INUVIALUIT KNOWLEDGE OF NANUQ:

Community and Traditional Knowledge of Polar Bears in the Inuvialuit Settlement Region

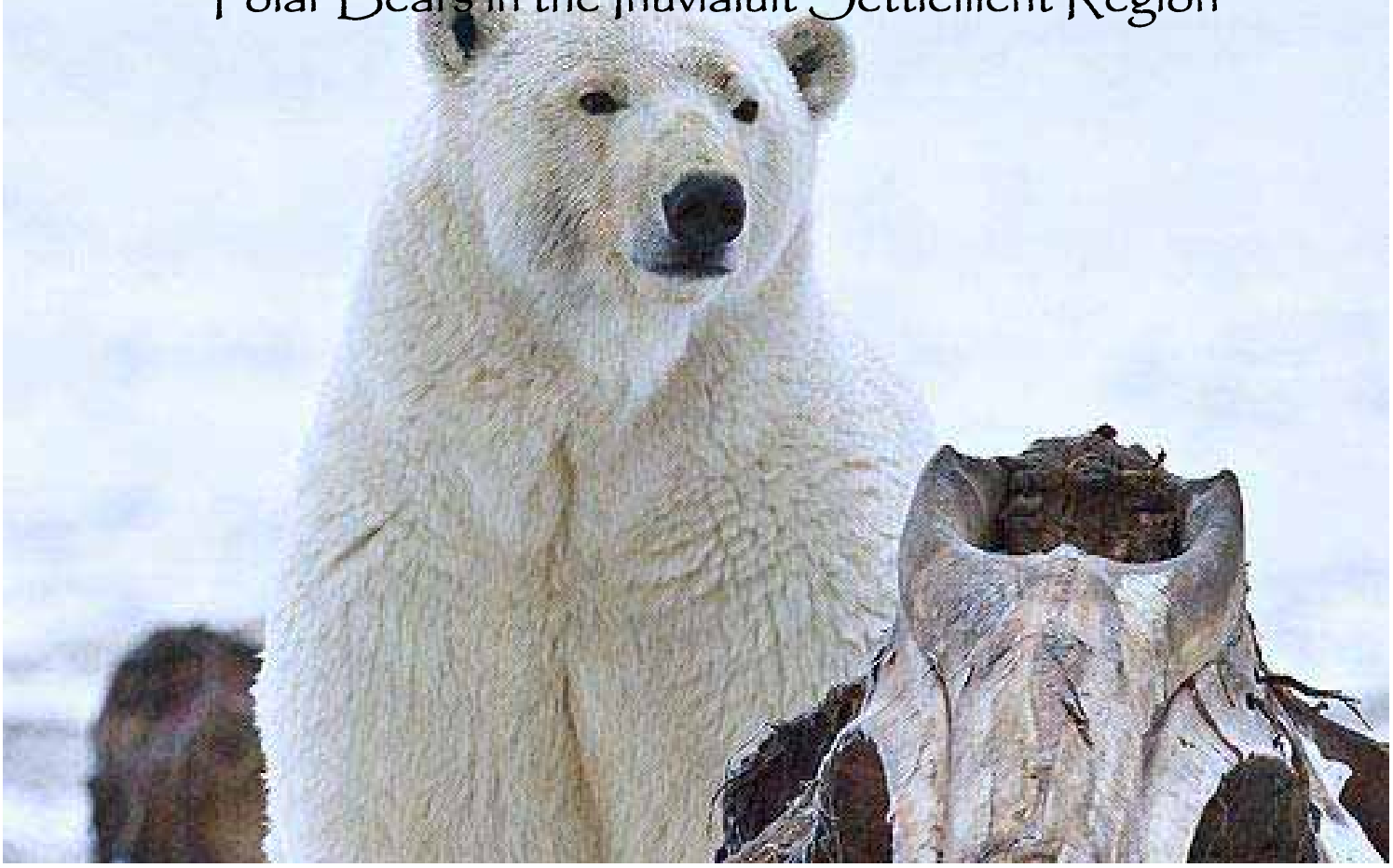

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Table of Contents

Foreword

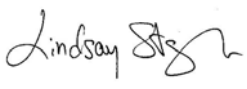
In 1984, the Inuvialuit Final Agreement established a comprehensive and integrated regime for the conservation of wildlife. Polar bear conservation in Canada's Western Arctic is a beneficiary of this regime.

The application of Inuvialuit knowledge, based on the experience and observations of Inuvialuit hunters and passed from generation to generation, is an important part of polar bear management and cooperative management today. Hunters share their knowledge with scientists; scientists share their research findings with Inuvialuit hunters, communities, and organizations; and together, Canadian federal and territorial governments and Inuvialuit organizations cooperate in the management of polar bear populations in the Beaufort Sea region. The result of this arrangement is a sound and enduring basis for the sustainable management and conservation of polar bear populations.

This study documenting Inuvialuit knowledge of polar bears is important. It provides insights into Inuvialuit polar bear hunting practices, polar bear ecology, and polar bear conservation. It is also timely. It addresses concerns raised as a consequence of global warming about the conservation of polar bear populations in circumpolar regions. This is a preliminary study in a multi-year research program extensively documenting Inuvialuit knowledge of polar bear ecology, and how Inuvialuit culture has shaped and been shaped by generations of interactions between the Inuvialuit and polar bears.

The study clearly demonstrates how polar bear harvesting by Inuvialuit is based on traditional and contemporary principles of conservation, and how these have evolved over time. It also describes how these principles are given legal effect today through a conservation regime that has maintained and continues to maintain polar bear populations in the Beaufort Sea region of the Western Canadian Arctic.

We hope this study contributes to the conservation of polar bear populations throughout the circumpolar world.



Lindsay Staples
WMAC (NS) Chair

Frank Pokiak
Inuvialuit Game Council
Chair

Larry Carpenter
WMAC (NWT) Chair

Introduction and Objectives

"When I was a young kid, I seen two old guys in spring time. They're looking at ice and talking about ice out there. And they were crying as they were looking at ice. They're talking about the good times and they were crying.... I'm a bear hunter all my life. I've seen my numbers, over a hundred bears in my whole life I shot. I don't do it for money—I do it for my people, to eat polar bear. That's why I still want to use polar bear hide for clothing. I feel like crying sometime when I think about my life, polar bear hunting." – Pat Ekpakohak, Ulukhaktok

Local knowledge, observations, and experiences are essential components in monitoring, managing, and sustaining wildlife in the Western Arctic. This knowledge provides spatially and temporally extensive observations, which informs subsistence hunters and resource managers about the health conditions of both individual animals and collective populations.

Documenting Inuvialuit knowledge of polar bear population health in the Western Arctic supports local and regional co-management efforts. Traditional knowledge studies are important in order to document elders' knowledge and stories, and to promote the continued sharing of that knowledge with youth and the broader community. Communicating Inuvialuit knowledge and their relationship to polar bears, as this report aims to do, will foster a wider understanding and appreciation of this knowledge, and will contribute to decisions concerning polar bear conservation in the Inuvialuit Settlement Region as well as in Canada and internationally.

The focus of this study is two-fold: first, to better understand the role of polar bears (*Ursus maritimus*, Inuvialuktun *nanuq*) in Inuvialuit culture and economy, both in the past and today; and second, to explore traditional and local Inuvialuit knowledge of polar bear populations, health, and habitat in the Western Arctic.

