On the Ice Edge

Arctic Peoples and Effects of Climate Change in Barrow, Alaska

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August 2011

Cover picture: An Iñupiat woman is overlooking the sea during while a whale is being butchered on the ice. Thirty minutes before this picture was taken, the ice berg that is floating in the distance broke off the sea ice no further than ten meters away from where the woman is standing

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This thesis is submitted for the completion of the Master Study Cultural Anthropology: ‘Multiculturalism in a Comparative Perspective’
At the Utrecht University

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August 2011

Acknowledgements

This thesis is based on three months of fieldwork in Barrow, Alaska. This fieldwork has been an amazing experience and would not have been possible without my loving parents and my terrific boyfriend Job. Hermie, my sweet Filipino host mother, has taken such good care of me. She was willing to let me stay in her house and convince her boyfriend Matt that this was a good idea. Matt and Hermie have come to feel like my 'Alaskan parents' whom I have come to love deeply. Matt: I will never forget the Sunday drives and steak dinners. Hermie: *salamat* for the abundance of love and care.

I would also like to thank the people in Barrow. People were so warm and kind, in a way I have never experienced before. They were willing to let me stay in their homes, invite me to dinners and parties, share their food with me, be my teachers in Iñupiaq culture and make me part of their families. Whaling families, guys at the heritage center, library people, hospital people, guys at Barrow Arctic Science Consortium, people at the Rotary Club, pilots of the Search and Rescue team, professors at the Ilisaġvik College, seniors at the senior center, women of the knit picks knitting club, Asian taxi drivers and last but not least the Filipino community: QUYANAQPAK!!

People of my own age were willing to make me part of their group of friends which made me feel welcome and at ease. Also, Angela Valdez and Jay St. Vincent, who have become my good friends, have supported me in times when I struggled with my research or had personal problems and provided me with wonderful personal coaching and love. Thank you so much!

I cannot forget to thank Peter Schweitzer, professor at the University of Alaska Fairbanks who made sure I went to Barrow with the proper clothing by providing me with store names but maybe more importantly made sure I had a good start in the field by providing me with valuable contacts and tips. Of course, I must also thank my supervisor professor Diederick Raven for giving me the opportunity to work independently.

Last but certainly not least, I wish to thank my fellow student and good friend Iris Klapwijk who has proven herself invaluable during my studies. Thank you Ier! And thank you Jay St. Vincent for being the best editor I could wish for!

Ilona Kemp
2011

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List of Abbreviations

AEWC	Alaska Eskimo Whaling Commission
ACIA	Arctic Climate Impact Assessment
ANCSA	Alaska Native Claims Settlement Act
ANMC	Alaska Nativie Medical Center
ANWR	Arctic National Wildlife Reserve
ASRC	Arctic Slope Regional Corporation
CHD	Critical Habitat Designation
IWC	International Whaling Commission
IPCC	Intergovernmental Panel on Climate Change
NPR	National Petroleum Reserve
NSB	North Slope Borough
NSSI	North Slope Science Initiative

Glossary

Aarigaa	used when you are really pleased with something, like ‘good job’
Aiviq	walrus
Aġvik	bowhead whale
Apqutit	trail cut by whaling crews
Atigi	traditional Eskimo parka
Ikpik	bluff
Ivu	when the ice clashes together due to changing wind and current and creates a fast moving ice wall
Maktak	frozen skin with blubber from the bowhead whale
Nuna	land
Nalukataq	communal celebration to celebrate the whale hunt
Pituqqich	fast ice, but not land locked
Piuraagiaqta	spring festival
Stuaqpak	meaning big store, referring to the big supermarket in town
Titaalik	fresh water fish
Tuvaq	land locked ice
Ukpeaġvik	place name for ‘Barrow’. In Iñupiaq language means ‘place to hunt snowy owls’
Ulu	traditional women’s Eskimo knife
Umiaq	wooden boat covered by bearded seal skin.
Uunalik	boiled *maktak*

My phone rings on April 26 at a quarter to four in the afternoon. "Ilona, Arey crew just caught the first whale of the season!" I can instantly feel myself getting very excited and nervous at the same time. "All the crews are going out on the ice to help!" I hang up the phone and call Aaron, a non-native Alaskan who was born and raised in Barrow. When traveling out on the sea ice, you need to be with someone who knows ice conditions and is in possession of a gun – should you encounter a polar bear on your way to the whaling camp. Aaron agrees to take me and we agree to meet at my place within thirty minutes. "I'll start up my snow machine right now, and get dressed" is what I tell him. When going outside in the Arctic, you cannot just walk out the door just thinking of your keys and wallet, you need to think carefully what to wear and pack things so you are prepared to be out in the cold when your machine breaks down. While traveling through Barrow on snow machine, I can clearly see spring has come. Snow that was white a few weeks ago, has now turned brown due to dust coming from unpaved roads. The trip out to the whaling camp takes us out of Barrow, where there are no roads. There are only snow machine tracks and quickly the snow becomes bright white again. There is nothing but the vast pristine terrain of ice and snow, without any landmarks except for the few signs that mark beginnings of whaling trails onto the sea ice, like an orange cone or a small flag. While I am driving the snow machine I am wondering what it will be like to see the butchering of "my first whale".

Introduction

Whaling is an essential activity for the Eskimo[1] of coastal Alaska who have depended on hunting sea mammals for sustenance for at least 2000 years (Bodenhorn 2000). Around 600 AD, whaling became a major part of Arctic Inuit culture and for the next thousand years, the Inuit of Siberia, Alaska, Canada and Greenland possessed the most sophisticated whaling technology in the world. Whaling for the Iñupiaq was both a means of subsistence and a religious ritual[2]. The term 'subsistence' in Alaska, does not only refer to providing nutritional needs, but also to the proper way of conducting social relations among humans and between humans and animals (Ibid.:133).

However, this thesis is only partly about whaling. Allow me to explain by starting at the very beginning of this research. I ventured out into field, trying to find an answer to how environmental change affects people's perceptions of living conditions in Barrow, Alaska. The reasons for the subject and place of this research are twofold. For one, during my studies I became increasingly interested in climate change as a phenomenon portrayed as one of the greatest problems of our times. Two, the excessive dramatizing of apocalyptic events in the media (Crate and Nuttall 2009:11) focuses significantly on the Arctic by showing the collapse of glaciers and polar bears on the supposedly last pieces of disappearing sea ice. The Arctic provided an excellent research field to explore these two issues, and Barrow provided a varied community of peoples confronted daily with both the effects of climate change and the media interpretation of the changes.

When I arrived in the Barrow – or *Ukpeaġvik* in Iñupiaq which means 'place where snowy owls are hunted' – nobody was really talking about climate change. The media images seemed not to comply with reality, or maybe people just lived a changed world and didn't talk about it? During my fieldwork, I encountered other

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[1] I realize that in scientific language, the word Eskimo is not common to use, rather the word Inuit is much more accepted. The reason I use the word Eskimo here, is that my informants all spoke of Eskimo instead of Inuit. When I asked them: "I thought Inuit people would be opposed by the word 'Eskimo'?" I was told that the word Eskimo means raw meat and fish eater, and that this is exactly what they do. Scientific literature, however, uses the word Inuit. Both the words Eskimo and Inuit will be used in this thesis, and can be viewed as interchangeable.
[2] A Harsh Land of Plenty, Iñupiat Heritage Center (IHC) information brochure 2011. IHC online www.nps.gov/inup

processes that are impacting people's livelihood, and saw that climate change is just one of those. During my research, my informants were kind enough to point this out and also just being in the field and hanging out in different places proved to be invaluable. These experiences led me to broaden my research question and resulted in the following:

> How do environmental changes alter the perception of living conditions for Iñupiaq people in Barrow and how are these changes interrelated to other changes and problems these people deal with?

What I learned is that climate change is not a process that can be studied by itself but rather needs to be placed in the social context in which it occurs (Crate and Nuttall 2009). "Climate change is a threat multiplier: it magnifies and exacerbates existing social, economic, political, and environmental trends, problems, issues, tensions, and challenges" (Crate and Nuttall 2009:11). So in order to find out if environmental changes alter people's perception of living conditions, the complex intertwining of other social, political, economic and environmental trends need to be understood. Nuttall (2005) emphasizes the urgency of extensive, regionally-focused research on the impacts climate change has on hunting, herding, fishing and gathering activities while placing these impacts within the much broader context of rapid change. Anthropologists are vital in this field as they are known for their holistic approach and the study of global issues on a local level (e.g. Inda and Rosaldo 2008). This thesis tries to show the complexity of problems faced by indigenous peoples in Arctic Alaska today and underscores the reality that climate change is but one of several, often interrelating problems affecting livelihoods and cultures (Nuttall 2005:650).

What I also learned through being in the field is that the Iñupiaq community[3] revolves around whaling:

[3] In this thesis, the word community refers to the Iñupiaq community of Barrow, unless otherwise stated.

> Whaling is a symbol of love and appreciation for the whole community. It signifies pride throughout the year, the pride only expands at the time of giving and sharing, *Nalukataq*, thanksgiving and Christmas. Successful whaling signifies the strength of the community; so many people come together after months of winter solitude. The whale brings the community closer. I see you, I know who you are, I see you again, I know you a little bit better, to the point where you get to know the person personally. It is an activity we look forward to year round. If we could no longer whale, the entire life would be sucked out of the community; it is our driving force of living. (Thomas, Iñupiaq man)

As the whale is perceived as 'our driving force of living', it can be argued that the whale is the defining factor of the community.

At the beginning of the different chapters in this thesis, I include a story about landing and butchering a whale to give the reader an immediate sense of the intensity of this most important single event in the life of the community. Sometimes this story has associations with the content of the chapter; sometimes the story is just there because it is the most important thing for the community. The title of this thesis: On the Ice Edge is chosen because the most important event of the community takes place on the ice during spring. Exactly this ice is now receding and this, among other factors causes vulnerability to the whale hunt.

The community prepares for the whale hunt year round[4]. The preparation functions as an important social factor in the community because people work together to get things done. All the preparations that take place year round are necessary for the crew to successfully land a whale. By participating in these activities you get to know what is going on in the community, how the community functions and every once in a while you get to know the issues that are most salient to individuals or the community. Preparations for the whale hunt can be used as a window into social, economic, political and environmental issues that have had and continue to have influence on the hunt for the bowhead whale by

[4] Through repairing old or making a new frame for the *umiaq* (skin boat). Sewing bearded seal skins that are used to cover the skin boat. Hunting seals to aquire skins and oil. Sewing atigis (parkas), atigi covers and *quliksaks* (pants). Repairing snow machines, making trail, etc

indigenous people in Arctic Alaska. Listening to stories that people tell during the preparation of the hunt, it becomes even more clear that climate change is just one of many factors that bring vulnerability upon indigenous peoples in the Arctic.

Vulnerability is a concept that has been used in various research disciplines (Adger et al 2009; Smith and Wandel 2006 in Gallopín 2006) but there is no consensus on the term. It is important that a feasible definition of the concept is established first, for the concept of vulnerability shapes how we think about adaptation – the process to reduce vulnerability (Nelson and Finan 2009). In this thesis Blaikie et al's (1994:9) definition of vulnerability will be used:

> By vulnerability we mean the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone's life and livelihood is put at risk by a discrete and identifiable event in nature or in society.

This definition is based on the ability of individuals and communities to respond to external stresses and incorporates the social and biophysical facts that comprise the local reality. This reality in turn is shaped by larger-scale phenomena, like political and economic forces (Nelson and Finan 2009:305). In this thesis I will look to various vulnerabilities which affect Iñupiaq people and how these vulnerabilities are related to one another.

The first chapter of this thesis provides a geographical, historical and contemporary context of the research field. The Alaskan Arctic region has increasingly become an area of multiple interests, starting with the commercial whale hunt by European and American whalers in 1890 up to the current hunt for oil and other natural resources such as gas. These interests have brought to the region Western, Asian and Pacific immigrants who come looking for job opportunities in fish or oil industries but also increasingly in all kinds of modern services like government institutions such as school districts and legal services. There are also immigrants who are setting up their own businesses like taxi companies and restaurants. Alaska became became an American state in 1959.

Native communities have become increasingly connected to the western American system only since the last fifty years as the discovery of oil in Prudhoe Bay increased American interest in the state. This increased interest, combined with interests of oil companies, environmental organizations and indigenous communities, has given rise to friction in the Arctic. In chapter two, I will argue that friction in the Arctic is based on different worldviews. I try to explore both western and Iñupiaq worldviews through the analytical lens of both Ingold's and Argyrou's work to get to the root of the struggles in contemporary Arctic Alaska.

Chapter three focuses on environmental change in the Arctic. The Arctic is warming twice as fast as other regions in the world and the effects of climate change are experienced most intensely here. These changes are affecting local people as most of the Arctic's inhabitants are indigenous people who are dependent on the renewable resources they can find through hunting, herding, fishing and gathering (Nuttall et al 2005:650). Not only do these resources provide indigenous people with necessary food; the practice of acquiring them is also important for maintaining social relationships and cultural identity (Ibid:685). I will look to the changes in the environment that indigenous people in Barrow are noticing and what implications these changes are having on their livelihood. I will tell stories that my informants told me, stories that clearly reveal that the people are impacted in their livelihood and that they try to anticipate changes. Nuttall argues that if we want to understand local strategies of adaptation, we need to take a closer look at the social and cultural contexts of anticipation (2010:23). He argues for an incorporation of the concept of anticipation into the anthropology of climate change as it about intentionality, action, possibility, choice and agency (Ibid 25). Chapter four continues this line of focus on agency by looking to adaptation and the concept of social capital. Arctic indigenous peoples have generally adapted well to environmental changes in the past but due to the extent and intensity of present climate changes, changes predicted for the future and interrelating problems indigenous people are facing, the ACIA has reason to doubt if Arctic peoples will be able to adapt to these future changes sufficiently (Ibid.:650). Crate and Nuttall are also doubtful whether coping and adaptation mechanisms are sufficient because there is a lack of sufficient understanding of how societies build adaptive capacities in a changing environment (Crate and

Nuttall 2009:10). There is a strong focus on adaptation in research and policy as a form of agency as resilience to vulnerable structures. As the Iñupiaq community is fundamentally built on reciprocity, the concept of social capital offers an additional valuable analytical lens to look to the resilience of Iñupiaq people.

