasionally utilize the scientific discourse in intersection with these Inuit assumptions in order to legitimize their own voice in climate change debates.

#### **5.4 Inuit national narratives**

While Inuit and scientific views of climate change seem to pertain to two completely different ways of approaching reality, it is interesting to see that in some situations, these two perceptions intersect. Such is the case in some public documents and statements by Inuit organizations where scientific and Inuit views are entangled. One particular assumption that has been used by Inuit organizations is the view of Inuit as a vulnerable population, therefore adopting the crisis narrative described above.

While a detailed analysis of the Inuit organizations discourses on climate change is not within the scope of this thesis, I will provide a brief overview of some significant statements, as well as a series of studies commissioned by the Nunavut Government in order to illustrate Inuit perspectives at the national and territorial levels.

The Inuit Circumpolar Council, ICC<sup>19</sup>, has articulated their position in the climate change debate in several documents, such as its Annual Reports of 2006-2007 and 2007-2008, press releases, and through public speeches and letters of former president Sheila Watt-Cloutier. Both annual reports (like the scientific documents analyzed above) describe the Arctic as “the early warning system” of climate change for the rest of the world (ICC 2007). To ICC, the Arctic ecosystem is the indicator of global environmental health (ICC 2008). As well, the ICC agrees that climate change is human-induced due to worldwide GHG emissions and that the Arctic will be disproportionately affected by climate change impacts (ICC 2008).

More importantly for this analysis, ICC also suggests that climate change is and will be detrimental to Inuit culture. ICC states that climate change is already affecting all aspects of Inuit life, as it is felt in the “environment, economic development, culture, wildlife, health and wellness” (ICC 2008). ICC suggests that Inuit need more than their previous capacity to adapt, requesting international efforts to mitigate climate change impacts and facilitate Inuit adaptation (ICC 2008; ICC 2009). These statements correspond well with the scientific discourses contained in ACIA and IPCC reports, which state that:

1. climate change is caused by international emissions of greenhouse gases;
2. climate change will be greatly felt in the Arctic region and is negatively affecting Inuit communities;
3. Inuit require help to adapt to climate change; and,
4. climate change is the responsibility of international governments and collaborative effort is required for mitigation.

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<sup>19</sup> ICC was originally called the Inuit Circumpolar Conference, was founded in 1977 and is an international non-governmental organization that represents more than 150,000 Inuit from Alaska, Canada, Greenland and Chukotka, Russia.

A major difference between the ICC and the ACIA and IPCC documents is that the Inuit organization emphasizes the importance of Inuit involvement in the discussions of climate change policies and their collaboration with different levels of government and with scientists. Watt-Cloutier, when presenting at the Arctic Science Summit Week in Iqaluit, Nunavut (March 2001), stated that Inuit involvement should be integral to research on climate change. She demanded that “Inuit refuse to act the part of ‘helpless victim’ in this global play. We don’t want to be ‘consulted’ by southern agencies – governmental or non-government. Instead, we want to partner with those committed to addressing the issue and to help us do so, over the long-term” (Watt-Cloutier 2001a). However, Watt-Cloutier later added a new dimension to the climate change issue that seems almost contradictory to her anti-victim narrative described above. At the UNFCCC’s Conference of Parties in Milan, Italy on December 10, 2003, Watt-Cloutier explained that “ICC believes it would be internationally significant if global climate change were debated and examined in the arena of human rights – an arena that many governments, particularly those in the developed world, say they take seriously” (Watt-Cloutier 2003b). In framing climate change as a human rights issue, Watt-Cloutier “draws attention to the position of Inuit as indigenous people with nation-states, and in particular to broader aspects of indigenous rights” (Nuttall 2008:294).

To ICC, Inuit involvement in the decision-making of climate change strategies could imply that the measures taken are sensitive to Inuit, allowing them to exercise their right to self-determination. Many of the goals expressed by ICC are also reflected at the national level with the Inuit Tapiriit Kanatami (ITK)<sup>20</sup>.

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<sup>20</sup> The ITK was founded in 1971 and is the “national voice of Canada’s Inuit” (ITK website).