Methodology

Berkes (1999: 8) defines traditional ecological knowledge as "a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings with one another and their environment". This study builds upon Berkes' definition, to gather both traditional ecological knowledge as well as the local expert knowledge held by senior polar bear hunters and elders- playing close attention to their personal experiences and observations, cultural values, and stories passed on from their ancestors.

The methods used to gather this knowledge included a workshop in Tuktoyaktuk, one-on-one interviews, and a brief literature review. This report presents a summary of the

findings from these sources. The details of these methods are further elaborated in Appendix B.

The Inuvialuit: "A People of the Land and Sea"

The Inuvialuit are the indigenous peoples of Canada's Western Arctic. Originating from the Thule expansions, ancestors of the Inuvialuit moved across the Arctic in search of marine mammals, establishing themselves in diverse regions and developing into linguistically distinct groups (Ayles and Snow 2002). Inuvialuit today share a common history primarily with three cultural and linguistic groups from the western and central Arctic: the Mackenzie Eskimo, the Copper Inuit, and the Alaskan Eskimo.

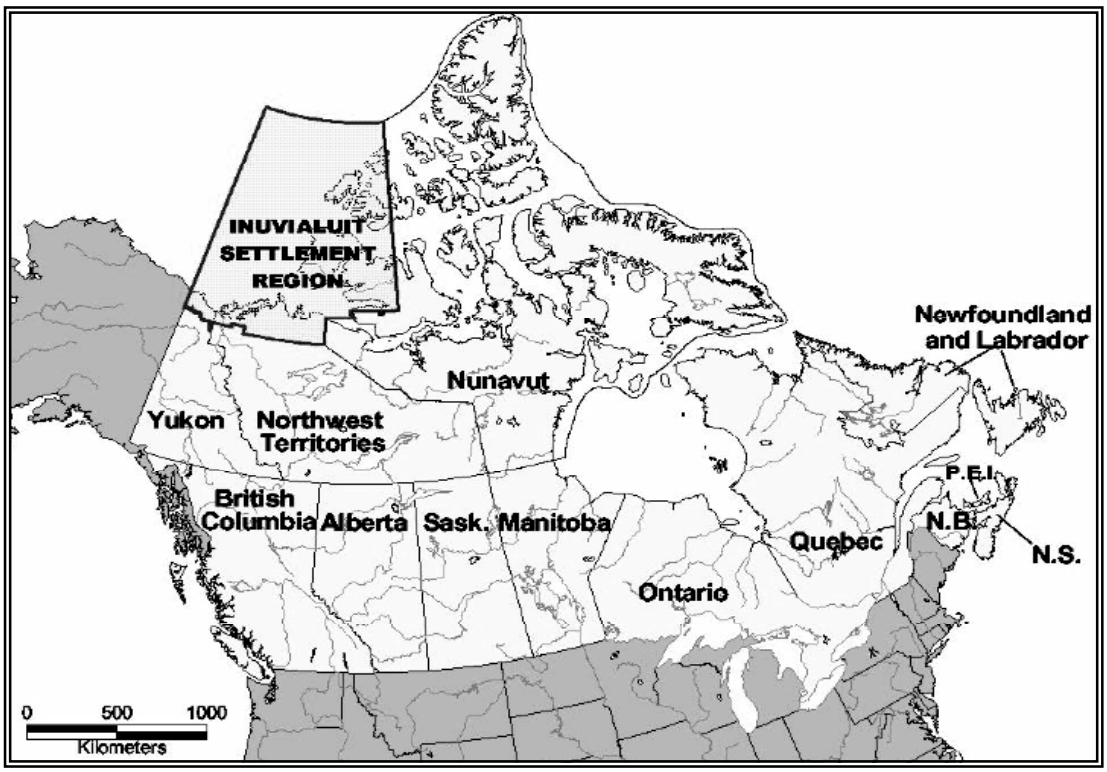


Figure 1: Boundary of Inuvialuit Settlement Region within Canada. Source: Environment Canada.

Early settlement patterns of the Inuvialuit varied around the natural cycle of wildlife in resource-rich areas (Damas 1984). Following the distribution of animals throughout the Western Arctic, groups spread out both along the coast and inland, tending to remain within a geographic region to hunt and camp. By doing so, they gradually gained expertise in their territory. Their culture and history in their territory have made them a "people of the land and sea."

The Inuvialuit continue to maintain their connection to the land and their integral tradition of hunting land and marine mammals. Today, six Inuvialuit communities are

dispersed throughout the inland delta, Beaufort coastline, and Arctic archipelago of the Northwest Territories (see Figures 8 and 9 for community locations).

Polar bears are greatly respected by Inuvialuit hunters as the most intelligent animal in the Arctic, and as a symbol of the resilience, patience, and determination that is required to survive and thrive in the harsh climate. The polar bear is an important species to the Inuit—culturally, spiritually, and, more recently, economically. Polar bear hunting is taken very seriously. Considered both exciting and dangerous, it is the pinnacle challenge of life in the Arctic.

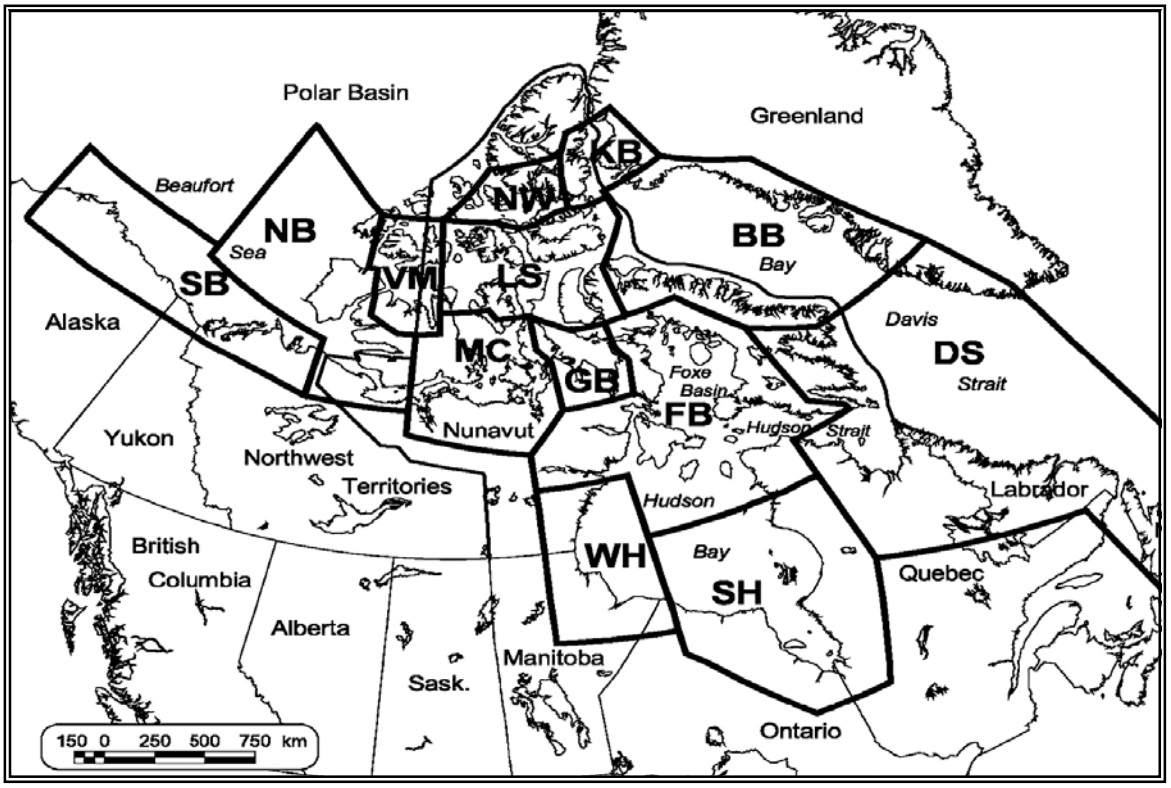


Figure 2: Map of boundaries of Canadian polar bear populations (1996). Thirteen of the 19 polar bear populations worldwide are in Canada, and three of these populations reside in the Inuvialuit Settlement Region (ISR). Source: COSEWIC Assessment and Update Status Report on the Polar Bear.