I built my thesis on the works of scholars, but even more important and invaluable is the empiric data I have acquired from residents of Barrow. My main method of gathering data, as in most qualitative research has been participant observation, with the apex becoming a member of a whaling crew and I was fortunate enough that my crew successfully landed a whale. It is through observing and listening to conversations I became informed about the culture that is so very different from my own.

Throughout my research, I always used informed consent to tell or remind people that I am conducting research. Living in a close-knit community such as Barrow made it easy to get to know a lot of people and soon people I had never even met, asked me "Are you Illauna[5]?", my Eskimo name. The close-knit feature of the community had both positive and negative sides. Although it made it increasingly easy to get into contact with people, I also had to be aware of the fact that most people know each other and wanted to know who I had been talking to and what they had told me. Throughout my research, I have been careful with personal and sensitive information. To respect the privacy of my informants, all the names that are used in this thesis, are fictitious.

By using informal conversation as an interview technique I learned about the truly salient issues that people within the community struggle with. Through these conversations I was able to pose more pointed questions during semi structured interviews. Active participation – where I engaged in a lot of things that other people were doing like skin sewing, baleen[6] (see appendix II) carving, butchering a whale and going to church – allowed me to gain a greater understanding in both the explicit and the tacit aspects of the culture. A part of this process was not only to intellectually understand my informants' perspectives, but

[5] This Eskimo name was used by many Iñupiat because it sounds like my name Ilona, it is Iñupiaq for 'you look like'.

[6] Baleen or *Suqqaich* "are long, thin, flexible strips of keratinous plates found in the mouth of the bowhead whale enabling it to strain tiny shrimp, plankton, and other food from the water"(Chance 1990:34). Iñupiat use baleen for carving and basketry craft.

also to really *feel* their point of view (Grills 1998; Katz 1988 in DeWalt and DeWalt 2002:10).

It is this tacit aspect of the culture that is difficult to grasp and to convey to the reader without sounding like having gone native (DeWalt and DeWalt 2002). This has led to my choice of using the bowhead whale as a central theme in this thesis for I have learned its importance to the community – as subsistence remains central to the cultural survival of Arctic peoples (Freeman 2000). I would like to share this importance of the whale with my readers while simultaneously using the whale as an analytic tool to analyze the struggles people in Barrow deal with. I conclude this thesis with a summary of my findings, followed by an attempt to answer my research question, which in turn will pose more questions to be answered in future research.

A bright blue flag[7] with a red heart shot by a white arrow marks the trail out to the camp where the whale has been caught. The trail which took whaling crews a few weeks to cut is bumpy and forces us to slow down significantly. The vast terrain of snow has changed into an almost mountainous terrain of huge bright blue chunks of sea ice which limits the view from one chunk of ice to the next. We reach a small camp but pass it. I learn later that this is the 'safe' camp[8]. After ten minutes from the safe camp, we reach the whaling camp. I look for the whale but to my surprise I don't see it. A young boy catches my silent wonder and points at the water. When I walk up to the dark blue open water I see the whale floating on its belly. A harpoon like tool sticks out from it just above the left flipper. The dark blue water close to the harpoon has turned dark red. A few guys are cutting the ice edge with big pickaxes to prepare for pulling up the whale and the roaring sound of snow machine engines can constantly be heard as more and more people are arriving. When the ice edge is smooth enough the whale's tail is pulled up on the ice and a thick yellow rope is fastened to it. Two guys push the off white *umiaq* (skin boat) on the whale, the captain gets into the boat and walks up to the front. He cuts the first piece of *maktak* from the whale's belly (whale skin and blubber) and returns on to the ice. The *maktak* will later be served on the ice as *uunalik* (boiled maktak) to everyone who helps the crew.

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[7] When a crew successfully catches a whale, they put their flag at the beginning of the trail out to the sea ice to let people know from what point to follow the trail. This is because most crews use different trails out on the sea ice, although some also use each other's.

[8] The safe camp is set up on land locked ice. In case of an *ivu*, the crew can quickly escape to this safer base.

1 – Life in the Arctic

This chapter will provide an overview of the history and contemporary Arctic Alaskan Inuit life. The chapter will start with an exploration of the debate about Inuit studies. Thereafter it will zoom in on the people in Barrow to see who they are, what they do for a living and the conditions in which they live. Social changes that find their origin in the colonization will be discussed in the paragraph that follows, together with contemporary struggles that cause friction in the Arctic. This chapter will finish with a short conclusion.

Inuit studies

Franz Boas is probably the best known Arctic anthropologist. He conducted a yearlong fieldwork among the Baffin Island Inuit families in the eastern Canadian Arctic between 1883-1884. Boas coins the term cultural relativism with which he refutes Tylor's claim that culture only exists within the context of advanced industrialized societies. The concept of cultural relativism extends culture to all groups, regardless of how 'uncivilized' they might have seemed to a nineteenth century European (Searles 2006:93). According to anthropologist Searles, Boas only briefly mentions the influence of non-native people on his research group and shows "a way of life that existed prior to the presence of Europeans, one that he felt was threatened by the encroachment of European and Canadian values and traditions" (Searles 2006:94). This salvage ethnography, as Searles calls it, and cultural ecology have made active hunters and gatherers the *de facto* bearers of Inuit identity. The preserving and promoting of this hunter gatherer Inuit culture is now the focus of Arctic anthropology as the loss of it is – to some anthropologists (e.g., Berry 1999; O'Neil 1986 in Searles 2006) – identified with acute and chronic episodes of psychological stress and other disorders. Not only anthropologists but also Inuit themselves are concerned about the survival of their culture. Searles remarks that this view has placed Arctic anthropology in a very awkward position within the discipline of anthropology. While Arctic anthropologists are highlighting the need for cultural preservation, anthropologists working elsewhere in the world

are emphasizing that the concept of 'culture' has lost its relevance in a growing mobile, fluid and flexible world (Gupta and Ferguson 1997; Jackson 1989 in Searles 2006).

Despite this paradox, Arctic anthropology has remained in line with the larger theoretical concerns of anthropology as will become clear in this paragraph. For the exploration of the Inuit studies debate, I draw on an article by Pamela Stern (2006). Stern discerns two different types of studies within the history of the Inuit Circumpolar North[9]: area studies and cultural studies. Area studies encompass Boas' study, and the studies of Murdoch in Eastern Alaska and Nelson in the Bering Strait region. These generalizing studies of Eskimos eating seal and living in snow houses have created a stereotypical Inuit culture, a stereotype that still has not disappeared. Regional studies continue today, as many works focus on either Greenland, Canadian Arctic, the Alaskan North or the Russian Far North.

The second type is cultural studies, which resulted from area studies. These studies "grew out of a Marxian tradition and are concerned with the symbolic and ideological ways that material relations are configured and maintained" (Stern 2006:260). Both studies are dominated by metanarratives. Area studies portrayed Inuit as a hunting and gathering population dominated by man: in cultural studies, "Inuit have become part of a global network of indigenous peoples emotionally tied to their historic lands"(Ibid:262). This metanarrative approach has resulted in scholars focusing primarily on issues of Inuit being emotionally tied to their historic lands, leaving out other important issues like the lives of women, colonialism, political movements and land (Ibid:260). The most recent debate in Inuit studies, is concerned with issues of identity. Dorlais and Searles (in Ibid.) suggest that every study regarding Inuit studies from the 1960's onward has been concerned with identity. Inuit themselves also use their identity to politically empower themselves regarding land claims and indigenous practices like whaling. Modern Inuit are greatly concerned with the survival of their culture. But Stern calls upon anthropologists to be mindful of identity politics: "Identity may be a tool for political mobilization of the socially excluded, but it is also a tool of segregation and exclusion […]"(Ibid:264).

[9] The circumpolar North refers to the Arctic zone from Greenland to West Chukotka

Studies on Inuit communities are probably always generalizing to some extent. Talking about the 'stereotypical' features of the culture like hunting, herding and fishing is unavoidable, as these people define themselves in this way. As these aspects of Iñupiaq life are continually threatened by multiple problems, Inuit are aware of the fact that they might stand to lose their cultural identity which is based upon these features. This thesis is about the numerous problems they are facing and how the relatively new issue of climate change is integrated within the rest of these vulnerable structures. Although this research is not about identity, this research too, cannot escape the identity issue as nature is one of the features that define Iñupiaq people.

People

The Arctic people on which this thesis focuses are the Iñupiat people. They are an Inuit people inhabiting North Alaska's lands from the Canadian border to the village of Wales on the Bering Strait (Bodenhorn 2000). They compromise hunting and gathering societies who speak a dialect of the Eskimo language, spoken across the Circumpolar North. The word 'Inupiaq' consists of two different words, joined together: the root word 'Inuk', which means person and the suffix 'piaq' which means real. Iñupiat is the noun and Iñupiaq is the adjective. They both mean 'the real people'[10]. They are settled in 35 villages and census experts give an estimate of 13,500 Iñupiat people in the region (Fienup-Riordan and Kaplan 2007). All coastal villages on Alaska's North Slope are whaling communities. Other animals that Iñupiat subsist upon are ringed seal, bearded seal, polar bear, walrus, duck, caribou, and goose.

According to the United States census of 2000, Barrow's population that year was 4,581. Of these people, 64 percent of those people are of Alaskan native or American Indian descent. The rest of the population consist of people from all continents[11]. This means that Barrow is not just an Eskimo village, but is populated

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[10] A language lesson told to me by Taqtuk, a most respected elder of the Iñupiaq community in Barrow and the one who was kind enough to try and teach me the basics of the Iñupiaq language throughout my research.
[11] Community Database Online at http://commerce.alaska.gov.

with people from all over the world. “I come from the lower forty eight, but I have never met so many people from all over the world, as I have in Barrow. Barrow is the place where all nationalities come together (Ben)”. During my stay in Barrow, I lived with a Filipina. Immigrants from various nations come to Barrow for several reasons like a passion for the Arctic but mostly because of job opportunities (CAFF 2001 in Huntington et al 2005). Although the community consists of different nationalities and is not an isolated community of strictly native people, a distinction can be made between the Native Alaskan community and the community of immigrants as the former is still focused upon subsistence hunting. Even so, it must be noted that not all Native people in Barrow focus upon subsistence hunting. In this research, I will focus primarily on Native people in Barrow as will be further discussed in chapter three.

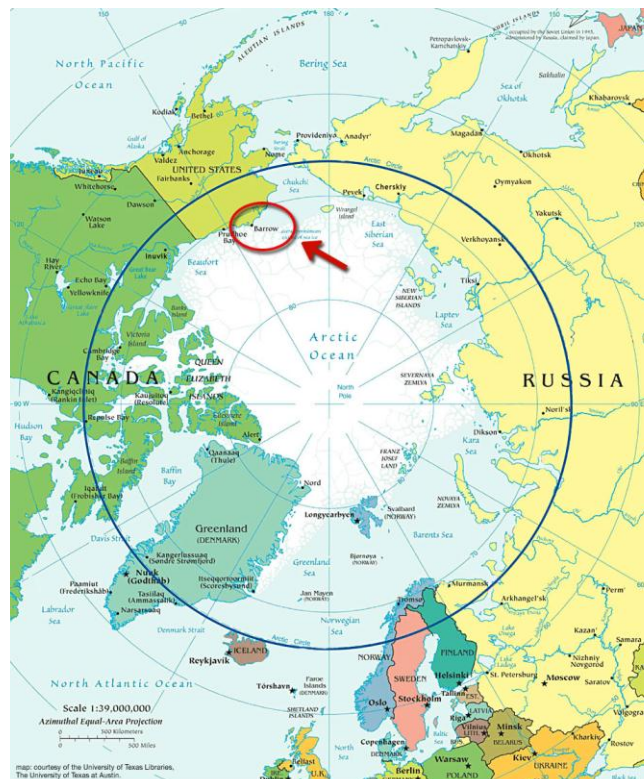
A whaling community

The entire culture and social organization of the Iñupiat community revolves around the communal whale hunt of Bowhead whales (Brewster 2004). The whales migrate past Barrow twice a year and are therefore hunted during spring and autumn. From the ice edge (in spring) and up to ten miles offshore (in autumn) (Vaughan 1994). Whaling is the most important activity for Iñupiat throughout the year and they define themselves as whalers. The Barrow High School football team is called: “Barrow Whalers” and a picture of the whale can be found in many logos such as the NSB police department, Ilisaġvik College and City of Barrow. Barrow counted 52 whaling crews in spring 2011. All these crews have a captain, most of them are accompanied by a captain’s wife or commonly called ‘whaling mama’. The captain and his wife possess a pivotal and powerful place within the community and constitute an important social unit throughout the year. They have a lot of responsibilities, the most important one is bringing whale meat on the table but also to set an example as to how the rest of the community should behave. Many young people I talked to, look up to captains and whaling mamas and they one day hope to fulfill the same role.

Surroundings

> Taktuq, an elderly Iñupiaq woman, is lecturing two students in Iñupiaq language class about the different types of ice you encounter when travelling out to the whaling camps. “We have more than a thousand words for ice and they all mean something different. When you go out with your own crew you must pay close attention to what words the guys are using and learn from them. When you travel from *nuna*[12] (land) out on the ice, you first come across *ikpik* (the bluff). Our bluff used to be 30 to 40 feet high, but today it is not that tall anymore. *Tuvaq* is the safest ice to travel on because it is land locked ice and the first part of the *apqutit* (trail) is on this ice. When you hear the men say that you are on *pituqqich*, you are on fast ice that is not land locked anymore and you need to be very careful on this ice. The wind can change so fast that the current will let the ice clash together, this *ivu* is extremely dangerous”.