In the ITK Annual Report 2008-2009, climate change, and in particular adaptation to climate change, are reflected as main concerns for Inuit today. ITK president Mary Simon declared in the opening message of the report that climate change is accelerating, and all nations and peoples need to work together to “assume their full responsibilities of fending off worst case scenarios by dramatically reducing carbon emissions” (ITK 2009). Like ICC, ITK agrees that climate change is a human-induced phenomenon and requires global effort to slow the “climate crisis.” At the same time, ITK recognizes the importance of increasing scientific research and community-based collaborative research to better understand the effects and potential adaptive strategies to climate change. In order to promote this collaboration, ITK has been involved in increasing Inuit visibility at climate change conferences (e.g. Arctic Change Conference 2008) and promoting the importance of the exchange of Inuit-science knowledge for better overall understandings of the natural world (ITK 2009). In fact, the ITK also published the book *Unikkaaqatigiit: Putting the human face on climate change* (Nickels et al. 2006), describing Canadian Inuit experiences of climate change. Inuit, the book explains, are already feeling the effects of global warming firsthand and have already taken the lead in developing their own adaptation strategies that are both relevant and culturally important. Therefore, ITK sees cooperation between Inuit, scientists and governments as integral for the development of successful climate change adaptive strategies.

Simon, like Watt-Cloutier, is a visible public Inuit figure who has spoken at numerous national scientific and policy related conferences. She echoes Watt-Cloutier’s view of climate change, at the *2030 North Conference* in Ottawa (June 2009), stating that “all countries must commit to slowing down and stabilizing, within finite timelines, the

production of carbon emissions that will otherwise push planetary temperatures to disastrous levels. The urgencies of addressing climate change transcend all other issues” (Simon 2009). Simon shares the claims by ACIA and IPCC on the severity of climate change and necessity for prompt action to reduce the severity of climate change impacts.

The previous ITK president, Jose Kusugak, also explained that Inuit “must play an integral role in studying climate change and in any efforts to curb and adapt to it” (Nickels et al. 2006:9). Following on the same line, Simon (2008) explained that

Inuit find themselves at an interesting point in our modern history – we live in a part of Canada that is at the forefront of sovereignty discussions, at the centre of energy supply plans, and has been the ‘canary in the coalmine’ for the global dialogue on climate change. However, the reality that exists in many of our Arctic communities calls into question one of our core Canadian values – social justice. And yet, this has not made it to the forefront of policy discussions.

Simon noted that this involvement of Inuit is even more relevant and necessary today with increasing international recognition of indigenous people’s rights, as reflected in the United Nations Declaration on the Rights of Indigenous Peoples. In fact, Simon deems that “for legal, political and practical reasons, the new Arctic and Northern policy universe now requires the full participation of Aboriginal peoples” (Simon 2009).

Beyond the Inuit organizations, the Government of Nunavut (GN) has also attempted to assess and articulate the effects of climate change among Inuit populations. The GN Department of Environment commissioned four studies across Nunavut between 2001 and 2003 to document *Inuit Qaujimagajatuqangit on Climate Change in Nunavut*<sup>21</sup>

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<sup>21</sup> The studies were carried out in order to contribute to the National Climate Change Strategy and Implementation Plan. This strategy aims “towards the reduction of greenhouse gas emissions, the identification and monitoring of climate change impacts and the development of adaptive strategies as required” (GN website). The inclusion of this in the thesis does not attempt to be a statement of the GN position on climate change. The reports are simply cited to illustrate how some of the assumptions used by the Inuit organizations have also found their way into the territorial government documents and policies.

(Environmental Protection Division, 2005 a b c d). These reports investigated Inuit experiences of climate and environmental changes in Baker Lake and Arviat of Kivalliq Region (GN 2005a); Clyde River, Pond Inlet, Resolute Bay, and Grise Fiord of the North Baffin Region (GN 2005b); the Kitikmeot Region (GN 2005c); and Pangnirtung and Iqaluit from the South Baffin Region (GN 2005d). These reports emphasized the value of Inuit knowledge and the importance of integrating traditional and modern conventions together for dealing with climate change and adapting to the changes experienced in communities.

The GN reports also claim, in line with the ACIA and IPCC reports, that climate change has rendered Inuit knowledge or *Inuit Qaujimagatuqangit* (IQ) inadequate on its own to enable Inuit adaptation to climate change. As a result, “[n]ew strategies and knowledge must be advanced for adaptation to the impacts” (GN 2005a). The report suggests a deterioration of Inuit knowledge, especially among youths. This loss of critical knowledge was also highlighted in the ACIA and IPCC assessments, suggesting need for outside intervention. The GN, however, suggests that collaborative community-based research be utilized to integrate Inuit knowledge and science in order to preserve IQ as well as benefit from its depth of knowledge.