Today, the customary hunting of polar bear is recognized for its value in preserving the Inuvialuit connection to the land and their cultural identity. As such, elders feel it is imperative to pass on and encourage this essential hunting activity in future generations (Keith et al. 2005).

> *"[Polar bear hunting] is what makes our group—the Inuvialuit! Without it, it would be hard to define us."*
> –Norm Anikina, Tuktoyaktuk

Historical and Contemporary Importance of Polar Bears to the Inuvialuit

> *The importance of polar bears is passed on generations to generations. If it wasn't for polar bears and sea animals and land mammals, we wouldn't be here today! Our families depended on polar bear for mitts, and pants and sleeping skins, and food for their dogs and themselves. If we didn't have the polar bear in our area, it would have been that much harder for us to survive....*
>
> –Frank Pokiak, Tuktoyaktuk

Polar bears have always been essential to the "culture of survival" for the Inuvialuit—through providing food and clothing in the past; to giving opportunities for youth to learn about safety while travelling on the ice; to today, where polar bear hunting and guiding provides needed economic opportunities to economically isolated Northern communities. In one form or another, Inuvialuit have continually made a living from hunting polar bears.

Andy Carpenter of Sachs Harbour says of hunting bears in the old days: "You gotta be a pretty good hunter to get polar bear at that time." It required skill in travelling on ice, tracking the bear, and then pursuing the animal (both with dogs and on foot) in order to get close enough to deliver the lethal blow to a sizeable and agitated bear with nothing more than a knife, spear, or bow and arrow:

> *Listening to the elders out there telling different stories about hunting, I was amazed by the hardships that they had to go through. It's so much easier for us now because now we have snowmobiles—we can cover twice as much distance in a day as those guys could cover by dog team.*
>
> –James Pokiak, Tuktoyaktuk

Polar bear hunting in the past would be a community event, with everyone coming together to send the hunters off. If they returned with a bear, word would soon spread. The bear would be "fleshed" by the women and the meat shared amongst the community and elders. While some women today still hunt polar bear, it was much more common in the past, as Roger Kuptana recalls. "In the older days, those women were just like men—just as tough and strong!"

Polar bear hunting is invigorating and connects the Inuvialuit people to the land, the ice, and their history. Hunting is the one activity, above all others, that sustains the full expression of Inuvialuit values and identity (Freeman et al. 1992). Among young Inuvialuit men, the first hunt and kill of *nanuq* (polar bear) was an important and very memorable event in their life (Hart and Amos 2004).

To me, polar bears are important because it was how I was brought up. It was just like a rite of passage—you're growing up, you're a little kid, you want to be out there where you can harvest!

–John Max Kudlak, Paulatuk

A part of why polar bears are so important to the Inuvialuit culture is once you're out and once you got your first polar bear—that was a big stepping-stone. It meant that you were able to survive by yourself! Because in order to go out on to the ice alone, you have to know everything about the ice conditions, the currents, and if you don't know that, you won't survive out there! So when you got your first polar bear, basically you were a man! And that's part of our culture. That's passed down from generation to generation.

– Chucky Gruben, Tuktoyaktuk

Today, hunting and guiding for polar bear is a source of culturally relevant employment that provides a sense of pride and cultural identity.

... we've been brought up to teach the young people about that—that our culture and traditions are important! And when you take that away from the people we take a lot of pride from them. And if they don't have that, then [they're] running into a lot of other problems among the young people cause they don't have the opportunity to go out on the land and do stuff the elders would have them doing.... If we tell these young people who rely on listening to elders, that we can't do it anymore, then you're taking a lot away from the people.

– Inuvialuit woman (anonymous)

Passing on Tradition and Knowledge

"Passing on your knowledge to the younger ones, that's how our culture has been. Sharing our story—our history on how to do things. You take that away and it would be like we're not whole anymore—like a whole person. It's like a hunter without a gun or bow and arrow. You're not complete!"

– John Max Kudlak, Paulatuk

Learning about polar bears is an ongoing, lifelong commitment. Even David Nasogaluak, a respected Inuvialuit elder, admits that he's "still learning!" The importance and the knowledge of polar bears are passed from generation to generation. Men will teach their sons, grandsons, and nephews to make sure they understand all aspects of hunting—ice, wind, currents, bear behavior—before they shoot their first bear. For generations, these lessons learned on the ice have been a way of passing on critical knowledge and skills for surviving and thriving in the North.

"When somebody tells you about the old times, you believe it and you start to use it—you could feel it inside. That's how we learn when we're young fellows ... how to be out there on the ice."

–Pat Ekpakohak, Ulukhaktok

Well all those old timers, they learned from their fathers and their forefathers and so on.... [I learnt] from my Dad. His traditional knowledge, his words, was the way he taught me out there. How to drive the dogs and use the dogs to hunt bear. And be prepared at all time for any emergency, not just the bear, it could be the ice, a big storm or anything like that.

– Roger Kuptana, Sachs Harbour

Educating youth about polar bear hunting is not only about the bears and the ice. The process also involves passing on essential conservation skills such as distinguishing males from females and identifying the health of the bears, as well as a conservation ethic that includes respect for animals and harvesting practices.

Well I think the main teaching that's going on is all the rules and regulations and bylaws that are put in place that they have to follow now. If there's a young fellow that doesn't know about the law and he goes out and harvests a small bear that's not big enough to kill, he's going to get in trouble. Those are pretty much now what's essential about educating the youth!

– James Pokiak, Tuktoyaktuk

This holistic education helps to build capacity and resilience in the next generation, and provides the knowledge base necessary for the adaptive management of bears in a changing Northern environment. Everyone interviewed for this study was in agreement: to bring this education to the youth and pass their knowledge to the next generation is very, very important.

[Our elders and senior hunters], they've been going out there for 30–40 years! Now, that's real traditional knowledge to be passed on right there. And for our youth to do that, to get a hold of that information and to use it.... It's one thing to talk about it, but to use it! Cause they're going to be here talking about this issue in the future for many years to come.

– Charles Pokiak, Tuktoyaktuk

"It would have been quite interesting to hear the youth side of it, and for them sitting here and what they think about what we're talking about—making rules and stuff like that—cause they're going to follow the rules that we make."