When Taktuq lectured the students about the ice it became clear that Iñupiat can read the sea ice and have words for all kinds of different types of sea ice. This skill is essential for whaling or for any other subsistence activity that takes place on the ice. Barrow is bordered by both the Chukchi and the Beaufort Sea. The lands on which Iñupiat people live are situated above the Arctic circle and are characterized by tundra. The tundra is characterized by low



The Arctic Region. Taken from: icestories.exploratorium.edu

[12] See appendix II for *Nunauraq Taġiukkun* (Ocean Ice Diagram).

vegetation, as the village is situated above the tree line. The vegetation growth is determined largely by the permafrost, ground which stays below 0°C for years on end. The climate is that of an Arctic desert; winters are long and cold and temperatures reach up as low as negative 40 to 60 °C. Winter months are dark, as the sun does not rise 63 days[13]. During summer, there is twenty for hour daylight as the sun does not set. The only way into Barrow is by airplane, although there are ice roads during winter, too. Heavy equipment like school buses and building supplies come by barge in the summer.

Social change in the Arctic

People in the Arctic have experienced significant changes in the social, political, economic and environmental aspects of their lives, especially in the past 150 years. This paragraph will look to the colonization of Alaska by America to provide understanding of the history of changes that still cause vulnerability to this day. It will also look at the contemporary rise of interests by different parties that cause friction in the Arctic.

Colonial history – The whale as an international trade.

Humans have inhabited parts of the Arctic since the last ice age (Huntington et al 2005:13). Before 1826 the native inhabitants of Barrow had never been in contact with 'civilized' men, John Murdoch writes in 1890. But Murdoch's observation is false, as the European discovery of Alaska took place in 1741 and Alaska became prominent in Russian and British fur trades (Nuttall 2000). However, increased contact occurred around 1890 because of the discovery of whaling grounds when large numbers of American vessels began cruising in this area (Chance 1990). In 1876 the Russians sold Alaska to the United States of America without consulting the original inhabitants. A treaty was signed which stated that "The uncivilized tribes will be subject to such laws and regulations as the United States may [...] adopt in regard to aboriginal tribes in that country" (Chance 1990:32). This was

[13] Community Database Online at http://commerce.alaska.gov.

the beginning of political ties with the rest of the United States. It was also the start of economic changes for the Iñupiat. They traded all sorts of goods with whalers, which were up to then unknown to them, like ammunition, alcohol and black tobacco. They also started whaling enterprises and began using new weaponry to hunt caribou. Because of this development, Iñupiat and men from abroad had severely reduced the number of land and sea animals from 1848 to 1908 and the old subsistence economy was threatened (Chance 1990:37). From around 1890, the Iñupiaq community has increasingly become part of the global world economy and is also experiencing the consequences of globalization, as 'modern' life has found its way into the native communities.

The colonization has brought enormous disruption and change to the indigenous people of Alaska as some people started to use new technologies which has resulted in the fact that some traditional ecological knowledge about resources has been lost (Caulfield 2000). For instance, there is only one dog team[14] left in Barrow, and it is operated by a non-native Alaskan[15]. On the other hand, technologies such as rifles and snow machines have also made it much easier and less dangerous to go out hunting.

Besides new technologies, whalers and traders also brought alcohol to Alaska in the 1800's; alcohol has contributed to tragic stories of abuse, neglect, and death (Brewster 2004:37). Nowadays alcohol and drugs are perceived to be the worst problem Iñupiat in Barrow face.

> Changes in our environment are a problem to us, but the biggest problem my community faces is alcohol and drug abuse." I am talking to whaling mama Jamie while I do her dishes and she cleans the table. The day before I went to her house and she agreed to speak with me as long as I helped her doing chores around the house. "During whaling season we are all so busy and the guys are setting up camp already, my house must be clean before they start hunting!". She finishes cleaning the table and walks over to one of the pictures she has hanging on the wall and

[14] Dog teams were traditionally used to go out hunting by native Alaskan families.
[15] Fieldwork observation.

> points at a young Iñupiaq man. “See, this is my son Elbert. He is Bruce’s father, my grandson that is living with me now. His dad is in jail. All this alcohol and drugs, it causes so much pain, it is so hard on our community. (Jamie, Iñupiaq woman)

Jamie points out that alcohol and drug abuse is the most pernicious to the community. The use of alcohol by Elbert has resulted in his son growing up with his grandparents. Colonization has brought with it deep sadness as “Being forced to give up an entire way of life and adapt to a new one often results in self-destructive behaviors, as communities and individuals cope with the losses and disempowerment that attend colonization” (Roderick ed. 2010:68). Alcohol is used as a way to numb the pain that many Iñupiat feel due to the uprooting of their cultural identity starting from the time of the colonization. The suicide rate for young Alaska native males is among the highest of any group in the nation (Ibid:69).

> I am helping Sarah going through old parka covers and determine which ones are still good to use. She suddenly stops while holding one of the covers up high. “Oh, this one was Suniq’s”. She says nothing else and I ask her who Suniq is. I see her eyes filling up with tears and after about half a minute she answers “Suniq was a member of our crew, he committed suicide around this time last year. Our crew didn’t go out last spring because of this”. I give her a moment to respect her grief but she continues while the tears come rolling down her face “We never expected this to happen, he was such a cheerful young man, and his girlfriend had just given birth to a little girl.” (Sarah, Iñupiaq woman)

Suicides are not uncommon in Barrow and are the saddest examples of self-destructive behavior.

Multiple interests in the Arctic

The Arctic region has always been a source of natural resources, as there is an abundance of birds, seals, fish and whales. But it is also rich in minerals like oil, gas and metal ores which were discovered and exploited in the 20th century (Huntington et al, 2005:15). The Arctic holds one quarter of undiscovered oil and gas, which is regarded as the last big oil and gas resources of the world[16]. The oil that might be found in the Arctic is estimated around 27 million barrels[17]. Climate is warming and sea ice is melting and these resources might soon become available. Because it was never expected that these resources would become available – and eventually could be used as a site for commercial development – the Arctic region is not currently governed by any norms and regulations (Ibid). This means that the Arctic region can be seen as a new frontier where the five Arctic countries – Norway, Denmark, Canada, the United States and Russia – contend for territory and resources (Huntington et al 2005; Borgerson 2008).

The global hunt for oil and with it the inevitability of oil drilling, is of great concern to local Iñupiaq whalers. They fear that the Bowhead whale they hunt every year in spring will be driven so far offshore because of the drilling noise, that they will not be able to hunt it with the limited gear they use. They are also concerned that possible oil spills will affect whales and other species[18]. This does not mean that Iñupiat are unanimously against the oil industry; rather they profit from the economic advantages. This is why North Slope Borough (NSB) Mayor Itta was disappointed when Shell announced that it canceled its plans to drill in the Arctic ocean in 2011. In an interview with the Arctic Sounder[19] Mayor Itta explains that Iñupiat people are in a difficult position. They are dependent on the oil

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[16] These figures were estimated by the U.S. Geological Survey and the Norwegian oil company SatoilHydro (Borgerson 2008).
[17] the same as the original reserves broached in Prudhoe Bay, also on Alaska's North Slope coast, which was discovered in 1968. In Alaska's Far North, Two Cultures Collide. Jad Mouawad. New York Times 04-12-2007
[18] In Alaska's Far North, Two Cultures Collide. Jad Mouawad. New York Times 04-12-2007
[19] The region's local newspaper.

industry, as 95 percent of their revenue is derived from it[20]. But the threat and the possible loss of the bowhead whale would be highly significant.

The hunt for oil emphasizes the tension between the interests of Arctic residents and demands of industrial societies in the South. Not only transnational companies but also state regulations and decrees have often undermined indigenous resource management practices. Moreover, social tensions are also created within communities as Iñupiat have different opinions on oil and gas development (Kishigami 2010). According to Caulfield, the conflict arises because various parties – indigenous peoples, governments and transnational companies – all have different perspectives on what would be good for the Arctic and what will be best for their own profit. In other words, it is a case of whose ethics and values will prevail (2000).

Conclusion

The colonial history that has been discussed in this paragraph has shown the beginning of disruption and change in the Arctic. This paragraph has presented an overview of the historical context in which Arctic peoples can be placed. This overview perspective is of great relevance to this thesis as it shows that the Arctic is a place in which various people are interested; these multiple global and local interests have resulted in a complex intertwining of a number political, economic and social issues. When doing research in the Arctic, this complexity *must* be taken into account. A focus on this complexity is also what Arctic anthropology needs as becomes clear from the exploration of the Inuit studies debate. Let us start by trying to analyze the Arctic parties' different perspectives on their environment: as will become clear, these different perspectives are the core of friction in the Arctic and therefore the main cause of multiple vulnerabilities of Native people in Barrow.

[20] Balancing dwindling oil against development. Interview with Edward Itta. The Arctic Sounder, February 28,2011.

There are two sets of two men working together to cut a hole in the ice. The holes are two meters apart and it frightens me to see the water rising up to the point where it floods the ice. All of a sudden I realize that the ice is only around two and a half meters thick. The holes are used to lock the big double pulley. Two yellow ropes are put on each side of the pulley and an older guy yells: "Come on people, let's work together". Conversations are broken off and people start walking towards the ropes. A line forms as people pick up the rope. It takes a while and the men closest to the whale are arguing about something. "All heave!" a man's voice shouts after a while and people start pulling the rope. Although there are at least seventy people pulling the rope, the weight that is put on the rope surprises me. Everyone throws his whole bodyweight into the fray but the ice is slippery and makes it difficult to hold grip. The whale is slowly pulled up centimeter by centimeter. At the end of the rope, a good fifty meters towards the direction of the shore, the ice gets more chunky and sharp and care is required to prevent one from tripping and falling with the danger of someone else stepping on you. "HEEEEEEEAVE!!!!" a male voice shouts again and I see a furious grimace on the face of the man next to me. "Heave, heave, heave!" One man starts shouting and the rest of the group rhythmically follows. The exclamation of the word "Enough!" comes as welcome to my ears as to the rest of my body which is exhausted. The group shouts " Hey, hey, hey!!" and people whistle loudly. The people are filled with joy as they see the first whale of the season up on the ice. Within no time the crew has gathered before the whale as a group and a lot of people start taking pictures. The crew shouts, "Hey hey hey!", makes 'uruh uruh[21]' sounds and throw their hands in the air joyfully. People in the rest of the group respond to these sounds by making the same ones and everyone is a celebrating mood.

[21] The Uruh uruh sound is heard often when people are really happy about something. The sound sounds like an imitation of a barking bearded seal.

2 – Friction at the top of the world

> The problem that I have to deal with in my job is a very difficult one. When I need to hire a new assistant or deputy director I need someone with credentials who is educated to do the job. But the Iñupiaq community expects me to hire someone that has a high social status within the community, like successful whaling captains. Although they are good people and enjoy great respect of the community, they are not always the best suited prospect for the job. Being able to harpoon a whale doesn't mean that you can be a good assistant. (Shawn, one of the Mayor's directors)

This quote makes clear that there is a dichotomy between the native and the western idea of a good leader. Here, I wish to analyze both the western and the native belief systems, their views on nature and culture. It shall become clear that through colonization the native view on nature has changed and is neither purely native nor fully Western. Realizing that there are different worldviews is significant in understanding why there are struggles, issues, frictions and distrust between the native inhabitants of the lands and western governments, institutions, corporations and immigrants. The clash of native and western perceptions also causes friction within the native community itself as native people seem to be betwixt and between both worldviews. In this chapter I will use Ingold's theory to analyze the Iñupiaq perspective of the whale hunt and Iñupiaq view on nature, as Ingold is the prominent scholar in anthropological studies of how human beings perceive their surroundings. I will discuss three paradigms that Argyrou analyzes in his book *The Logic of Environmentalism. Viz.*: the modernist definition of humanity, modernization and development and the environmentalist paradigm. By using cases from my research in Barrow and analyzing both the western and the native view on nature and culture, my aim is to show that the dominant western view – in all its different guises – causes continuous vulnerability to a community with a different perception of its environment.

The gift of the whale

> “When we catch a whale, we believe that the whale gives itself to us. The whale only gives itself to the whaling captain when the captain’s wife has kept her house clean and is generous to everyone. Also, our ice cellar must be cleaned out before we hunt. Whales don’t like a dirty cellar. The spirit of the whale knows. That is why we must always share our food and be nice and generous to everyone.” (Taqtuk, Iñupiaq woman)

The thought that a whale would give itself to the captain is widely shared by all the Iñupiaq people in Barrow. It may sound strange to western people that a whale, an animal, would be a self-conscious being, able to pick a hunter and give itself to him. However, the whale is but one part of the larger environment the Iñupiat people inhabit and interact with. This relationship between the people and the environment is what has enabled their ancestors to survive in the harsh climate of the Arctic. This is why Iñupiat ascribe a very important value to their interaction with the environment. The whale especially has always been a constant factor in their sustenance, not only physically, but also mentally and spiritually. It seems that, for the Iñupiat of Arctic Alaska, nature is not separated from culture or environment but an integral part of it.

Ingold explores the worldviews of different cultures and focuses on the separation of nature and culture in western science and the unity of nature and culture in indigenous cultures. His main argument is that the edifice of western thought and science is to separate humanity and nature. He reduces this separation to the enlightenment period where man separated himself from nature and began to dominate it in the process of civilization (Ingold 2000:10). This dominion over nature came to be seen not only as the defining aspect of the European ‘man’, but as ‘man’ entirely creating the modernist definition of humanity (Argyrou 2005:4-5). European culture regarded itself as superior to other cultures who did not control nature. Controlling nature and seeing it as an object made possible the overseas expansion of European man and with it, colonization of the rest of the world. With colonization also came the attempt to

transform the non-European 'man' into the kind of 'man' the European 'man' had in mind (Argyrou 2005:6-7). According to Ingold, the superiority over nature by the European 'man' is where the current notion of hunters and gatherers as 'living in nature' stems from.

The heart of science is the ascendancy of abstract or universal reason. Ingold points at a paradox in this fundamental core; human beings are biological organisms but the very possibility of the scientific account rests on the separation of humanity from organic nature (Ingold 2010:11). To be a creature that can detach its consciousness from its bodily interactions is seen as being human, a person (Ibid:90). Ingold asks himself "How we can exist both inside the world of nature and outside of it, as organisms and persons, at one and the same time?" (Ingold 2010:90). His solution to this difficult issue is to see ourselves not only as humans but also as organisms, and participate within all other organic life around us. An example of this perception of the environment, is that of the Ojibwa, hunters and trappers from Canada. The Ojibwa believe that a person can take a great variety of forms: the human form is just one of them. The Ojibwa's belief of animal-persons corresponds with the Iñupiaq perception of the whale: whales are perceived as beings with a spirit. The captain of a whaling crew that has successfully landed a whale is praised, but he himself is humble towards the whale.