### **5.5 The local, the national and the global**

While the use of some aspects of the scientific discourse by Inuit organizations does not involve the passive adoption of a dominant viewpoint, it does, however, illustrate that new contexts have an impact in the ways in which Inuit views are articulated, at least in the political arena. While, at the local level, discourses of local environmental change and climatic global change are kept fairly separated, both views

seem to intersect in the language that Inuit leaders and Inuit organizations use in their public reports and declarations. While local Inuit narratives tend to reject the idea of crisis and are reluctant to assume their own role as victims, the statements analyzed in the preceding section seem to indicate that Inuit organizations articulate their views within the framework of a crisis narrative.

The adoption of this crisis narrative could be seen as an adaptive strategy on the part of Inuit, in order to be heard in international and national debates. To some degree, this is a case in which an indigenous group appropriates a dominant discourse in order to be heard, in the terms that the dominant society sets. However, I believe, with Appadurai (1988), that this type of analysis often reduces indigenous peoples to situations in which they are “incarcerated” to particular localities. Appadurai believes that putting too much analytical stress in locality involves not only confining indigenous peoples to a physical location, but also to “what they know, feel, and believe. They become prisoners of their “mode of thought”” (Appadurai 1988:37). Appadurai believes, on the contrary, that in the new globalizing contexts, strict separation between the local and the global are analytically incorrect, and he proposes a new type of ethnography, not necessarily reliant on geographic boundaries. I prefer to analyze the appropriation of scientific discourse by Inuit organizations in the context of theories as fluid entities that choose appropriate adaptive responses to their current contexts (Salzman 1980). Ingold (2000) described local knowledge as a process of “enskillment” which is continuously being discovered through engagement with the environment. It could be safely said that Inuit continue to engage not only with their physical, but also with their social and political environments, discovering new ways of living in the world. Inuit, then, are not necessarily anchored in

their own traditions. As Escobar (1998:63) eloquently states, cultures can be seen as being “an always changing project of cultural and political construction.”

At the same time, the adoption of the rhetoric of science has some consequences. As has been suggested by some authors, like Bravo (2009) and Nuttall (2008), victimizing discourses may have negative repercussions on Arctic aboriginal groups. Bravo points out, using Ferguson’s (1990) interpretation in the context of international development, that defining communities as “at-risk” and vulnerable, justifies “expert intervention” and legitimizes “the interests of elites amongst the recipients of international aid, rather than the people further down the food chain who are supposed to benefit” (Bravo 2009:262). Bravo (2009:263) also states that “a proliferation of climate change frameworks and policy studies might introduce a new set of distortions into policymaking that exacerbate existing inequalities rather than mitigate the real suffering caused by climate change.”

Inuit narratives show significant differences depending on whether they are produced within a local, personal context or within a national, political context. While “climate change” is generally downplayed as a topic of concern at a local level, it is clearly and strongly addressed by Inuit organizations and the Nunavut Government. The victimization discourse has not, however, been universally accepted by all Inuit organizations. For instance, Nuttall (2008) points out that Josef Motzfelt, a member of parliament in Greenland, actually finds climate change could be beneficial for future economic growth in the country. Motzfelt explained that

while reduction in ice cover may have a negative impact on some hunting activities, it may open up new opportunities for other activities in our society, like fisheries. A new generation of hunters and fishermen, building on their ancestor’s skills, knowledge and cultural socialization,

adds to this by learning how to cope with the changes. In the way we look at climate change we have a saying that “nothing is so bad that it is not good for something else.” (Quoted in Nuttall 2008:295)

In this case, climate change is viewed as an opportunity rather than a deterrent. This perspective seems to be shared in the Greenlandic context, but it seems absent from the political views expressed by Canadian Inuit and ICC.

Inuit in Igloolik provide an alternative to the victim/success perspectives, producing a narrative where adaptation assumes a very important role. However, this is done within the local contexts of experienced realities, and not in the political arenas where Inuit organizations must negotiate their roles. It would be simplistic to argue for a rupture between Inuit political leaders and the local reality of Inuit peoples across Nunavut. Instead, it appears that while local Inuit retort to adaptive strategies to deal with local environmental changes, Inuit politicians use the same adaptive capacity in the context of political change. In fact, while the contrasts of opinions are clear, there is no evidence to suggest that Inuit, both at local and national levels, see this as a problem. It seems, on the other hand, that there is an assumption that while Inuit organizations and politicians are doing their best to cope with a changing political reality, local hunters and other inhabitants are doing their best to cope with environmental changes. It is also obvious that ICC and ITK are lobbying for deserved Inuit participation in the discussions and decision making of adaptation and mitigation plans to climate change. In this sense, the adoption of some aspects of the scientific discourse seems like a plausible political strategy.