– Donald Inuktalik, Ulukhaktok

In the last thirty years, one of the main ways youth have become involved in polar bear hunting has been through participating in guided sports hunts as a helper or assistant. This affords them the opportunity to learn from expert hunters while also earning an important income.

There have also been efforts to host on-the-land camps to educate youth in hunting and land skills. However, in reality, both of these learning opportunities depend on financial support to be viable. John Lucas, one of the

hunters who offered an on-the-land camp, comments on the reality of today:

> *Right now everything goes by funding.... Our parents and our elderly people never thought about funding! They wanted their kids to learn, never cost us nothing to learn. Now everything has gotta have funding!*

Despite these challenges in teaching youth and passing on traditional knowledge, there remain numerous reasons to retain the knowledge and skill required for polar bear hunting.

> *Well I was—there are a few of us who were—fortunate enough to learn. Learning about these things from our ancestors. Passed on from generation to generation. Unfortunately, all that knowledge is [disappearing] because of different lifestyles now.*
>
> – Roger Kuptana, Sachs Harbour

Safety in Polar Bear Country

The first things young hunters are taught about polar bear hunting, even before they get out on the ice, is safety—safety in travelling on ice and safety in human-bear interactions. Traditional and expert knowledge from senior hunters is essential for the safety of the younger generation, who will continue to travel on ice. This type of knowledge is passed on through, and goes hand in hand with, learning how to hunt polar bears.

> *When I first went out polar bear hunting I was taught about safety. It wasn't always [just] to go kill a bear. Cause most of the time they get away. The traditional knowledge part of it [you learn] was ice conditions. You know, to go out from the ice packs and to know the wind change and current.*
>
> *– Charles Pokiak, Tuktoyaktuk*

> *"Y'know, polar bear is so intelligent! You go out and you hunt, and if you don't use your head and the knowledge you got, he'll outsmart you. And I've seen it happen time and time again."*
>
> –Roger Kuptana, Sachs Harbour

Changing ice conditions have made travelling on ice more difficult and less predictable, which makes educating younger people about ice and safety even more important.

> *Because of the [changing] ice conditions we have to educate the kids, cause they got such high power [snowmobiles] that they can go anywhere ... and they don't know the thin ice areas. It's the same thing out there, out on the sea ice, out in the ocean. Times are changing and we have to educate our youth about it.*
>
> *– Charles Pokiak, Tuktoyaktuk*

Throughout the Arctic, in every community there are numerous stories of hunters being trapped on floe ice or icebergs while hunting bears, or losing friends, relatives, and snowmobiles through thin ice. Some people at this workshop commented that, with no one to teach them, young people are scared about travelling on the ice. John Max Kudlak shared his story of learning to hunt, which reflects how seriously safety is taken:

> *I started hunting polar bear with my granddad. He wouldn't let me shoot anything until he knew I knew about the ice and the current. Everything to do with polar bear, I had to learn the ice conditions first, the movements, and then after I learnt all that he'd stop and ask me, "What's going to happen now?" ... At night time he'd tell us stories when we're out hunting, about the past and his experience relates directly to what's going to happen. I couldn't shoot my first polar bear until he knew I was safe—[that] I could go out and come back without drifting on moving ice.... It took me three or four winters just to learn about the ice until my granddad said, "You know enough, you can go out and hunt for yourself." He didn't want me going out and never coming back. He was telling me all these danger signs—what's going to happen, how you can walk on the ice. The young ice could be anywhere from a foot to four inches. He was a real good teacher. He could tell stories in the night time about when he was drifting out on moving ice and how to get back when you're drifting on the floe edge.*

Some of the stories related to safety shared in this study highlight the danger of travelling in "bear country":

> *The other real memory I have about polar bears is about how fast they can move. Four years ago I was out and a bear actually went after me.... It got to 100 yards and then it just started running towards me. It's scary! Until it happens to you, you don't realize how fast it can move—at what pace it can run!*
>
> – Lennie Emaghok, Tuktoyaktuk

Figure 3: A hunter hooking onto shot bear 10 miles out on sea ice (1957). Credit: R. Knights/NWT Archives/N-1993-002-0089.

Personal and Familial Importance

Clothing

Polar bears have always been prized for their hides. Polar bear skins were used for wind pants and mitts, which were essential for living and travelling on the snow and ice because they would not freeze up or collect ice and snow. Pat Ekpakohak of Ulukhaktok remarked that polar bear skins make excellent clothing:

> *The hair doesn't fall off like caribou skin.... Polar bear pants last 20 years or 30 years or more. I know a lot of elders they still want to use them.... They don't think of the money. Clothing [is] better for them cause it lasts longer than the money cause they could have mitts or wind pants for quite a few years.*

Figure 4: Polar bear wind pants, Sachs Harbour (1958). Credit: R. Knights/NWT Archives/N-1993-002-0136.

Polar bear hides were also used as sleeping mattresses in their houses and igloos (snow houses), especially during the autumn months. Today, polar bear hides are used in local handicrafts as an important part of the cottage industry in the North and a way to preserve indigenous art, as well as provide income to women.

Diet and Food Sharing

Polar bear has always been an important part of the Inuvialuit diet. Fred Wolki recalls growing up on Baillie Island, where his family "used to eat straight bear meat just about every day cause it's good nutrition—it feeds us." Polar bears provided meat for the community, as well as for the dogs. Even once the market for polar bear hides began, the meat was still an important motivation for polar bear hunting.

> *"In my young days, polar bear meat is real good meat. You share with somebody, everything they bring home, paws and all. The best part of the polar bear is the paws. So to give an elder one paw, boy he smile!"*
>
> – David Nasogaluak, Sachs/Tuktoyaktuk

> *The people used to live on it. They hunted for food only, cause it was not good enough to sell. Like my ancestors or my dad, they use it for food and dog food, and that's really important. And in later years after that we started changing a*

little bit. Starting to use it for selling the fur, bringing income to us after that. It helps everybody! And I used to eat bear meat for breakfast, dinner, and supper ... I'm just used to it. I just love it to eat bear meat. That's how we grew up.

– Fred Wolki, Tuktoyaktuk

Relying on polar bear for food meant that the Inuvialuit would limit the number of bears harvested, because "the number one rule is we don't hunt more than we can eat!"

Well, people [in the old days] got no freezer, so everything they eat fresh. And don't waste nothing. Right now we got all kinds of freezers, you can store lot of things away.

– David Nasogaluak, Sachs Harbour/ Tuktoyaktuk

Though some elders eat polar bear meat several times a month, polar bear is not as central to the Inuvialuit diet as it was in the past. With access to foods from the south, people are less dependent on traditional foods such as polar bear. Instead, selling polar bear hides provides necessary income to cover other essential expenses such as food and utilities, which can be expensive in isolated northern communities.

Well, polar bears are important because they are our subsistence harvesting, we call it. It helps put food on the table—it's our livelihood. A lot of people work for wages, but me, I hunt for wages—it's what I live off. You're not out there to go kill-and-destroy sort of thing, y'know. Respect what you hunt and also, as you know, when we hunt an animal we take care of it. [My wife] processes it and we dry it so we can sell it to put food on the table.

– John Lucas, Sachs Harbour

Figure 5: Skinning a bear after a successful hunt. Banks Island (1959). Credit: R. Knights/NWT Archives/ N-1993-002-0335.