> When I catch a whale, I must always return a part of the whale to the ocean after butchering. This is essential, because the spirit of the whale will return to the sea and will tell other whales how well it was treated. When the next season comes and we go whaling again, whales will know that I have always treated every whale with respect and dignity. (Joseph, whaling captain)

The Iñupiaq perception of the whale is like that of the Ojibwa's animal-persons. The spirit of the whale can come ashore in human form and listen and see what whaling captains and mamas are doing. The whale person picks the hunter it wants

to give itself to, upon which it returns to the sea[22]. The Iñupiat believe in reincarnation and the recycling of spirit forms from one life to the next, both human and animal and only when an animal's spirit is released – like that of the whale after butchering – this recycling of the spirit can occur[23].

At first glance it might seem that Iñupiat perceive their environment as a cosmos surrounding them in which all else takes place, not distinguishing nature from culture. But when looked at more closely, it is more complicated that. One of their twelve Iñupiat values[24] is called 'respect for nature'. Ingold argues that there is a very clear difference in meaning between societies who use the word 'nature' and societies that use the word 'environment'. Environment, he goes on to say, "can only exist as nature only for a being that does not belong there, and that can look upon it, in the manner of the detached scientist, from such a safe distance that it is easy to connive in the illusion that it is unaffected by his presence" (Ingold 2000:20).

How can a hunter gatherer society be using the phrase 'respect for nature' when they would, according to Ingold's theory, not have that very sharp distinction between nature and culture as a hunter gatherer society? By using the word nature, they already place themselves outside of the world. It might seem then, that Iñupiaq people also perceive their environment as western people do, with a clear distinction between nature and culture. But, then again, western people do not think the animals they hunt have a spirit that needs to be treated correctly in order for that animal to give itself to the hunter. When analyzing the perception of the whale's spirit and the cultural value 'respect for nature' it becomes clear that a label of either 'hunter-gatherer' or 'western' perception of the environment cannot be placed on the Iñupiat people of Barrow. The reason for this apparent 'betwixt and between' perception of the environment has its origin in the colonial time.

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[22] Informal conversation.
[23] http://www.alaskanative.net/en/main_nav/education/culture_alaska/inupiaq/ accessed on July 6th, 2011
[24] These values are part of the Iñupiat "Ilitqusiat" program. This program got started in the early 80s because there was a lot of concern that young people were being exposed to unhealthy lifestyles as a result of poor role modeling.
http://ankn.uaf.edu/curriculum/Inupiaq/Ilitqusiat/whatis.html

Colonization of the mind

The difficulty in ascribing either the western or the indigenous perception of the environment to the Iñupiatof Barrow is embedded in a complex change of native consciousness, starting at the time the first explorer set foot on the Arctic. As described previously, the notion of European 'man' during the enlightenment was to dominate nature and to bring this way of thinking to the 'man' who did not dominate nature with fortitude. This attempt has brought with it direct impositions on native consciousness such as material and symbolic technologies – like guns and other tools – to 'civilize' the colonized (Argyrou 2005:16). This attempt to civilize the colonized is an explicit colonization of the mind. With it also came an implicit colonization of the mind, through practices and policies that were not intended to have a colonizing effect. Also, as Argyrou notes, not only did the colonizers bring with them different ideas but also travellers and settlers like missionaries or whalers. These influences "led to unconscious incorporations of European assumptions by native populations" (Sahlins 1985 in Ibid:17). Missionaries came to Barrow, to spread the word of God, in 1890. Their primary goal was to replace Iñupiat religion with Christianity and to "restore a moral basis for a society that they saw as defiled and demoralized by whalers and traders" (Chance 1990:45). But they also carried out other duties; they started to run a school for native children in Barrow, and provided medical care. These services presumably helped Iñupiat converting to Christianity (Chance 1990:46). All this was done deliberately to convert Iñupiat from their backwardness to a 'civilized' Christian world of education and medical care. A form of unintended colonization of the mind also came with this missionary influence. Comaroff and Comaroff (in Argyrou 2005:18) describe that missionaries tried to convert the Tswana in South Africa. The authors note that not just the belief but rather the introduction of underlying forms of European culture – such as forms of European discourse – into native lives were the most decisive factor for the conversion of the Tswana. This adoption of European discourse is also visible with the Inupiat. The Iñupiat value 'respect for nature' makes clear that Iñupiat people have taken over forms of European discourse, an unintentional effect of colonization.

After the second world war the modernist definition of humanity ended and a paradigm emerged coming from the United States of America. This paradigm came to be acknowledged as 'modernization and development' but was truly not very different from the modernist definition of humanity as 'man's mastery of nature was still the defining factor (Argyrou 2005). President Truman said in his inauguration speech: "Greater production is the key to prosperity and peace and the key to greater production is a wider and more vigorous application of modern scientific and technical knowledge" (Escobar 1995:3 in Ibid:27). Rapid economic progress was needed and "nothing less than a complete cultural transformation would save 'traditional man' from economic backwardness, poverty and disease [...]" (Ibid 2005:28).

An execution of this ideal was the creation of the Alaska Native Claims Settlement Act[25]or ANCSA. ANCSA now effectively meant that the only way that Native people could benefit from the settlement was through profit making activities (Nuttall 1998). ANCSA was a deliberate way to take Alaska Natives into the western capitalist system. However, there is a notable incompatibility between traditional native values and western-style corporate values (Nuttall 1998:65). A western capitalist system is based on making profit and native culture is based on sharing and a subsistence economy that uses the land for subsistence activities like hunting and fishing, berry picking, gathering of herbs and medicines, and ceremonial and burial grounds (Merculieff in Roderick ed. 2010).

> From 1959 when Alaska became an American state they [the United States government] designated vast areas of land we used to live on, for the Arctic National Wildlife Refuge, and the National Petroleum Reserve. They designated the land how it should be... people from outside. First they took our land, selected it and then they leased the land to foreign companies. Why did they take it and lease it to

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[25] The discovery of oil at Prudhoe Bay in 1968, gave rise to a need for settlement of Native land claims, before a pipeline would be built (Chance 1990:154). In 1971, the United States Congress chose to grant the indigenous people of Alaska 43.7 million acres of land and US$962.5. This land was divided amongst twelve regional native corporations, giving them control over one ninth of the state, which had to generate Alaska Native's future prosperity (Anders and Anders 1987; Brown in Roderick eds. 2010).

> foreigners? We have lived on this land for thousands and thousands of years and now they take our land. They construct laws that are against our native people. How low can they go?? The state and our governors which are supposed to represent our people, they sell themselves to the oil companies. They are prostitutes to the oil companies; they lay backwards so the oil companies can rape our land, pollute it. Not all of them are like that, but the people who are like that, they know who they are. They make billions and billions of dollars on Prudhoe Bay and they give us these trinkets such as door prizes and food[26]... so how does that work?!! (James, whaling captain)

There has been an intense debate about how ANCSA has affected native people, with native people being as much for and as much against the act. My intention is not to side with either one of them[27]. Rather, my intention here is to show that ANCSA is a very obvious illustration of a western model put upon the indigenous people of Alaska, that has caused a feeling of iniquity to the local people, which becomes clear from James' quote. "ANCSA has been called a national experiment on a truly grant scale. It uses capitalism and business models to mold the federal government's relationship with Alaska's indigenous peoples" (Brown in Roderick eds. 2010:52). The institutionalization of ANSCA was thus a deliberate choice to try to colonize native's mind by imposing a capitalist system which brings with it modes of thinking that are different from indigenous thought, such as profit making instead of sharing. As it is of course inevitable that indigenous subsistence societies come into contact with 'modern' capitalist societies, as they have since the past hundred years in a growing modern society. It has, however, started a process that has taken native Alaskans into the capitalist western way of thought

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[26] Oil companies arrange public meetings where the public is invited to come and listen to the company's plans. People are also often asked to give comments. These meetings always include food (fresh fruit and vegetables, which are really expensive in the Arctic, pizza or sandwiches and drinks). Oil companies also give away door prizes by handing out raffle tickets.

[27] For views on ANCSA see e.g. Ontooguk in Roderick eds 2010; Chance 1990; Alaska Native Claims Settlement Act Research Centre online http://www.lbblawyers.com/ancsa.htm#arts; Here is your land, now make money by Lisa Drew on National Wildlife's website: http://www.nwf.org/News-and-Magazines/National-Wildlife/News-and-Views/Archives/1991/Heres-Your-Land-Now-Make-Money.aspx

as an attempt to a "complete cultural transformation" to save the 'traditional' native Alaskan from economic backwardness as President Truman had in mind.

The Environmentalist view

After the new paradigm of 'modernization and development', a new radically different idea of nature came into being. 'This transformation has progressed slowly, starting in the late 1960's, when policy makers start to speak of a an earth endangered by the activities of 'man' (Argyrou 2005). 'Man' the master of nature disappeared and changed into a 'human being'. 'Nature' transformed into 'environment' that needs a cautious and considerate treatment (Ibid 2005). In this new environmentalist paradigm[28], humans now have the responsibility to be stewards and caretakers of nature. Although the environmentalist paradigm celebrates the contributions indigenous people have made in understanding the relationship between human beings and the natural world and taking care of the environment, this environmentalist paradigm has created more vulnerability to indigenous people. This paragraph will try to analyze what the effects of the environmentalist paradigm are for the Iñupiat of Barrow and to what extend these effects cause vulnerability to these people. First, we will look at the International Whaling Commission or IWC, continuing with the Critical Habitat Designation for the polar bear.

Keep on whaling ?

The hunting of sea mammals such as whales, seals and walrus provides the mainstay for the indigenous community in Barrow. These animals are not only vital nutritional resources, but are also vital to the production and reproduction of Iñupiat culture and have a powerful ideological and symbolic value (Nuttall 1998:97). Due to the commercial whaling activities by the European and American 'man', many Arctic whale species have become seriously endangered or threatened (e.g. Vaughan 1994). When the environmentalist paradigm emerged,

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[28] Argyrou points at two different forms of environmentalism, the moderate – we must save nature to save ourselves – and radical environmentalism – we must save nature for its own sake, because nature is not ours to destroy or do with as we wish (2005:38).

environmentalists began expressing concern over the depletion of whale stocks. According to Nuttall "whaling has become one of the most potent symbols for conservationists of the negative aspects of the human exploitation of the natural world" (1998:98). The International Whaling Commission was formed in 1946 to regulate the hunting of whales around the world. It was formed to ensure against the mismanagement of whaling and the depletion of whale stocks and has increasingly focused its attention on the subsistence whaling of the Inuit[29] (Nuttall 1998).

> In 1977, there was to be no more whaling[30]. After that, we were given three strikes[31] only because they said there were not enough whales. What kind of a people would do that to us? Three was not enough, it was imposed upon us and we didn't know what to do about it. But we formed AEWC [the Alaska Eskimo Whaling Commission][32]. We will move on and we will continue to whale. If we do not use thoughtfulness, we must stand to lose what we have fought for. Those that regulate us, we have to get to know them and use their tools to get what we want. We have to be prudent to manage our harvest. We need to watch and teach our young whaling captains. We need to participate actively to make sure that we take all of the whale home, that there is no waste. Whales have always sustained our communities. Back then we didn't have the snow machines but the dog team. It is not about a glory it is about a way of life that we want to pass on from generation to generation. It's not for one person but for the community. We who are whalers today, we have to teach the young people how to bring the food

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[29] In June 2003, a new proposal called 'the Berlin initiative' was adopted by the IWC that changes the very nature of the organization; from one that regulated whale management to one that protects whales. 2003 Coghlan, Andy. *The Defining Moment for Saving Whales*. New Scientist (178)
[30] In 1977, the IWC removed the hunting of the Bowhead whale from its exemption for aboriginal whaling and imposed a moratorium (Nuttall 1998:103).
[31] The IWC whaling quota is allotted in strikes. This means that when Iñupiat strike a bowhead whale, one strike is deducted from their quota, whether the whale is landed or not.
[32] Nine Iñupiat and Yupík Eskimo villages determined that whaling should continue and undertook their own research through biological studies and census projects, to show that the Bowhead whale stocks were much higher than the IWC thought (Nuttall 1998).

> on the table. When all the oil is gone, hopefully the whale will still be here. (Wesley Aiken, Iñupiat elder and whaling captain).

This speech, given by Wesley Aiken at the four day mini-convention of the AEWC[33] provides a short history from the time that there was to be 'no more whaling' to the time that lies before us. This excerpt provides valuable insights. First, it shows that the IWC creates vulnerability to the Iñupiat as they are threatened in their cultural and nutritional survival because of whaling quotas the IWC imposes. Second this speech shows the resentment towards the IWC. Third, it points to the hope that the whale will still be there when all the oil is taken away. This hope shows that the whale is still perceived as a constant factor in the lives of Iñupiaq people, even in times of change. The remark on oil also shows that all the problems Iñupiat face are interrelated. Finally, the excerpt shows the tactic of getting to know the IWC and use their tools to get what the Iñupiat want. This is what Argyrou calls *thinking the unthought*. This way of thought in turn generates a new conscious domain, that resistance can only occur at the expense of reproducing hegemony (2005:25) and confirms the earlier mentioned argument which has stated that the minds of Iñupiaq people are colonized with hegemonic western views and thoughts.

Polar bear's designated habitat

Another imposition of a policy that has direct consequences for the people living in Barrow is the designation of critical habitat for the polar bear. The polar bear is one of the animals on which the Iñupiat subsist. Polar bear meat is a delicacy for Inupiat, especially to the older people. The hide is also used for clothing and all kinds of arts and crafts. The hunter who is able to 'take' a polar bear is perceived as a great hunter.

Because of receding sea ice, the polar bear is decreasing in its numbers. The animal was listed as an endangered species in the Endangered Species Act (ESA) in 2008. An area on Alaska's North Slope has been designated by U.S. Fish and

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[33] Held from the 15th to the 18th of February 2011 at the Barrow High School auditorium and open to the public.