While the scientific, Inuit local, and Inuit national discourses seem, at many levels, to be significantly different, there also are points in common that may, perhaps, become starting points of collaboration. Some potential points of intersection are that:

1. scientists, local Inuit and Inuit politicians agree that environmental changes are taking place and that these changes are affecting local communities;
2. Inuit knowledge is recognized as valuable for community adaptive capacity to these changes; and
3. adaptation to these changes can be aided through harmonizing effectively the use of modern technologies and techniques with Inuit environmental knowledge.

Ultimately, although climate change is a global issue and requires a global response, it will also require local players to carry out the changes. Roe (1994:122) explains that “experience to date also suggests that what works best in terms of reducing pollution are programs at the local level and policies at the national level, with regulations working less well in between, and international efforts least effectively at all.” Therefore, action is required at all levels to ensure effective responses to climate change. The Inuit adaptive and collaborative approach to climate change may provide flexibility in the development of climate change strategies that are locally relevant. Current strategies include the preservation of Inuit knowledge through Oral History Projects; the application of Inuit knowledge in its environmental context through survival land-skill programs (Takano 2005); and the incorporation of new technologies such as customized GPS units and satellite imagery that are adapted to specific cultural and environmental realities (Aporta & Higgs 2005; Gearheard et al. 2006).

## **Chapter 6: Conclusion**

This thesis explored Inuit experiences of climate change in Igloolik. While doing my research, however, it became apparent that while Inuit talked about local environmental changes, they did not necessarily think of such changes in relation to the conceptual framework of climatic change, as it has been defined by science.

This thesis shows how natural phenomena are experienced and perceived quite differently by different people and how cultures provide unique lenses for understanding these phenomena. In the Inuit cosmology, it is clear that nature cannot be discretely separated from culture. It is perhaps because of this that scientific discourses of climate change are not easily accepted at the local level, and integrated into local perceptions. This attitude may also have to do with how Inuit have dealt with environmental changes through their history of Arctic habitation. The Arctic has a variable and extreme climate that has undergone numerous phases; in order to successfully live in such environment, Inuit had to be attuned to those changes and adapt to them.

In the contemporary context we see this adaptability expressed in how Inuit organizations and Inuit politicians negotiate their people's well-being and political positions in territorial, national and international arenas, by adopting certain scientific rhetoric.

This thesis attempted to analyze and compare the different approaches to climate change, and how they play at the local level. In Chapter Two, I discussed the different approaches to change and to indigenous knowledge, and I suggested that Inuit perception of environmental changes should be understood according to a theoretical framework where cultures are considered in flux, and change is actually assumed to be a part of life.

I also suggested that Inuit knowledge should be understood in its own dynamic, without the boundaries posed by such concepts as tradition.

As Chapter Three showed, Inuit culture developed against a backdrop of environmental and cultural change from the first migration to European contact and until present day. Changes in the environment were instrumental in shaping Inuit social organization and hunting practices. In fact, the variability of the Arctic climate made it necessary for Inuit culture to be flexible. As a result, Inuit culture is strongly tied to their ability to adapt to change, both environmental and social. This cultural attitude towards adaptation continues to be part of the Inuit sense of identity today.

Chapter Four described local Inuit observations of current environmental changes in the Igloolik area, but it made clear that, in the Inuit understanding of the world, such changes are cyclical. Inuit rely on their oral history to make such claims. Change occurs in a cyclical manner, and yearly variations alternate. This capacity to adapt to change is not only part of the human realm, but it also pertains to the animals that inhabit the Arctic. One of the main differences between Inuit and Western views of the world is that Inuit believe that animals have agency, and that humans, animals, and natural processes are connected in a reciprocal network. These different understandings have consequences in framing the climatic change debate, as it was shown in Chapter Five.