There is also the concern that polar bear meat may be contaminated with tranquillizers, especially when hunters bring back bears that have been "tagged" by biologists. This, along with the "contamination" of bears and other marine mammals because of the bio-accumulation of chemicals through the Arctic food chain, has created a stigma against eating bear meat. Nonetheless, a joy in eating polar bear meat and sharing the meat within the community still exists. John Max Kudlak talks about the importance of sharing meat with elders in his community of Paulatuk:

> *[Sharing meat with elders], it's like a connection—it brings them back to when they were little kids when they first had it. It makes them feel that, and you feel good for making them feel like a little kid again. They're still 70, 80 years old, but it still brings them back to a long time ago. It's kind of satisfying, too, to give them something and it brings them back to their childhood.*

Food for Dogs

Beyond providing the community with food, polar bear meat was also important for feeding the dogs, which were essential for travel and hunting in the Arctic.

> *Long ago you were dependent on hunting the polar bear and seals for your dogs. When you have dogs, you have to get that bear or seal. You do as much hunting for your dogs as yourself.... You depended on dogs to do your hunting. And you got to feed them just about same thing as you.*
>
> – Andy Carpenter, Sachs Harbour

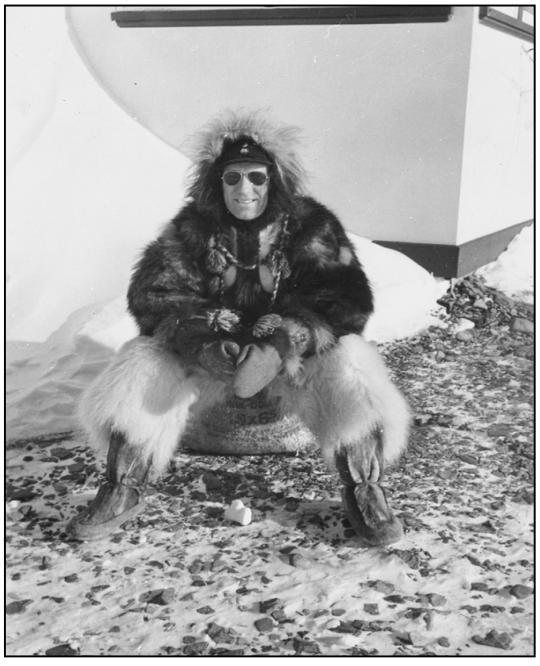


Figure 6: Hudson's Bay Company post manager at Victoria Island wearing polar bear skin pants (1946-1948). Credit: J. Osborne/NWT Archives/N-1990-006-0442.

By modern-day comparison, hunting to get food for the dogs would be equivalent to working to pay for gas for the snowmobile. Both activities were essential to facilitate life on the ice.

Income

"It used to be they never went after the bear for [just] the hide for sale. It was for food and clothing! But now it's changed and they're not going out [just] for the meat - they're going for the hide cause that brings in enough money and you can buy things."

– Andy Carpenter, Sachs Harbour

The uses of polar bears and polar bear hides have changed in the North, but their importance to the economy and culture still remains. Since the whaling period of the late

nineteenth century, polar bear hides have assumed an economic and utilitarian role in Arctic communities. "Whenever they got the opportunity [our ancestors would hunt bears]—for economic reasons! Mainly because, let's face it, they were very, very poor," recalls Roger Kuptana. One benefit was that polar bear hides could be traded with outsiders (RCMP, missionaries, etc.) for new technologies. For example, when skidoos first arrived in the North, one of the well-respected polar bear hunters from Banksland [Banks Island] traded eight polar bear hides for one skidoo.

Starting in the 1950s with the arrival of the Distant Early Warning System (DEW line), polar bear hides became part of the cash economy, as did other fur-bearing animals such as arctic fox (*Alopex lagopus, tigiganniaq*).

> *What really changed was, when I was young, a polar bear hide was only 25 bucks. So people really hunted the bear only for food at that time and they were only going after foxes—hunting and trapping foxes only—cause the bear was not worth more than a fox. It wasn't worth your time. And they use it only for food [and clothing]. That's all it was!.... And only when the DEW line started coming out, the price started getting higher and the price [slowly kept] getting higher since then.... That's when everybody started hunting the bear.*
>
> – Fred Wolki, Tuktoyaktuk

Today many Inuvialuit, especially senior hunters, continue to rely on polar bears and other fur-bearing animals for a large or main portion of their income, as well as to supplement their diet.

> *[Harvesting polar bears has] always been our tradition, ever since way back when. Even though they never sold the polar bear skins, a lot of times they just hunt them for their meat. If they run out of caribou or whatever, they have polar bear meat there to consume. A lot of times they were using them as skins for clothing, more than for selling. Now it's the other way around. We're [using the hide of the bear] to sell to support our family. It's like having a job. Then a lot of times we share the meat with people here—you know it's our tradition to share, we've been brought up with it. [Without hunting bears, where] are we going to get meat from? Where are we going to get money to buy food and pay our bills?*
>
> – John Lucas, Sachs Harbour

Bears Today

Changes in hunting practices have occurred as part of the Inuvialuit determination to conserve polar bears and to continue their sustainable subsistence harvests. The collective organizations of the Inuvialuit at the local and regional scale (and more recently at the international level), and participation in co-management has given harvesters a voice in wildlife management. Starting in the 1970s, management and harvesting have been administered through local Hunters and Trappers Committees—applying local rules of use to population management. Through co-management, bylaws

have developed to favor hunting methods that decrease cub mortality and provide more protection to female bears. Several elders talked about what traditional hunting was like *before* these management efforts were put in place by the Inuvialuit:

> *[Our ancestors would] go out with harpoon and bow and arrow [looking for bear]. That's how they hunted. They'd have two or three dogs that kept the bear at bay [and] they'd keep stabbing it until it went down.*
>
> – Roger Kuptana, Sachs Harbour

> *In my young days, when I was growing up we used to kill them hibernating under the snow. We used to dig them out and kill them.*
>
> – David Nasogaluak, Sachs Harbour

> *In the early 70s, some of the people that went out there, where there was a lot of bear signs, they'd make "gun-sets." Overnight, and they would go back the next day and there was a bear there. And that's how our people adapted to surviving in such harsh environments, is to find different ways in which you were able to harvest these things.... And they were deadly for bears. If you go to an area where there's lots of bears, set three–four gun traps and "bang." Next day you could be skinning three or four bears.*
>
> – James Pokiak, Tuktoyaktuk

Figure 7: Pursuing a polar bear by boat. 1958. Credit: R. Knights/ NWT Archives/N-1993-002-0267.

> *In the early days ... we did a lot of hunting in the summer with the boats. And, you don't get that much anymore.*
> – Andy Carpenter, Sachs Harbour

These techniques were necessary for harvesting bears in the past because of the challenges and risks associated with the chase and the hunt. As the Inuvialuit relied on bears and other sea mammals for survival, these risks and hunting innovations were a necessary part of life.

Changing Hunting Ranges

In the past, Inuvialuit families would stay on the land in a camp and hunt in that area, harvesting for most of the season. The species they harvested would depend on where they were and what time of year it was. To most, hunting polar bear was both

opportunistic—for example, if they were hunting seals or saw a bear while travelling—and deliberate, from tracking bears with dog teams to using set-guns.