Wildlife as critical habitat for the polar bear in 2010. According to U.S. Fish and Wildlife, a critical habitat is "an area that contains habitat features essential for the conservation of a threatened or endangered species and which may require special management considerations[34]". Sixty nine percent of the proposed critical habitat area is sea ice[35]. The rest of the area is terrestrial area. The designation means that every project within the designated area involves federal permits, will be subject to additional review and potential delay and regulation by the federal government. North Slope Borough Mayor Edward Itta had the following to say about the designation in ASRC's Newsletter (2011:3):

> The Critical Habitat Designation does not get at the problem of melting sea ice, so it won't help the polar bear, it will only restrict normal community growth in our villages and threaten access to our traditional subsistence hunting areas. As a solution, this completely misses the mark.

When discussing the habitat designation with one of my informants, it became clear that there is a deep rooted resentment towards policy makers.

> People create organizations or policies that try to take care of animals. But the policymakers have done it the wrong way. An example is the polar bear critical habitat. Most of the designated area is sea ice, but who is to say that this ice won't melt as well? Then the polar bear has only a small piece of designated area that consists of land. But they will starve on those lands, it is not their habitat. These policymakers have never touched or seen these animals themselves. How do you make a policy that is so far away and you have no idea of the impact to the communities? It is a stab in our back. People impose more and more regulations from thousands of miles away. They should listen to our

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[34] 2010, Polar Bear Critical Habitat, Some Frequently Asked Questions. U.S. Fish and Wildlife Service http://alaska.fws.gov/fisheries/mmm/polarbear/pdf/critical_habitat_factsheet.pdf. Accessed on July 17, 2011.

[35] Ibid.

> people and take into account indigenous knowledge. They believe that the land will be used by the polar bears when the ice is gone. The polar bear gets to starve and the sanctuary of being there [at the designated area], a sanctuary of *what*? An empty playground? The food source is zero, survivability rate of bears would be extremely low. This is because the female polar bears are known to be the only ones to teach the cubs how to survive. But there is nothing to eat, so the animal is now lessened in its training by several months out of the year with the ice receding. The effect this effect has on our people is outrage, a numb feeling; like you are about to be hung. It is the same feeling for that polar bear that is trying to live on that designated spot. It creates a hardship to the very people that we are. You add more stress and chaos to the already stressed out communities. They have the right to say "don't kill a whale, protect the polar bear". But when do I become an endangered species? We haven't done damage to this earth. The impact of *their* statements and policies damages *our* nutritional needs and *our* traditional way of life. (Thomas, Iñupiaq man)

The policy to designate a critical habitat for the polar bear creates vulnerability to the indigenous community in Barrow as becomes clear from Thomas' quote. Second, the quote makes clear that the feeling that Iñupiat people have towards the animal is also of significant importance to the them. Designating an area for the polar bear not only means that indigenous people would no longer be able to hunt for these animals on these grounds, it also means that they would no longer be allowed to hunt on these grounds at all. The development of oil and gas in the region is also at stake as almost half of North Slope oil production comes from an area within the Critical Habitat Designation (ASRC 2011:3).

The environmental paradigm may seem an improvement when looking at how one perceives the environment and what role one assigns to himself. It seems to resemble more like that of the indigenous people. Although environmentalists see themselves as being the complete opposite of the modernist 'man' and their paradigm as a radical break with 'man's' modernist paradigm, it is really not like that. According to Argyrou (2005), environmentalism reproduces the *logic of the*

Same. This logic has become apparent in the issues discussed in this paragraph: the environmentalist opposition to whaling and the designation of a critical habitat for the polar bear. Whereas in the modernist definition of humanity and modernization and development paradigm 'man' had the self-assigned task to bring development to the other by teaching him to master nature, now the environmentalist has the self-assigned task to teach the other that nature is fragile, complex and in need of care and that it needs to be protected. In short, all three paradigms have told the other what to do and are therefore no different from one another. All three have brought continuous vulnerability upon indigenous people of Barrow.

Conclusion

As this chapter has shown, there have been and still are lots of things going on in the Arctic. It is a place in which many people from all over the world have an interest in. These different people with different backgrounds have brought and continue to bring with them different ways of viewing the world around them. Indigenous people in the Arctic have been influenced by these ways of thought through colonization and colonization of the mind by non-native people such as whalers, missionaries but also through organizations like the IWC and the U.S. government. Native people have come to think in the way western Americans or Europeans do, but they also still have their traditional thought which becomes apparent in practices like subsistence hunting. In these practices they make use of native way of thinking or believing, e.g. 'the whale gives itself'. This vision of a combined western and indigenous view is neither a truly western view nor a truly indigenous way of thought but something in between: a betwixt and between vision of the environment. They are trapped in what Argyrou calls a double bind:

> From the early 1970's onwards, therefore, postcolonial 'man' was forced as much as he forced himself to tread the fine line between these two sets of assumptions. He continued to push for modernization and development but he could no longer ignore the environmentalist reality and its wider political and cultural significance. It was important that he

> redeemed himself from the cultural pollution of poverty but equally important that he did not fall into the cultural poverty of natural pollution (Argyrou 2005:164).

Postcolonial ‘man’ or in our case the indigenous man in the Arctic will never be able to do it right in western ‘man’s eyes. ‘He will be similar, but never quite the same’ to quote Argyrou once more (Ibid.:16). The values western ‘man’ puts upon indigenous people are conflicting and this causes continuous vulnerability on social, political, economic, environmental and cultural level as has been shown in this chapter.

That there is a crucial difference in western man’s and indigenous thought is patently obvious. It has become obvious that the clear distinction on the perception of the environment that Ingold draws between ‘western’ and ‘hunter gatherer’ cultures is not correct. Not in the case of the indigenous people of Barrow, but it might not even be correct for *all* hunter gatherer societies. Does the true ‘hunter gatherer’ society still exist in this world at a time of globalization? There is virtually no single place on earth that has not been visited by people from outside. Almost all places on earth are economically and politically connected to each other in some form or other. Are there hunter gatherer societies left that have not yet come into contact with western discourse about nature and culture? Ingold’s theory on the ideal perception of the environment as a poetics of dwelling – a perception of the whole organic being situated in a richly structured environment (Ingold 2000:5) is noble and for sure the most plausible way to make sure people will be more cautious about their environment in a time of environmental degradation and a changing climate but neglects indigenous hunting and gathering communities that have been influenced by and by now often play a significant part on the world stage.

This chapter has analyzed the root cause of friction in the Arctic and has provided us with examples of multiple issues that Iñupiatin Barrow struggle with. Dominant western media portrays climate change as the biggest threat indigenous people face. But as the two previous chapters have shown, this is not the case, there are many other problems. However, this ascription does not mean that we

should not look to climate change. Rather, let us listen to the stories Iñupiat have to tell about the phenomenon in the next chapter.

The crew takes away the ropes and the pulley and scientists[36] measure the length of the whale. Children and other people take pictures of themselves and the whale. The whale is a small male and measures twenty-seven feet. A third of the black baleen plates is sticking out of its mouth, and its skin feels cold; a warm hand leaves a print on the skin for half a minute. A few men in black thick plastic overalls carry wooden sticks with a sharp blade attached to the end. They mark two sections on the right hand side of the flipper with two big X's. I later learn that this is the *tavsi*[37] part. While a biologist is measuring the warmth of the whale's eye, a man climbs on the whale and sits on top of it. He starts cutting from above and now two men are cutting in the blubber of the whale; one on top and one on the right hand side. Young boys come running with big hooks attached to ropes. One of the boys hooks his hook in the top part of the blubber that has just been cut and pulls on the rope. This creates a tension on the rope and separates the blubber from the flesh. This in turn enables the man on top to cut the blubber from the flesh with precision, leaving the flesh untouched. The whole whale is stripped in this way and older men show younger boys how to successfully place the hook in the blubber. The cutting is done by five appointed men, but everyone can participate in 'hooking' by getting a hook from the crew. When the strips of blubber and skin are pulled of, the captain or one of the crew members is asked where the piece goes as the whale is distributed carefully; every piece has its own destination. Soon there are piles of meat everywhere on the ice. Little blood is spilled by the stripping of the whale but when the men start to cut in the meat blood gushes out on different sides. A woman collects a lot of the blood by holding a big white bucket underneath a just cut part. This blood will be used to make *mikigaq*[38]. The air turns misty from the steam coming from the warm whale flesh and the dark red blood colors the snow in a big circle around the whale. Overalls, snow pants, and parkas are increasingly being stained with blood. The whole whale is stripped until there is nothing left except the ribcage which is left on the ice as a treat for the polar bears.

[36] Every time a whale is caught, a team of scientists from the North Slope Borough Department of Wildlife Management is present on the ice to carry out measurements. They determine length and temperature among other things.
[37] Half of the Tavsi goes to the successful crew, half is cooked and served to the public.
[38] Fermented whale meat served as delicacy at Nalukataq.

ALASKA

3 – Climate change

In the mainstream media, polar bears standing on pans of melting chunks of sea ice have become emblematic of climate change and its immediate threats (Henshaw 2009:153). Furthermore, climate change has been woven into worldwide consciousness through global public discourse (Lorenzoni and Pidgeon 2006:75 in Marino and Schweitzer 2009:209). “It seems that climate change has become an explanatory account for almost everything that seems to be unusual in the environment, the weather, or in people’s actions and encounters with their environment” (Nuttall 2009:293). But how do indigenous people living in the Arctic perceive climate change, and what changes are they noticing? What explanations are they giving for these changes? This chapter will try to answer these questions by providing stories Iñupiat people tell when asked about changes in their environment. This chapter will start with an overview of how climate change in Alaska is perceived by both western and indigenous people.

Climate Change in Alaska

Alaska is increasingly gaining notoriety for being on the Northern Front of Climate change. Indigenous people in Alaska have come to know two types of climate changes: first, the rapid and sometimes unpredictable changes in their environment and second, an invasion of journalists, photographers, scientists and politicians, being concerned about something that they call ‘climate change’. Journalist Bob Reiss (2010) wrote an article called *Welcome to Barrow, Alaska, Ground Zero for Climate Change*. “I’ve visited Barrow when scientists filled every bed on the former [Navy] base, bunked ten to a room in a dilapidated house in town and slept in cots laid out in rows in the community center” (Reiss 2010). These visitors bring with them a western discourse of climate change: what climate change is, what it is affecting and what it will affect in the future (Marino and Schweitzer 2009:212). This discourse has affected indigenous Alaska.

The effects of western discourse became clear to me in the field. Let me provide two examples. The first is directly related to my role of being a researcher. Sometimes, I was in the unfortunate position of being introduced to a new

potential informant by one of my American friends, who sometimes introduced me as: “an anthropologist doing research on climate change”. The few times this happened, the person reacted in this similar kind of way: “You’re not the first one, girl, but it is happening”. The second example I saw at a three day conference hosted by the North Slope Science Initiative (NSSI) The conference was titled: Science, Natural Resources, and Subsistence in Alaska’s Arctic Lands and Waters: A continuing Dialogue on Working Together To Understand Our Changing Arctic. During this meeting, local people were asked about how ‘climate change’ affects their lands and subsistence[39]. What was remarkable is that the answers people gave, were the same that can be read in a lot of scientific papers or media, like the thinning of sea ice and the consequence it has on for instance walrus or seal population and catches. According to Marino and Schweitzer, conversations about change and the local environment are much more effective and dodge the ‘standardized’ conversations about climate change, which consist of the global discourse adopted by indigenous peoples (2009). During my research it became clear to me that not talking about climate change is the most effective way to dodge these standardized conversations.

Western media and research are so focused on reporting and researching the effects of climate change, that other interrelating, equally important issues are overlooked. Mark Nuttall points out that indigenous and local perspectives on climate change are not only those on environmental change but they are also entanglements of moral and emotional feelings and meanings, social and cultural claims and political processes (2009:294). When incorporating Marino and Schweitzer’s theory on ‘the power of words’ by not speaking of climate change – the anthropologist avoids missing the local knowledge. By not just telling the standard stories about climate change embedded in the global climate discourse but rather telling and analyzing the stories that are entangled in the way Nuttall describes I wish to reveal those issues that are overlooked by most researchers.

[39] March 29-31, 2011. IñupiatHeritage Center, Barrow.

Stories about change

In this paragraph Shawn, James and Sarah and Kinu will tell us how changes in their environment have affected their lives and livelihood. Although most people in the community of Barrow notice changes in their environment, they are not all equally affected by these changes. The first story will make clear that there is a different level of impact from climate change noticeable between the Iñupiaq community and the immigrant community in Barrow.

Community or Native Community?

> Shawn and I are making a Sunday afternoon drive through town[40]. Shawn is a tall, deep chested man in his mid-fifties, with short fair hair and a stern look on his face. It looks like his cigarette has been glued to his hand. For in the thirty minutes that we have been driving, he has smoked at least five cigarettes. He rolls down the window and lights yet another cigarette. Cold air fills up the car. “This street we are on right now is called Stevenson Street” he says in a deep voice. We are driving on the road parallel to the beach. The beach is covered with huge chunks of bright blue and grey sea ice that have blown up on the beach during the white out that lasted for the past three days. “This road has flooded a few times the past few years. We are planning to build a new road further from the sea to make sure this won’t happen again. We are afraid the whole road might be washed away completely by the sea if we do nothing. The sea used to be much further out, but in the last twenty years it has crept up on us. We will close Stevenson road completely when the new road is finished. These changes in the climate are costing my department a lot of money.” I ask him if these changes personally affect him in his livelihood too. “It doesn’t have any impact on me personally. I don’t live off the land like the Iñupiat do. I go caribou hunting once in a while but the caribou are still easy to find.

[40] Many people in Barrow make Sunday drives around town as there is not much else to do.

> Two years ago, we even shot four of them from our car! I think it doesn't really impact the people who don't really live off the land. But it's getting harder for the Iñupiat people. Ice cellars are melting and that results in whale meat going bad. But, we help the Iñupiaq community by relocating ice cellars or by consolidating the walls of their ice cellars." (Shawn, one of the mayor's directors)

Although Shawn knows about changes in the environment and how it affects the infrastructure in Barrow, it does not affect his own livelihood. This story is what most non-natives told me. Even though climate change does affect for instance infrastructure, something all of the people in Barrow use, infrastructure is something the NSB takes care of and is not something that affects people in their livelihood. It doesn't affect them yet, because they are not hunters who hunt for the same animals natives hunt for, like seal, walrus, whale and polar bear[41].The Iñupiat living in Barrow are affected the most as they are still dependent on subsistence hunting both their sustenance and cultural survival. Their perceptions on changes in the environment are next.