The reports of ACIA and IPCC were analyzed as examples of scientific narratives of climate change. While the reports stress the severity of climate change and the need for action, they also place Arctic indigenous populations in a position of victims of a global process. Their views suggest that cultural and environmental changes are rendering indigenous populations unable to cope with the new realities. Chapter Five also showed

how different this view is from that held by local Iglulingmiut. My interviews indicate that Inuit in Igloodik are concerned mainly with human and animal adaptations to what they see as local and gradual changes, and they are generally optimistic that they are able to adapt. My interviews show that global climatic change, as framed by science and the media, is a topic of lesser interest when compared with local environmental, social, economic and cultural issues. It should be noticed that this thesis does not attempt to generalize, as other communities may be experiencing more severe and dramatic changes than those viewed in Igloodik (Fox 2002), and, therefore, this may affect the perception of how urgent this issue is. Finally, Inuit of Igloodik believe, through their cultural and historical legacy, that they will retain their ability to adapt to future changes. Part of this adaptation is shown in Inuit organizations reclaiming their protagonist role in the discussions of climate.

It also became clear through my research that there is very little real cooperation between scientists and community members. This can explain why many of my interviewees knew little of either the scientific research projects undertaken in the community or their results. Community members' views indicate that cultural and language barriers continue to restrict communication with scientists. At national and international levels, however, Inuit organizations and Inuit leaders seem to adopt scientific-type discourses of climate change. Chapter Five showed how this appropriation of scientific discourse could be seen as a strategy to cope with the complexities of change.

Climate change was an entry point for my efforts to understand the concept of change in a more general sense. In the context of the local experience, global climate

change cannot be viewed in isolation as merely an environmental issue. In fact, the environment is so intertwined in the social, economic, political and historical make up of Inuit culture that these other factors must also be dealt with when confronting the climate change issue.

### **Future research**

This thesis provided a sample of Inuit perspectives of climate change in the community of Igloolik. Therefore, future studies may benefit from more intensive and extensive research. In addition, due to the relatively small number of people interviewed for this thesis, it was not feasible to effectively consider narrative differences based on gender and age, which may provide different perspectives. According to Statistics Canada (2006), Igloolik's population consists of 55% of individuals who are 19 years old and younger, but I could not interview people under the age of 18 due to restrictions in the ethics clearance. It seems important for future studies to investigate and understand the effects that this demographic may have in shaping the future of Igloolik.

My thesis showed how Inuit culture and worldview continue to play a role in how they view environmental and climatic changes. However, a more comprehensive study is required to evaluate how dominant narratives of climate change may be transforming or accommodating local perspectives.

In addition, it would be interesting to investigate to what degree the presence of a southern (non-Inuit) researcher may influence the way in which Inuit talk about climate change. Since I am of European descent and female, I must take into account that my ethnicity and gender may have affected how Inuit talked with me about the issue. Moshi Kotierk, who works for the Igloolik Research Centre, has conducted regional community

consultations where climate change was discussed. It would be interesting to see if differences emerge when comparing the results of that project with the ones presented in this thesis.

For the purpose of my research, I concentrated on only one community. Future projects may want to conduct cross-regional, comparative studies to analyze how different Inuit communities compare in their perspectives of climate change. Since each community has its own unique historical, cultural, political, economic and environmental context, their views may vary as well. These studies could provide insights into how different geographical or cultural contexts may shape people's understandings and reactions to environmental changes.

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## Appendix A: Interview Questions

1. What is your name? Age?
2. What do you do for a living? (student, hunter, teacher, etc.)
3. Where were you born? How long have you lived in the Igloodik area?
4. Do you use sea ice travel to other communities or distant hunting/fishing locations? If yes, which ones (and can you please draw them on the regional/local map)?
5. How often do you travel and when do you travel? And do you travel on the sea ice?
6. Do you remember the first time you traveled on the ice? The first time you traveled alone on the ice?
7. Who taught you to read the ice? Do you use the same or different methods today?
8. What indicators do you look for when traveling/hunting?
9. How is the water (sea, rivers, lakes) used? How has this changed over time? Do you prefer ice or water travel?
10. When you were a child were you sent outside to report on the weather? How did you read the weather? Are these methods used today, or how may they differ now?
11. When traveling, how much do you depend on weather forecasts from the news, or your own methods of forecasting weather patterns? Or knowledge from others in the community?
12. How do you find the weather lately? Is this usual for this time of year?
13. If the weather is different, how is it different?
14. Depending on the season, what type of weather is considered good for travel? What changes in weather could be beneficial (safer, accessible)? What changes would be detrimental to your community?
15. For elder: do you think youth care or know much about how to read the weather now? Why or why not?
16. How often do people talk about the weather or ask about the weather? (Inuit or non-Inuit?) Do you find people talk about the weather more, less or about the same now as in the past?
17. How do you usually get your news? radio, newspaper, TV, internet?
18. Do you prefer knowing about local news, national or international news, or all of these?
19. What have been the main topics in the news lately? Are there particular stories that you are interested in or concerned about?
20. Do you prefer Inuit broadcasted news over non-Inuit news? Why? Do you think Inuit news is more accurate? Or opposite?
21. If bilingual: Is the news in Inuktitut and English conveying the same message? Are they covering the same stories? If no, how does the news present these stories differently?
22. In general, do you believe the media is providing the truth? Do you trust certain news providers, English or Inuktitut, more?
23. There has been a lot of talk on climate change in the news lately. When you hear the term climate change, what does this mean to you?
24. Are you asked about climate change often? Who is asking you (scientists, journalists, researchers, etc)? What sort of questions do they ask?
25. Are you interested in news about climate change? Are you worried about climate change?