> *Prior to 1984, I mean you could even go back ... to before I was born. I mean some of these guys travelled a long ways, and wherever they ended up, if they see a polar bear, they hunted it.*
>
> – James Pokiak, Tuktoyaktuk

In the past they would not normally have to travel far from their seasonal camps to get a polar bear. As Pat Ekpakohak recalls:

> *In the old days, used to be no skidoos, no snowmobiles, only dog team. Some people used to go out just for the day sometime, just for a couple hours and come back before the end of the day hauling a bear.... We used to have good ice, all over. We don't have good ice anymore. Open water and old ice. It's tough.*

When the ice conditions were good, hunters would often travel more than 40 miles off-shore and spend several days far out in the ice. Several elders recalled travelling until they couldn't see the land, or even the high bluffs and banks of the shoreline.

> *We can't go out as far on the ice anymore because the ice is so thin. We're limited now to not very far out, y'know, because of melting ice and ice being stable, you know. Whereas before we could go 30-40 miles out 25-30 years ago.*
>
> – Roger Kuptana, Sachs Harbour

Changes in the ice are one of the main effects on hunting area/hunting range. Without landfast ice, or conversely, with rough ice piled up close to the shore, Inuvialuit have difficulty accessing the young ice where polar bears tend to travel and hunt.

> *[Ice conditions are] good for the seals, but for us, we can't go out—we're getting to a point where we need a boat and paddle because there's so much open water now.*
>
> – John Max Kudlak, Paulatuk

> *"I mean 15 years prior to today, you could go anywhere around here, 20 miles off shore, and run into multi-year ice. Now anyone around the table will tell you that they don't see that anymore."*
>
> – Chucky Gruben, Tuktoyaktuk

Figure 8: Approximate polar bear hunting range (prior to 1984) of Inuvialuit participants in workshop and interviews.

The following figures show the change in hunting range from before 1984 (Figure 8) to the present day (Figure 9). While these ranges do not differ dramatically, for many of the younger hunters, the hunting ranges are not as widespread as the elders and senior hunters. The major catalysts for changes in hunting ranges were the move into centralized settlements and the loss of shorefast multi-year ice, which became noticeable in the mid- to late eighties. However, a counter-current to this trend is the prevalence of high powered snowmobiles, which have allowed hunters to travel much greater distances in a shorter time and thereby be more efficient hunters.

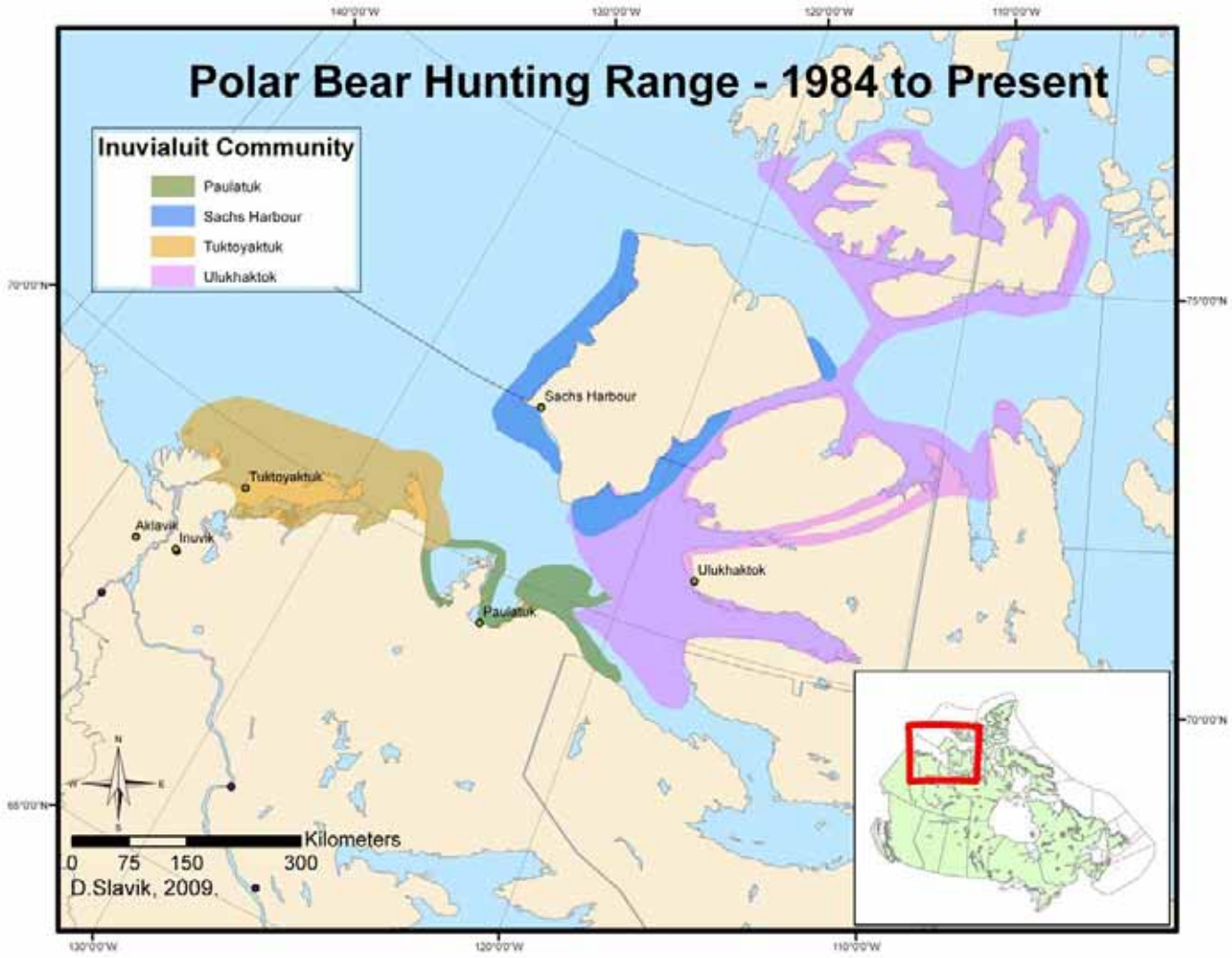


Figure 9: Approximate polar bear hunting range (1984 to 2009) of Inuvialuit participants in workshop and interviews.

In Sachs Harbour, Roger Kuptana notes how "there are just a couple of [hunters that] go vast distances now. The rest of the community all go anywhere from 20 miles west or a few miles out here." Hunting is more localized due to changes in ice conditions, increasing cost of gas, time constraints, and management boundaries. This is not to say there isn't the interest in travelling further, but the financial costs of gas or missing work are significant. For example, John Lucas commented: "Now it's so expensive to go out.

For me and [my son] to go down to the north end of [Banks] Island (roughly 450 km) it's going to cost us a couple [thousand dollars] just to go down there."

As Charles Pokiak recalls, this change in hunting range represents a decline from the traditional hunting grounds enjoyed before the land claim process:

In the 70s, when the Hunters and Trappers Association was first started ... the elders were really voiceful about traditional hunting grounds. They said they didn't want any boundaries, so they could go 400 miles in any direction. And they were talking about from Baillie Island, you could go way up past Sachs Harbour or towards Paulatuk or Herschel Island. So it was like that in each community. And they all agreed on it. Now, we got so much guidelines!