The bond between a father and his son

> James is working on a walrus skull and tusks when I enter the traditional room of the Iñupiat heritage center. The traditional room serves a unique function in the community as it is a place where Iñupiat can work on their arts to make a living. James turns off his dremel drill, stands up from his stool and comes walking toward me to give me a big Eskimo hug. "Illauna! Good to see you! I have finished the skull and glued the tusks back in, what do you think?" he asks me when we walk to the big sized table that has two dremel drill kits, a knife and a small bucket filled with different sizes sanding paper on it. "*Aarigaa*[42], that looks fantastic!". Upon which he replies: "My son will be so proud when

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[41] Only Alaska natives are allowed to hunt these animals. There is also a distinction within Alaska Natives, like *coastal natives* who are allowed to hunt for polar bear (informal conversation).
[42] Iñupiaq expression for when you are really amused with something.

I will give him this *aiviq*[43] skull, he can hang it on his wall and it will remind him of what a great hunter his dad is". James is a middle aged whaling captain with short graying hair who loves talking, especially about Iñupiaq lifestyle and God, as he is a fervent member of the Utqiaġvik Presbyterian church[44]. He is wearing glasses and a dust mask to protect his eyes and mouth from the dust that arises when the dremel touches the walrus bone. "You know when I was young, we always had ice, year round. The ice was much thicker. In summer, ice bergs were at least ten feet thick, nowadays they are maybe only three feet thick. They never thawed during summer like they do now, they just floated by". He picks ups his dremel, turns it on and starts sanding the part of the skull where the tusks emerge from the skull. "The ice used to bring small fish year round, but now there is less ice and not so many small fish. A lot of little animals need the ice to survive, whatever is there, little worms or something like that. First there is ice, then there are little bugs or worms, which get eaten by krill, the little fish eat the krill and the seals eat the little fish. Seals are again food for walrus. We subsist almost all of these animals. It is the cycle of life that God created when he created the earth". He says while the sound of his voice travels through the dusk mask and the dremel drill is making noise. He looks at the walrus skull. "You know this *aiviq*, you will smell it from the boat when you are close, or you will hear them, sometimes they bark like dogs! You know, we know where the animals are because of the current. That is where the animals like to feed. Because of the short duration of the ice being around us now, we don't have the time to teach our young men about the current and the ice conditions as well as we used to. When I was in my early twenties, I went out on the sea with an elder. We were in a skin boat and there were a lot of seals we were chasing. The ice was moving and we got in the bad current. We found a big ice berg that was around ten feet thick, we climbed on it and guys with a

[43] Iñupiaq for walrus
[44] The church in Barrow that most Iñupiat attend.

> small aluminum boat took us out of there. This is when I learned about the currents. But our young people, it is so hard for them to learn now. The sense of bonding between a man and his son, that is lost too. It is through hunting and whaling that we keep our young men busy and that keeps them away from drugs and alcohol." He puts the sanding paper down and gets up from his stool. "I remember when I was nine or ten years old I went out at 11.30 in the evening, it was summer. I walked about a mile out and you could see holes in the ice. I could see three older men, hunting for seals". He points in the air as if the three men are visible in the distance right then and there. "I was halfway up the bluff, saw one seal swimming underneath the ice and shot it. I took it with my hook and I brought it home. I went to sleep and I woke up at four in the morning from the smell of boiling seal. My mum was cooking and she was so proud of me."

From this story becomes clear that James is noticing changes in the environment. The receding sea ice has far-reaching effects to the social structure of the Iñupiaq community. James perceives the ice as the classroom that enables young people to learn about currents and animals, knowledge that is vital to become a good hunter. Cultural knowledge, which is the basis for the survival of Iñupiaq culture, is lost as the older generation is no longer able to teach the young men about the currents. Teaching about the currents and the ice was also one of the ways to keep young men away from alcohol and drugs. As Jamie pointed out in the first chapter, alcohol and drugs are perceived to be the biggest problem the Iñupiaq community faces today. The teaching of young men also contributed to the bonding between a father and son, something that is gradually disappearing along with the sea ice. Finally, this story provides us an insight into the social order of the Iñupiaq culture. Iñupiaq men gain status in the community by being a good hunter. This social status system is now also subject to vulnerability as the receding sea ice also means that there are fewer animals to hunt for.

Whaling mama's sewing crew

"*Illauna*, you have got to use the thimble! You won't be able to sew tomorrow if you don't use it!" Kinu tells me. I am helping Sarah and Kinu of the Shichaq whaling crew sewing *atigis.* "Otherwise, you might end up doing what I did.. pinch your finger with the needle and stain the fabric" Sarah says mockingly. "Did you know we use the white fabric for the *atigi* cover so the whale doesn't see our hunters? The whales see colors, the white color lets our hunters blend in with the ice". Kinu's living room is filled with stuff like a big screen TV, a computer on a desk in the left corner. Prayers and trinkets are pinned down on off white walls. The worn-out wooden floor is cluttered with small pieces of different kinds of animal fur, thread and a sewing kit with a few small *ulus*[45] (knives). The two ladies in the room are both Iñupiaq women. Kinu is a whaling mama, Sarah is Kinu's aunt. I ask them if they have noticed any changes during the seasons. While Sarah is attaching a pink cover to the dark brown wolverine with grey wolf fur ruff she answers: "We have always went and thought in seasons as every season had different things to get ready for. Barrow used to be a seasonal place, and in another season, you went someplace else or you traded with some other families who were specialist in a seasonal thing. We are not getting the same seasons any more, they are getting shorter and it feels like everything is coming sooner. We have to get to start planning things earlier if we want the same cultural things happening. We are so programmed to do it a certain time of the month, it is going to take us a while to adapt and do it at a different time. Like our *Piuraagiaqta*[46] that is supposed to be held the third week of April, which is in two weeks, but this year, they have advanced it to next week". While Sarah is talking Kinu leaves the living room and goes into the kitchen to prepare

[45] An *ulu* is the traditional Eskimo woman's knife. The handle is made from whale bone or any other kind of bone and the blade has the shape of a half circle form and is cut up from a large saw blade.
[46] Spring festival with *maklak* (Eskimo boots) races, *iglu* building, snow machine races, golf on the ice and many more activities to celebrate the beginning of the spring whaling season.

> lunch. When she returns she says: "Changes in the seasons, huh, you asked us? I don't know if it is a change in the season or just a change that will occur more often but my uncle died half a year ago and our family needed to dig a grave at the graveyard out near freshwater lake, you know that one?" I nod in assent. "Normally, this is a tough job just by digging through the frozen ground but this time it was more complicated because the ground in the lower part of the grave was thawed out and very mushy. The men needed wooden boards to keep out the mushiness so they could put the casket into the ground. This is the first time I have heard anything like this."

Both ladies acknowledge that their environment is changing. Sarah notices a change in the seasons and has realized that if the Iñupiaq community wants the same cultural things happening, a new way of thought must be developed. She also provides an insight in Iñupiaq perception of seasons. Kinu's story about digging a grave in the permafrost acknowledges an aspect of climate change: the melting of permafrost through climate warming.

Most anthropological studies about climate change focus on adaptation. Nuttall argues "to understand local strategies of adaptation to environmental change and to develop this resilience, we must understand and pay closer attention to the social and cultural contexts of anticipation" (Nuttall 2010:23). From the stories that were told by Shawn, James and Sarah and Kinu it becomes clear that they anticipate the changes that are affecting their environment. Although Stevenson Street is still in use, the NSB is already anticipating through orientating themselves on where new roads should be built. Kinu indicates that seasons are changing and coming earlier. She knows what to expect from the different seasons and she is clearly anticipating to this by saying that if the Iñupiaq want the same cultural things happening, they need to start planning in a different way. Sarah's realization validates Nuttall's theory of adaptation being the ability to anticipate in Sarah's story: 'planning in a different way' results in the adaptation measure to move up *Piuraagiaqta* one week. This adjustment can be seen as a

successful adaptive capacity of the Iñupiaq community as a whole. Adaptive capacity will be further discussed in chapter four.

Iñupiaq clarifications for environmental change

"The weather is always changing but these changes are different". (Ayaunak, Iñupiaq man)

Most Iñupiaq people have stories about changes in their environment. The stories are different but have one common denominator: change. However, the explanations Iñupiaq give for the changes that are occurring in their environment are not unanimous. People give different explanations as to why things are changing. The commonly heard explanation of religious people is that these changes are the signs that the end of the world is nearing and consequently means that Jesus is coming. "Nowadays the sun is so high, and the position of the moon and the stars are different too, these are the first signs. There will come a great famine and it has already started. It is so much harder for us to catch animals and the animals are getting sick too, because they can't feed themselves as well anymore" (Jamie). During the time I was in the field, a Tsunami disaster struck Japan[47] and killed many. After praying for the people that were hurt[48], this event was rejoiced as being one of the signs of Jesus's alleged advent[49]. So they do not only attribute the changes in their own direct environment to the supposed ending of the world, but also changes that occur elsewhere in the world.

People also attribute changes in the environment to the pollution that is caused by countries that have produced the dominant global climate discourse. Iñupiaqpeople are not isolated from the rest of the world, on the contrary, they watch television and receive cable TV channels. They are connected to the world wide web and read newspapers. James said: "These changes in our environment occur because other people do not take care of their lands. Their elders maybe

[47] The Tsunami struck on March 11, 2011.
[48] One Iñupiaq woman told me that she not only prayed for the people but also for the whales, and that the first thought that came to her mind when she heard the news, was about the whales in the Japanese waters.
[49] Church service march 13, 2011.

didn't teach them like our elders have, to have respect for the sky, land, water, air and our animals. They have not taken care of their backyard[50]. The developing countries they use so much coal now to get to the same level of industrialization that America has come, and they cause 99 percent of the pollution, that is devastating to our environment".

The last explanation for these changes is that changes in the environment always occur. "Our ancestors always had to cope with changes in the environment and they adapted, and so will we. But whaling is getting more difficult now that the ice is thinning and receding so fast, we will need to see what else is going to happen so we can make new plans" (Taqtuk). Even though change and adaptation is something that has always been central to Iñupiaq survival, current changes in the environment are perceived as being different than changes they their ancestors had to cope with due to their profoundness.

Conclusion

This chapter has shown that climate change is illustrated by the prominent view of a polar bear on the last bit of floating and melting iceberg. The western discourse that accompanies the term *climate change* has also found its way into indigenous thought. Not talking about climate change is the most effective way for anthropologists to gain understanding in how environmental changes affect native people's lives and livelihood. This tactic provides insight in which culture and social implications result from environmental change and in turn what impacts these social and cultural changes have on the lives of Iñupiaq people. These cultural and social implications resulting from changes in the environment in turn also show that climate change is not an isolated process but is intricately entangled into other social, economic, political and cultural processes. The stories in this chapter have also shown that although the media uses *climate change* as an explanatory term for all unusual things in the environment, climate change is not

[50] Iñupiaqpeople perceive the ocean as their 'backyard'.

the explanation most Iñupiaq people give for the changes that they are noticing in their environment.

By looking at how Iñupiaq anticipate to the changes in their environment, we can understand strategies of adaptation, like moving up *piuraagiaqta*. There are scholars who doubt the ability of adaptation by indigenous people in the future for different reasons (e.g. Nuttall 2009, ACIA report 2005). The next chapter will explore if this doubt is legitimate by looking to the agency that Iñupiaq people have through their ability to adapt and their social capital.

The day after the whaling crew caught the whale and all the whale meat was hauled from the sea ice to Kinu and Joseph's huge garage in town, women were invited to prepare whale meat. I bring my own *ulu* and proudly show Penny, Kinu's mom, who is cutting large slabs of black and dark red whale meat. "That *ulu* is way too small girl," she starts laughing in a friendly manner. "here, this one will do better", and she hands me an *ulu* twice the size as the one I brought. I start cutting meat for a while and when there is no more meat to cut Kinu tells me to sit in line and help the ladies bag. Not knowing what she means, I just go and sit between other ladies. One of the ladies gives me a small black crate to sit on. I then see what is happening. Each woman has been given a bin with some kind of whale meat, be it large intestines, tongue or *uunalik*[51]. The first woman in line has a small plastic bag and puts one of her pieces of meat in and this is repeated until the last woman of the row and the small bag is full of whale meat. Around half past eight in the evening, Joseph announces on the VHF that our crew is ready to serve. Penny then says a prayer in Iñupiaq and when she finishes all the people in the garage start making 'hey hey hey' sounds of joy. Soon, there is a line of around eighty people gathering outside the garage to get their bag of whale meat.

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[51] Iñupiaqfor boiled *maktak*.

BRW

4 – Agency

> Experiencing year-to-year changes in weather, ice and snow patterns, animal behavior and movement, and in hunting conditions is part of life in the Arctic. Yet the trends currently being observed give concern over major, *irreversible* impacts on indigenous communities and livelihoods (Nuttall et al, 2005:661, emphasis mine)

Changes have always occurred in the Arctic. People live with the fluctuations of the climate and weather. But the environmental changes that are occurring now are perceived as “different” than year-to-year changes that people have been used to for generations, as became clear in the previous chapter. The irreversible impacts and the magnitude of these changes give scholars reason to doubt whether indigenous people will still be able to adapt.

In research and policy on vulnerability, there is a strong focus on adaptation. According to Nelson et al “Adaptation celebrates human agency as resistance, flexibility, and creativity, while fully acknowledging the realities of contestation and restraint” (2009:273). Adaptation can thus be seen as a form of agency. Crate and Nuttall are doubtful whether coping and adaptation mechanisms are sufficient because of three reasons. First, there is a lack of sufficient understanding of how societies build adaptive capacities in a changing environment. Second, the change that is occurring is far beyond restoration. Third, the first two combined with institutional and legal barriers to adaptation severely constrains the ability to respond to climate change (Crate and Nuttall 2009:10). There are two interesting things about Crate and Nuttall’s doubtful statement. One, it is a plea for more research on how societies build adaptive capacities. Two, this statement casts doubt on the ability of people to exert power on changes that occur within the structure they live in – in other words, their agency.