26. How is climate change affecting your community now? How would future trends of climate change affect your activities or methods of traveling?
27. Have you seen any changes in the snow, winds, clouds, sea ice, animal behavior, currents?
28. Do you think the ice is more dangerous now? Is it harder to read or predict how it will form or break up?
29. Do people break through the ice more often? If there are more accidents, why do you think that these are happening?
30. What are people doing as precautions now for when they go out on the ice?
31. Are people using water transportation, such as boats, more often now?
32. Do you think climate change could provide new opportunities to your community? (transit, mining, more boat travel, other?)
33. Do you think climate change is a major issue for your community? Do you think climate change is comparable in importance among other issues in your community? (Do you think these issues may be connected to international issues like climate change?)
34. What do you think about how scientists/journalists are representing climate change?
35. Do you think the media is providing an accurate perspective of climate change that is happening in Nunavut?
36. What would you like to tell other people in Canada, or around the world, about your experiences with the changes you described (or how you see change differently)?
37. Are or have you been involved with the Igloolik Research Center?
38. If you have, how have you contributed? Were you involved with the Oral History Project?
39. Do you like having this research facility in Igloolik? Do you think it is good for the community?
40. What other projects have you been involved with? What did you do for these projects? Do you know how the results have been used? Have you seen some of the results produced?
41. What do you think about scientists in general who come to your community to do research?
42. Do you think Inuit have become more involved in research in the Arctic now from in the past? Do you think communities should be more involved? What is the best way that Inuit could be more involved?
43. What kinds of things do you think that Inuit can learn from scientists? And what kinds of things can/should scientists learn from Inuit? Do you think Inuit knowledge and scientific knowledge can be integrated, used together?
44. Do you have anything else to add to anything we talked about today?
45. Do you have any questions or me?
46. Are there people you would recommend for me to speak with?

## Appendix B: Coding - Families and Codes

### Environment:

- Clouds
- Currents
- Floe-edge
- Freeze-up
- Fresh water
- Melting
- Moon
- Multi-year ice
- Ocean
- Precipitation
- Sea ice
- Sky
- Sun
- Weather
- Wind

### Cultural Practices:

- Boating
- Camp
- Elders/shamans
- Harpoon
- Hunting/fishing/collecting
- IQ
- Language/culture
- Snowmobile
- Travel
- Weather forecasting

### Outside Influences:

- Alcohol/drugs
- Biologists
- Boating (aluminum boats)
- DEW line
- Drugging/testing (animals)
- Economy
- Education system
- Employment
- GPS (new navigational technologies)
- Health (and healthcare)
- IRC/OHP (Igloolik Research Centre/Oral History Project)
- News
- Politics/policy
- Reporting/results (science projects)
- Research
- Residential schools
- Science
- Shipping/mining
- Snowmobile

### Local Realities:

- Adaptation
- Alcohol/drugs
- Economy
- Education
- Employment
- Health
- Residential schools
- Safety
- Shipping/mining
- Social issues
- Women (gender roles)
- Youth

### Conflict:

- Communication
- Cooperation
- Drugging/testing (animals)
- Education (traditional vs. institutional)
- News

- Polar bear (research, treatment)
- Politics/policy
- Reporting/results
- Science
- Shipping/mining
- Trauma (of tested animals)

Change:

- Climate change
- Environmental change
- New species
- Social change