Prior to and as a result of Inuvialuit land claims, a number of management boundaries (or "imaginary lines") were put in place, though harvesters still continued to hunt on federally owned Crown land as well as on Inuvialuit owned land. With respect to polar bears, management boundaries were first established in the early 1970s, with the current population management zones developed in 1994. These management zones divided polar bears into three sub-populations within the Inuvialuit region (S. Beaufort, N. Beaufort, Viscount-Melville Sound) and 19 sub-populations worldwide. With a quota system in place, communities have to hunt within population boundaries, depending on the number of tags available. Sometimes, ice conditions restrict communities from accessing certain populations.

When we have a Northern Beaufort [polar bear tag], we can't go out to the boundary line because of water safety [and ice conditions]. You'd have to use a boat to go out to the boundary for the kill to be legal.

– John Max Kudlak, Paulatuk

There are pros and cons about the decreased hunting range in comparison to traditional ranges. Travelling to the same areas provided important observations over time to inform community-based monitoring of wildlife, while travelling to new and distant areas, as some senior hunters like to do, provides unique observations of wildlife and habitats.

Figure 10: Hunting seals on a polar bear skin from the floe edge. Sachs Harbour (1958). Credit: R. Knights/NWT Archives/N-1993-002-0252.

Inuvialuit Management of Polar Bears

Harvest Sustainability

To the Inuvialuit, sustaining wildlife goes hand in hand with sustaining themselves. This is why, as a group, they have been effective at managing polar bear as well as other populations to ensure continued subsistence use. Working with biologists, governments, and other native user groups, the Inuvialuit have worked through the recovery of polar bear populations during the 1970s and have maintained sustainable harvest in their regions.

> *"... it was never really any concern that you were over-hunting them cause you never did get that many."*
>
> – Andy Carpenter, Sachs Harbour

One of the reasons why they have been so successful is because of community-based management through local Hunters and Trappers Committees. "When we [the Inuvialuit] make the rules," says Fred Wolki of Tuktoyaktuk "[hunters] gotta follow them when we meet!" Many of the harvesting rules and regulations have been self-imposed by the Inuvialuit upon their hunters to conserve polar bears, while also providing incentives and penalties for hunters to abide by the rules. "All that we have in the polar bear bylaws, we're the ones that put it there—nobody else," Chucky Gruben explains. "That was our way of showing that we know about conservation." As Frank Pokiak describes them, modern bylaws build upon traditional harvesting rules to reflect Inuvialuit conservation ethics.

> *We don't call them "traditional laws" [any more], we call them "bylaws." In each community we have bylaws in place that were set up through the HTCs and agreed by them: You're not allowed to harvest bears with cubs or bears that are denning.... If you harvest, you have to have [physical possession of] a tag in order to harvest a polar bear. And we have bylaws where you have to bring evidence of the sex—what kind of sex it is, otherwise you can get a penalty. So we have bylaws in place that we share with not only the youth, but also with our hunters.*
>
> – Frank Pokiak, Tuktoyaktuk

While these rules are self-imposed, hunters and decision-makers in the Inuvialuit region take pride in the fact that they use a conservation-based approach when making quota decisions to ensure that wildlife populations will not be affected, even when scientific uncertainty exists. James and Frank Pokiak give two examples from Tuktoyaktuk:

> *[One year] they did a study here and the population was real healthy.... We had a chance to increase our quota for the Southern Beaufort, but we decided not to do it for another year.... The next year they came back ... and couldn't find next to nothing.*
>
> – Frank Pokiak, Tuktoyaktuk

Our bear season here used to begin November 1st, but we changed that a few years back to December 1st. I guess they wanted to give the females a better chance with their one- or two-year-old cubs.... That just goes to show how our community has tried to help with the bears by doing that. Now we have a whole extra month that we have to wait.

– James Pokiak, Tuktoyaktuk

While some of these formal rules ensure polar bear populations are not over-harvested, there are also informal codes of conduct, many guided by traditional practices, that help guide hunters' harvesting decisions.

For the Inuvialuit, "the number one rule [is] you don't hunt more than you can eat!" It is taboo to waste polar bear meat. Another traditional rule Andy Carpenter shared was how his elders would adjust their harvesting practices to leave certain areas of land to "rest"—especially areas of critical wildlife habitat. In fact, this philosophy has been a motivation for the Inuvialuit in establishing numerous protected areas within their land claim boundaries. While intentional or not, the decrease in hunting range supports this traditional management practice, allowing land and important polar bear habitat to rest.

Some of the other formal rules and codes of conduct include:

- **Try not to shoot or even bother the females when they are with cubs.**

  People try not to get the females here. You can't shoot cubs, you can't shoot year-old bear. Back in the day you could shoot any kind of bear but nowadays it's different. – Andy Carpenter, Sachs Harbour

  ...You can't get everything you see, otherwise there would be nothing. And for me, I very much try to be professional at what I do. I try not to shoot females, which is very hard ... in the long run, if you shoot a female, you're killing three or four with one shot. Those three or four could be for the future generation....You have to kind of think of the generation for the younger people.... I was taught this by the older people I used to travel with. To me, if I want to hunt the polar bear just to eat, I wouldn't shoot a small one, I would shoot a big one cause the big ones are good eating, for me anyway.

  – John Lucas, Sachs Harbour

  I see a polar bear over there with little ones, I wouldn't head straight at them, I would go way around them so not to disturb them, because once she starts running she's going to leave her little ones behind. Because a lot of times when they run from bigger bears, the bigger bears end up killing the cubs cause they leave them behind.

  – John Lucas, Sachs Harbour

- **Don't harass or bother a bear and her cubs while denning.**

  In the first part of November, when the ice is thick enough, and [hunters] see a lot of tracks going inland—they just leave them alone. They know it's a female looking for a place to make a den.

  – Charles Pokiak, Tuktoyaktuk

  We don't harass them or bother them really unless you're hunting them. If I look from here and I see a polar bear out there, say a mile and a half out, if I recognize it, I wouldn't even bother it.

  – John Lucas, Sachs Harbour

There also exist a number of cultural mores and beliefs that also guide the harvesters' mentality:

- **Do not speak (disrespectfully) about animals.**

  I mean that's the first thing you have to do when you become a hunter—you have to respect the animals that you hunt! You know, you're not going to go out there and say "I think on this trip I might try to get ten." You can't say that! To us, our ancestors, they always say "what you hunt could hear you."

  – John Lucas, Sachs Harbour

  ... one of the first things you learned early in my career is that you never, ever speak or talk about polar bear or any animal in a bad way. And when you do, things happen! And that's something that I learned right away when I first started from a couple of people.

  – James Pokiak, Tuktoyaktuk

  My mom is going to be 91 [years old this week] and she still tells me not to talk bad about the animals. She still tells me that same thing—don't talk about the animals, they can hear you.

  – Chucky Gruben, Tuktoyaktuk

- **Hunting animals helps to keep the populations and ecosystems in balance.**

  ... If everybody quit hunting the bears, you know, there will be so many bears and they start dying off—[running out of] food or something—and start dying. It's, in a way, they both kind of go together.