This chapter looks to the concept of adaptation and social capital as agency and explores what the effects of these concepts are and how they are used in the community. It will show that adaptive capacity is not always constructive to the whole of the community but is nevertheless an essential coping mechanism. The

chapter will also explore what kind of social capital actors in Barrow use in order to analyze how this coping mechanism contributes to the agency of individuals and the community.

Adaptation as agency

> I need them to catch the bigger whales because the 50 feet whales have the biggest and thickest baleen. They prefer the 30 to 40 feet whales now because the ice is too thin to pull up the heavy ones. (Ayaunak, baleen artist)

Adaptation strategy and capacity can be placed in the broader context of the structure – agency debate that is prevalent within the discipline of anthropology. Let us briefly look to this structure – agency theory first. Simply put, this theory outlines the environment people live in and the processes they deal with as structure and the power that people possess to influence these structures as agency. Giddens coined this as the *structuration theory* (1984). He points to the duality of structure as the constitution of agents and structures represent a duality(1984:25). Structures like political, economic, social and environmental ones have come to exist through the actions of actors. Structures are thus created by actors, and they shape the world around these actors but are at the same time also moldable by these actors as the actors have created the structures. Structures can thus both be constraining and enabling. Consequently, agency refers to the capability of an actor to 'do things' and sees the actor as the perpetrator of action able to intervene in the world or to refrain from it. In any case, whatever happened would not have happened if that individual had not intervened (Giddens 1984:9-14).

Adaptation can thus be viewed as agency. Nelson et al 's argument that adaptation celebrates human agency as a resistance and creativity emphasizes that because people adapt to structures, the structure itself can also be changed. However, the argument also makes clear that the concept acknowledges the realities of contestation and restraint. Adaptation is not always constructive and has its restraints. An actor only has agency when he or she is capable of

intervening in the structure. Adaptation can sometimes have unintentional effects as through making adjustments to sustain modes of life, people unwittingly set the stage for new problems that future generations have to cope with (Hassan 2009:41). Yet adaptation is one of the forms of agency that is essential for resilience to harmful structures. The next paragraph will look to adaptive capacity of people in Barrow.

'We catch the smaller whales now'

> Whaling season has begun. During this time crews are setting up camp out on the ice. I am talking to whaling captain Jake in his living room. Most older whaling captains stay at home while their crew is out and listen to the VHF radio[52] to stay in touch with their crews. Jake is an Iñupiaq whaling captain in his sixties. He is a tall man and has a slender posture. His eyes are wide and he has a hollow-cheeked face that carries a stern look. At first glance, it looks like he is a taciturn man, but allowing long pauses of silence in the conversation, he appears to be quite the story teller. He is sitting on the couch opposite from me and there is a small table with a VHF radio and some magazines on it to his left side. During our conversation Jake is paying close attention to the VHF radio, as his crew might just be about to chase a whale. "There is hardly any sea ice during winter that is really thick, it is just slush that freezes over and we have to be really careful. The ice needs to be around ten feet thick so we can pull up the whale. First we put a buoy on the whale and then we hook it to the pulley. But the ice needs to be thick enough to pull up the whale. So we [the whaling captains] have decided to just catch the smaller whales between 26 and 37 feet during spring whaling. They are lighter so they are easier to pull up on the ice and the ice is more likely to hold. Also many people prefer the meat of smaller whales, because it is more tender. But we don't just catch the

[52] The VHF radio is a marine radio system which all crews have with them both out on the ice and at home. This system is used to communicate between groups but also to send out messages to everyone in possession of a VHF radio.

> bigger whales anymore just because the ice is thinning, it is..". "Good afternoon, good afternoon". Jake immediately looks at the VHF radio. "Eskimo donuts for sale, a dozen for eight dollars, 534 Natchiq street[53]" a male voice says very slowly and deliberately like every word is carefully chosen – a typical Barrow way of speech. Jake relaxes again and continues. It is not only because the ice is thinning that we prefer the smaller whales. There is a change in attitude going on too. Maybe it's even a cultural change. Most of our younger men are a TV generation. They prefer not to live off the land because it is so much easier to just go to AC[54], than to butcher a whale. If we catch the bigger whales, there is simply not enough manpower to butcher it anymore. The first crew [that catches a whale] is always the lucky one because then people are all excited, but the fourth, fifth, sixth and so on, it is hard for those crews. The computer and technology have done a lot of damage. When my wife and I were young, we always took our children camping so that it is in their blood to be a hunter. Now my children are in my whaling crew and my sons are such good hunters".

What becomes clear from Jake's story is that there are a number of processes going on that are practically irreversible. Changes in the bowhead whale hunt are attributed to changes in the environment like ice coming in later and being thinner (e.g. Kishigami 2010) While this is an important and probably irreversible factor, the social factor that is pointed at by Jake is completely overlooked by scholars. The cultural change that is happening might be just as important as the environmental changes that are occurring. Whaling crews therefore try to adapt to both of these changes by catching smaller whales. Again, it becomes clear that by not talking about climate change, important social changes becomes apparent, which otherwise would have most probably been overlooked.

When looking at the community, the effect of the adaptation measure of catching smaller whales by whaling captains is twofold. Some people appreciate the smaller whales because they taste better. So it can be noted that this is a

[53] The address is changed and also inexistent to protect privacy.
[54] A big one-stop shopping mart.

positive effect of adaptive capacity. There is, however, also a negative effect for some other members of the community, namely the baleen artists. As Ayaunak's quote in the beginning of this chapter has made clear, these artists would rather have whaling crews catch bigger whales as the size of the whale determines the size of the baleen. Although adaptation is of great use, it can also negatively influence structures and create new vulnerability. What might seem to be a constructive adaptation measure performed by the group of whaling crews creates a new vulnerable structure to an individual like Ayaunak. Through human ingenuity whaling crews have unwittingly set a new stage of problems that impact the baleen artist. According to Hassan (2009:41) adaptation is accompanied by the unintentional creation of vulnerable structures for the coming generation. Ayaunak's case makes clear that this can even happen within the same generation.

Even though adaptation might have its limits, and is sometimes unconstructive to some people in the community, it has a many positive effects and is a valuable framework. An effect of catching the smaller whales is that an important aspect of the community's social capital – sharing with the community – will not be lost.

Social capital

Combined with adaptive capacity, social capital is an important mechanism to create resilience to vulnerable structures. Social capital is being defined in different ways and some critical scholars argue that it is a vague concept which is weak and of little analytic use (Portes and Landholt 1996; Harris 1997 in Flores and Rello 2003). Nevertheless the concept is widely used by many scholars, and anthropologists in particular (eg. Vásquez-León 2009; Nelson en Finan 2009; Galvin 2009) and offers a theoretical framework that can help analyze how vulnerable individuals or communities deal with the multiple insecurities that have been discussed in the previous chapters.

Social capital can be defined as "aggregate of resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu 1985:248 in Vasqeuz-Leon 2009:290). These networks are based on trust and reciprocity and are

characterized by vague commitments (Portes 1998 in Ibid.). The concept can be seen as an investment in resources that are embedded in social networks, and an investment in social relations with the expectation of something in return. Through this, the actor hopes to gain resources that would otherwise have been unavailable to him. This can be pursued in an individual or a communal manner (Lin 2001a in Lin 2005:3). Social reciprocity relationships can thus be of use when people face financial crises, medical emergencies or natural disasters. Extended family is most frequently used as social capital, but also neighbors, friends, business ties and links that extend beyond the community (Narayan et al 2000:44). Through these social reciprocity relationships resilience to vulnerability is strengthened. Let us look at two short stories that show how reciprocity is used by Iñupiat in Barrow.

The cakewalk

> Native women are selling their Eskimo donuts and girl scouts are selling their girl-scout-cookies in the entrance hall of the AC[55]. On the left side, next to the entrance door, is a big notice board that measures around 2 meters wide and 1.5 meters tall. The notice board is full with US letters that either give notice of events or are advertisements for snow machines, guns, parkas etcetera. "Cakewalk on Saturday, 11.00 am at the high school cafeteria. Please come and buy cake, I am raising money to visit my dad at ANMC[56] in Anchorage. Donations welcome!" an ad says. The next morning at the high school cafeteria, seven women are selling both homemade and store-bought cakes and pies. One woman says: "My friend Beth really needs the money so she can visit her dad in Anchorage, he has had a stroke. So I baked two cakes for her. We hope to sell it all so she can visit her dad soon!"

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[55] Local one stop shopping mart.
[56] Alaska Native Medical Center.

Fish from Atqasuk[57]

> During one of my conversations with Jake, I ask him if he can explain the importance of the bowhead whale. It takes him a while to answer, and I can see him think as his wide eyes slightly narrow. “This is a difficult question because the whale is so central to our community and it is so important in so many ways. But let me try. When we first catch a whale, we feed the community by serving after we hunt, which already starts on the ice, when the first peace of *maktak* is cut for everybody who helps butchering the whale. Then, we feed the rest of the state. We send *maktak* to Anaktuvuk pass[58] and they send us all kinds of berries. The same with the Bethel area. What we don’t get from here, we get from them and it works both ways. When there is a native gathering in Fairbanks or Anchorage, they request *maktak* from us. During *Nalukataq* we share the whale meat with everyone in the community, native or non-native. We won’t sell the meat or *maktak*, we share. And we share our baleen with craftsmen who make carvings or baskets. The whole community lives off the bowhead whale.” We talk a little more and then his wife Jamie enters the room with a big cardboard box. She has a big smile on her face “I just picked up a load of *titaalik*[59] at the airport, the one that cousin Jeremy was going to send us from Atqasuk! Illauna, you must stay for dinner, we’ve got plenty and it’s so good, so fresh!”

Social capital is of significant importance not only within this community but also between native communities throughout the state. This is because Iñupiaq communities throughout Alaska are fundamentally based on reciprocity. Norman Chance writes about traditional Iñupiaq communities “In times of plenty when ice cellars were full, the need for interfamily cooperation was minimal. But one never knew whether a full cellar this year would be followed by an empty one the next.

[57] See appendix I for a map of the North Slope Borough.
[58] Ibid
[59] Iñupiaq for Fresh water fish (this fish was freshwater cod).

When a local family had little food and a neighbor had more, a request for assistance would carry more weight if the one without had been generous in the past"(1990:23). And Bodenhorn writes "Shared food constantly travels between households often between communities, to parents, siblings, and others who may not be so fortunate" (2000:136). As was already said in the introduction, subsistence is the proper way of conducting social relations among humans (Bodenhorn 2000:133) and makes reciprocity possible.

> We share our wealth. When we know people are poor, we help them. It's a good thing and we never expect anything back in return, but we hope for it. It teaches generosity. In my upbringing we never had money, we traded, which is a lot better to me, than currency. It is better because trading means you need to have something to trade with. Something you hunted, picked, sewed or just something you made yourself and this gives you such pride. (Sarah, Iñupiaq woman)

The stories in this chapter and Sarah's perception on social capital are good examples of the execution and importance of social capital in Barrow. They demonstrate the different ways in which Iñupiat in Barrow use social capital in times of need: the woman who organizes a cakewalk so she will be able to visit her dad in the hospital. By sharing the whale and other fish with other Iñupiaq communities throughout the state, they insure themselves for future problems like the need for food or other resources that might arise as a result from a changing climate.

Conclusion

Nuttall's statement presented at the beginning of this chapter claimed that current changes give concern for irreversible impacts on indigenous communities and livelihoods. Crate and Nuttall are concerned that coping and adaptation mechanisms might not be sufficient because of the lack of understanding of how adaptive capacities are constructed by societies in a changing environment, change

is occurring far beyond the reach of restoration. While I think that we should never doubt people's ability to influence the structures they live in, we need to take into account that the people living in Barrow have not cooperated in building most of the structures that shape their economic and political world.

The domination of the American 'western' system has been extensively discussed in chapter two and has shown that many policies, regulations and values have been imposed on native people in Alaska, without involving native people in the writing of these policies. Most of the times, they are not even consulted about policies that are written. As Giddens (1984) said, an actor needs to be able to intervene in the world to have agency. Native people in Barrow diligently try to intervene. Some of the organizations work really hard to be heard, like the AEWC. A lot of actors in Barrow are frustrated with the fact that they are trying to change policies that have been imposed on them by talking to government officials and policy makers but that after these people leave Barrow, they do nothing with their opinions[60]. This imposition of policies makes it hard for the Iñupiatto change structures that influence them. Even though this is hard, they are still trying to exert power over these structures by adapting to the ways of thought and business, as can be discerned in Wesley Aiken's speech at the AEWC meeting quoted in chapter two: "Those that regulate us, we have to get to know them and use their tools to get what we want".

The adaptive capacities combined with the social capital that the community of Barrow possesses is a broad and a solid fundament for agency of the Iñupiatin Barrow. More extensive research on these ways of agency needs to be done in order to construct policies that are constructive instead of creating more structures that bring needless vulnerability to a people that needs to cope with enough vulnerable structures already.

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[60] Fieldwork observance.

Except for the whale's ribcage and jawbone, there is not much left of the whale. Two older men are busy retrieving the membrane of one of the whale's organs. The last piles of meat that are scattered on the ice are put onto sleds that are attached to snow machines. Then the captain yells: Ok, it's time to release the spirit!" People stop what they are doing and immediately walk towards the big jawbone. A group of ten guys place their hooks in the bone or the little flesh that is still remaining. "Let's do it!" the captain yells. The men start pulling the bone toward the ice edge. It is a hard job and the guys need to use their whole bodyweight to get it moving. When they are close to the slippery ice edge, all men stop pulling. They step aside and walk toward the man that is pushing the bone. As a group, they give the bone the last push. The bone slides into the water as if it slides down a coast. The other people are watching in awe. As the last piece of bone disappears under the surface they start yelling "hey, hey, hey!!!" "*Uruh*, *Uruh*, *Uruh*!". The Iñupiat believe that the whale's spirit has been released as a part of the whale has now been returned to the ocean. Hopefully, it will tell other whales how well it has been treated and will return to Arey crew in the fall.

Wrapping up

The last part of the story that ran through this thesis is finished by returning the whale's spirit to the sea. The hunt has ended and after the cutting and serving of the whale meat new preparations start for the coming fall season. With the ending of this story, we have also come to the point in this thesis where arguments will be tied up, the research question will be answered and a final discussion about these answers and the research will be held.

The Arctic is a place in which various people are interested in due to the resources the region holds and the changes in the climate that are taking place. These interests are global and local and have resulted in a complex intertwining of a number of political, economic social and environmental issues. In dominant western media and research, climate change is perceived as the most prominent issue in the Arctic. This perception neglects vulnerabilities that Iñupiaq people face due to non-climate related issues.

By analyzing both western and Iñupiaq world views, it becomes clear that the west has been dominant in telling Iñupiaq people what to do. Starting at the colonization and continuing up until the present day. This imposition of western standards upon the Iñupiaq has made Iñupiaq people betwixt and between western and Iñupiaq views. This imposition led to enormous social, cultural and political disruption and vulnerability. More intense and increasing changes in the environment have been added to these vulnerabilities in recent years. Iñupiaq people notice changes in their environment which they perceive to be different from the changes their ancestors had to cope with. But the term *climate change* is not used by the Iñupiaq people to clarify or attribute these changes to. The term *climate change* is only used by Iñupiaq people when they are asked about it by non-native people. Iñupiat repeat the stories that have become accepted in a global western climate discourse when talking about the *climate change*.

A changing environment is interesting and useful to study but most research only focuses on environmental change and does not take into account the complexity of interrelated issues that have become visible in the four chapters of this thesis. When doing research in the Arctic, this complexity *must* be taken into

account. For the Inupiat, who are still dependent on their environment for their nutritional, social and cultural sustenance, the environment is of great importance as they interact with it every day. For them, changes in the environment alters the way they live, the way they conduct social relations and their culture. Environmental change is not just a local outcome of a global process called *climate change*, it is much more than that. It affects all people in the community, young and old, and it magnifies existing vulnerabilities. One of the results of a changing environment is the thinning and receding sea ice. The classroom the sea ice offered is gradually disappearing and will not teach young children the same environmental lessons as their parents and grandparents have learned from their parents. Cultural and environmental knowledge is lost and this creates a feeling of anxiousness to an already vulnerable community which becomes apparent form the high rate of suicides among young Native Alaskan men.

The very basis of Iñupiat culture has become staggered as reciprocity becomes vulnerable due to a changing environment. For the Inupiaq, the receding sea ice has resulted in less animals to hunt for. It becomes more difficult to uphold ties of reciprocity when there are less animals to share. One of the stories that has been told in this thesis is that not only Iñupiaq people within Barrow have these ties of reciprocity but that these ties are existent between Iñupiat throughout the state of Alaska. Due to the thinning ice it has become more difficult to pull up heavy whales on the ice. The Iñupiaq have successfully adapted to this change by the communal decision to hunt for smaller whales during spring season. It becomes apparent that through adaptive capacity, the system of reciprocity can continue to function. This is of great importance as the reciprocity system in turn also generates as a way of agency to multiple vulnerable structures.

Although adaptation and social capital are of great significance, they do not suffice. The ability to adapt is partly determined by available technologies and the capacity to learn new things but is fundamentally shaped by the way vulnerable people are treated by decision making processes (Adger et al 2009). As this thesis has shown, Iñupiat struggle to be heard by policy makers and often policies show a complete misunderstanding between Iñupiat and these policy makers, as the case of the Critical Habitat Designation of the polar bear has shown. This

misunderstanding emphasizes the importance of acquiring more scientific knowledge by the social sciences to be able to create constructive policy engaging a changing climate and environment. This research should be regionally focused because every local context is culturally and historically specific and deals with different issues which must not be studied in isolation, but rather requires a holistic view. It is this holistic view I have tried to provide you with.

Finally, this last paragraph will opt some points for discussion of this particular research. One could wonder if Iñupiaq people are genuinely affected in their nutritional needs if they would no longer be able to hunt for the bowhead whale. But what about the cultural and social importance of the hunt? This will disappear too. One could argue that in a growing mobile, fluid and flexible world, anthropologists that are working elsewhere in the world are emphasizing that the concept of *culture* has lost its relevance. Does *culture* still have relevance and would it be so awful if a specific culture died, and can we even speak of a specific culture in a world where all cultures have come into contact with one another?

Another point of discussion is a big part of the community, all the different ethnic groups that live in Barrow have been underexposed in this research. This would also be a good recommendation for further research.

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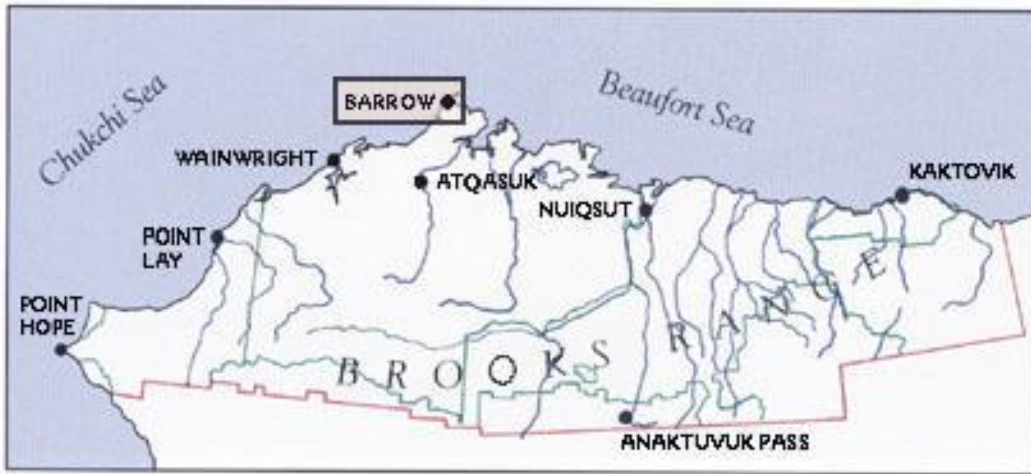
Pictures

The pictures used in this thesis are made by the author.

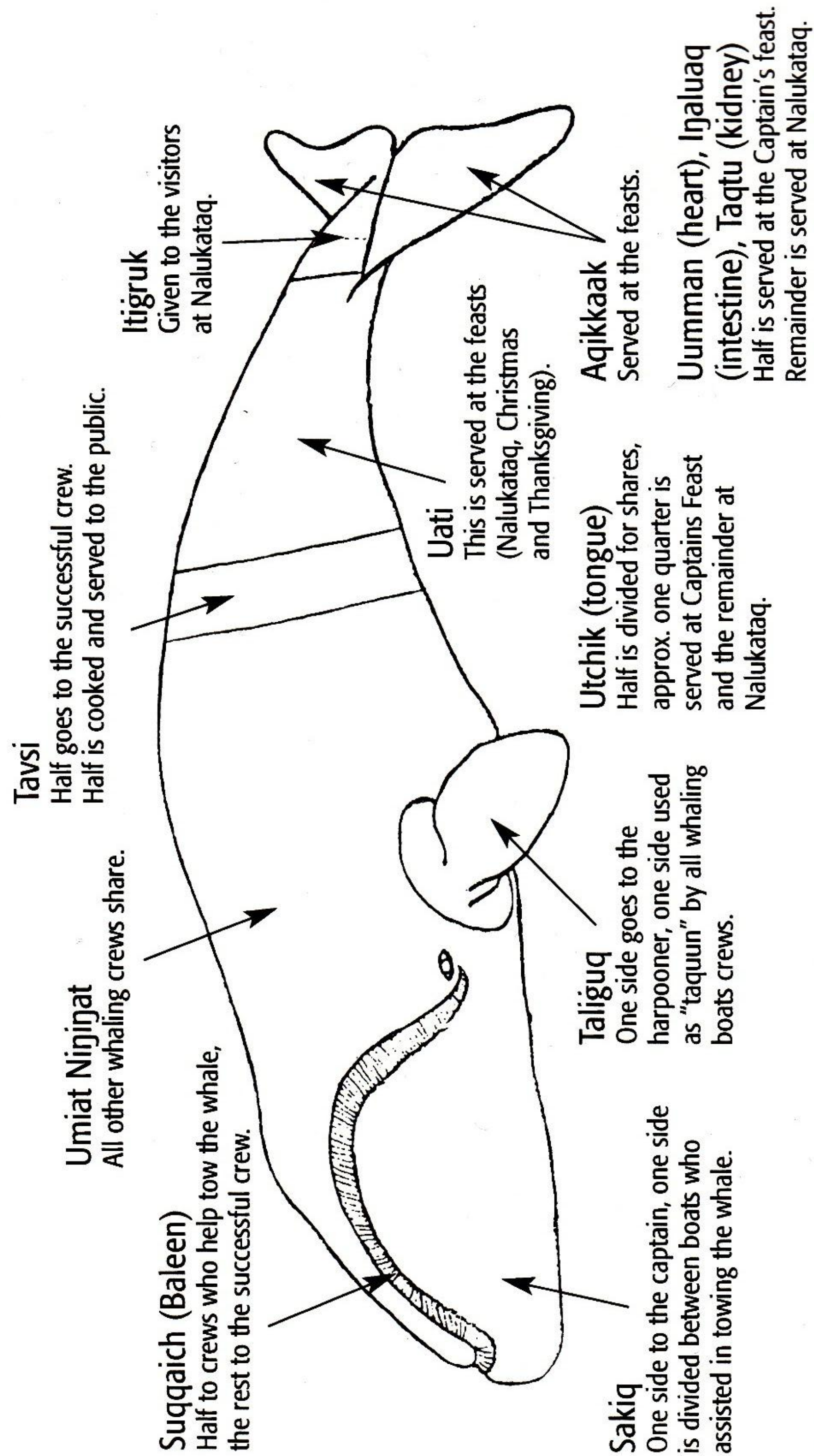
Appendix II and III are taken from
Jana Harcharek,
2002 Aġviqsiuġnikun; Whaling Standards Barrow and Wainwright. Barrow: North Slope Borough School District.

Appendix I - North Slope Borough Map

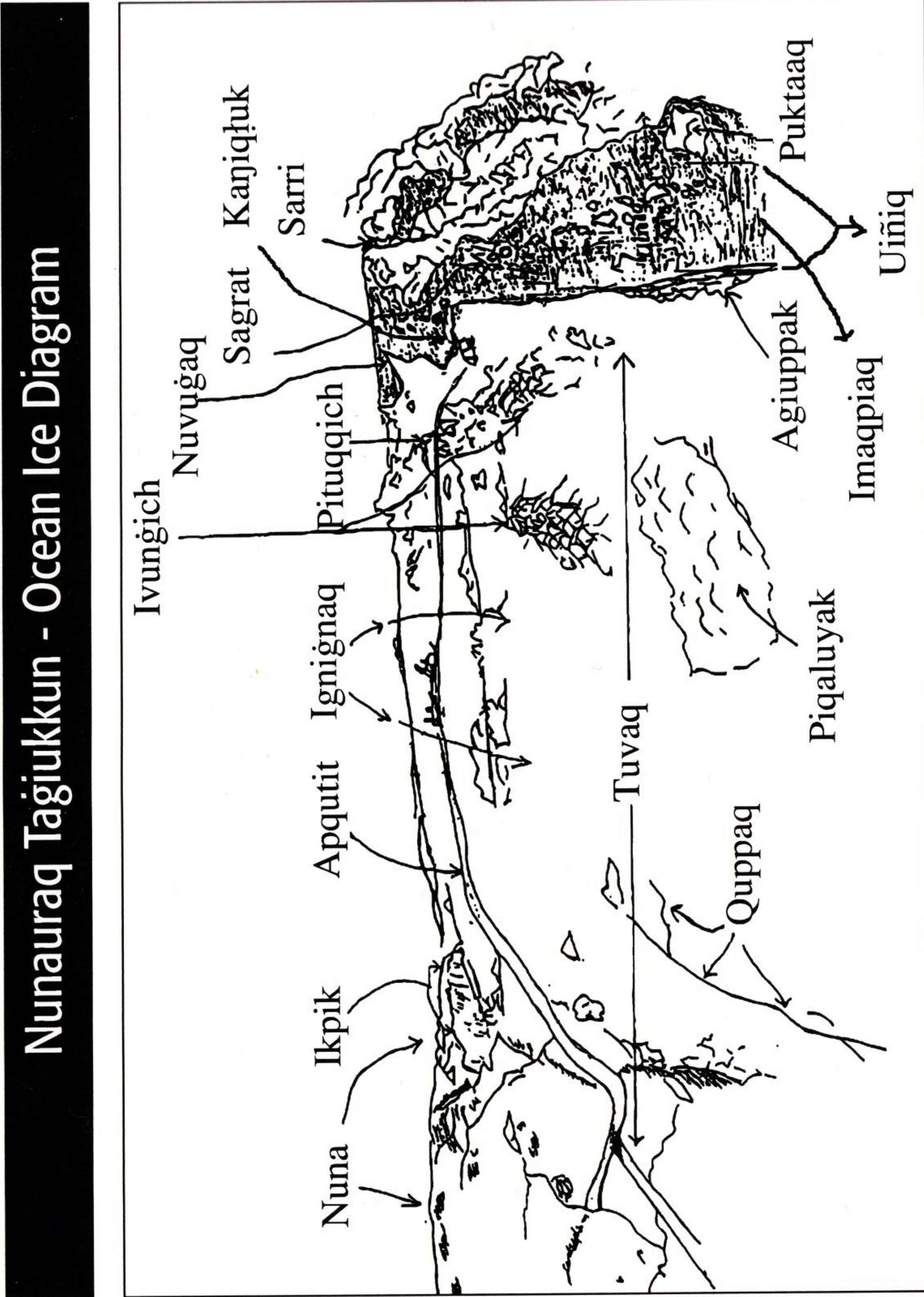


Source: http://www.north-slope.org/villages/barrow/

Appendix II – Whale distribution



Appendix III – Ocean Ice Diagram



Drawing by Harold S. Kaveolook