  – Andy Carpenter, Sachs Harbour

- **Give younger bears a chance to live their life and preserve them for future generations of hunters.**

I was taught to leave the small bears, not to kill the two- to three-year-olds. When I see those small tracks, I tell them "I'll see you in a few years" and I give them a chance to experience life. I get the eight, nine, ten, eleven-foot bears that are more mature. But that's what I was taught by my grandparents and my uncle—give them a chance to grow. If they're too small you say "we'll see you in a couple years." Sure enough in a couple years, there's a bigger one, might be the one I didn't harvest. That's something I would pass on—give them a chance to experience their life instead of shooting small bears.

– John Max Kudlak, Paulatuk

- **Do not let animals suffer.**

[If a bear is sick or unhealthy] you might as well shoot it anyway cause all it is suffering and it's going to die—you might as well put the hide to use for something. I don't think it's good for any living being to be suffering like that. I guess the way I look at it is pretty much like if someone's really, really sick and they don't want to suffer anymore, they ask for euthanasia. It's just that the polar bear can't talk to us and say that, you know.

– Roger Kuptana, Sachs Harbour

More recently, harvest decisions have been influenced by harvest quotas:

The early 1960s, there was no quota and anybody could go out there and hunt and shoot as many as they want. Everybody could go shooting anytime, in the summertime and winter time, from this area. Now today it's different, we got that quota. We can only take twenty [bears] a year and hunters got numbers of how many they could shoot in one year.

– Pat Ekpakohak, Ulukhaktok

When the quota system was introduced in the early 70s as a result of the International Agreement on the Conservation of Polar Bears, it was part of a circumpolar effort to conserve polar bears populations, which had been in decline across the Arctic in the preceding years. As the quota system developed, sustainable harvest limits were recommended by biologists based on population estimates in each of the sub-populations.

The biggest difference I've seen in my lifetime, and their generation, when they first started hunting, they had no limit as to how many they wanted to harvest. And then the quotas came into place, in my lifetime, and that's when our community could only harvest so many polar bears per season.

– James Pokiak, Tuktoyaktuk

As a result of the signing of the Inuvialuit Final Agreement in 1984, a co-management system was established that provided an integrated regime in the Inuvialuit Settlement Region for the conservation of polar bears. Harvest quotas based on the abundance and long-term productivity of each polar bear population were determined and then

allocated to each community for their hunters. These quotas establish how many bears can be harvested and from which populations. Although in some communities these harvest quotas have not been filled for 25-30 years, they still provide valuable guidelines to ensure the sustainability of polar bear populations. Roger Kuptana of Sachs Harbour recalls the success of the quota system:

> *In order to hunt them, every community is on a quota system which means we can only get so many bears per community, and I think that's the best thing, that's one of the few good things that the Canadian government really did. You know that was good for the wildlife.*

Conservation (Sport) Hunting

The other recent change that has affected community harvesting is the development of the sports hunting economy. Canada is the only circumpolar nation that allows "sport" or "conservation hunting."

> *For the past ten years, twenty years maybe, you get a lot of big game hunters that come in and get a bear. That's what we go for now. That's how we make our living nowadays, cause in those old days it was easier, you didn't need money very much in those days. But now you do. You can't go without it anymore. So big game hunting is quite important to us.*
>
> – Joseph Haluksit, Ulukhaktok

Despite the lure of sport hunting and the important revenue that comes with it, communities throughout the ISR agreed that, of their priorities, "first is subsistence use and second is sports hunting." This clause is written into the Inuvialuit Game Council resolutions, mandating that no more than 50% of a community's quota can be allocated to sports hunters. This ensures equity amongst subsistence hunters and guides, reflecting the contemporary importance of using their wildlife for economic and tourism revenue, while equally maintaining the rights of Inuvialuit to continue their subsistence hunt.

Sport hunting has also contributed to the conservation and management of polar bears. Andy Carpenter of Sachs Harbour was chair of the Wildlife Management Advisory Council (NWT) during the establishment of sport hunting in the ISR, and explains how sport hunting promoted conservation:

> *Sport hunting polar bears, I think it's about the best way of saving the bears! We've got a quota now…. We can't [sport] hunt over half of your quota in the community. And that's so that others can have some to [subsistence] hunt. [Sport hunters] come and if they don't get a bear, that tag is gone. Once you've sold a tag to a sports hunter it's gone, whether he gets [a bear] or not. Most of the time, the sports hunters they're looking for a big animal, so even though they see small ones, they never shoot. And so that's like you're saving more of*

> *the polar bears. The years when we don't have any sports hunts here, [Inuvialuit] people start going out and [they] can use skidoos. It's easier for them to track it faster [and they can] get a bear faster. But with sports hunts you only, you're supposed to use only dogs. And it's less chance getting a bear with the dogs than with skidoo. Skidoo—a bear doesn't have much chance.... And most of the [sport] hunters, they want to get the big [male], they don't go out for the females.*

Freeman and Foote's research (2009) confirms the numerous conservation benefits of polar bear sport hunting that Carpenter describes, including the selective hunting of large male bears, who would be a predation threat to young cubs, and the clause of non-transferability of permits from unsuccessful hunters.

"Because [of] sports hunting we don't utilize all our tags every year," comments Frank Pokiak, alluding to the non-transferability of permits. While Inuvialuit hunters, if unsuccessful in their subsistence hunt, can pass their unused tag to another subsistence hunter, sports hunters cannot, which means that the tag is retired if the hunter is unsuccessful. A 2008 study examining one season of polar bear sport hunting in the Inuvialuit region found that only 11 out of 20 hunters, or 55%, were successful in their sport hunt (Slavik 2009). This means that nine polar bears were safely removed from either a sport or subsistence harvest.

Furthermore, the sport hunting economy provides economic incentives to ensure local compliance with strict conservation regulations. Across the Canadian Arctic, the polar bear conservation hunting economy provides over $2 million annually to small, isolated communities, and promotes a means of culturally appropriate development and community-based conservation of wildlife (Freeman and Wenzel 2006). This income from sport hunters circulates within the community, providing employment for guides, helpers, local business owners, and traditional handicraft artists. James Pokiak of Tuktoyaktuk explains the importance of this income to him and his community:

> *[Guiding sport hunts are] very important for me because that's how I put my bread and butter on the table—my partial income. I don't have a trade of any kind. So I make as much use as I can from out on the land and this is one way that I do it. It doesn't only give me employment and money to me for my family, but it also helps all the other people that I hire, as assistants, people to drive skidoos, so it creates employment. I'm not the only one who is benefiting from it. There's too many to count on my fingers and toes from the people that I have hired in order for me to do that.*

Beyond the economic motivations to ensure sustainable harvest, conservation hunting also helps promote the goodwill and cooperation necessary for co-management, and provides additional justification to protect polar bear habitat from potentially damaging marine- and land-use activities. Finally, as sport hunters are required to hunt using dog

teams, this new economic endeavor in Northern communities also upholds the proud Inuit tradition of dog-sledding.

Polar Bear Research and Co-Management

Collaborating with scientists and other native user groups has equipped the Inuvialuit to be modern stewards. As Frank Pokiak observes:

> *... I think in the Western Arctic and our region, our polar bear management, we're really in a strong position, because we have all the information we need to make decisions and we continue supporting research to get that information to make those decisions.*

The Inuvialuit have a long history of positive working relationships with scientists to conserve polar bear populations and to determine sustainable harvesting quotas. However, over time, they have raised concerns and identified deficiencies with wildlife research programs, including polar bear research, which undermine confidence in research findings. Some of these include:

- **Limited range.**
  While scientists can access regions inaccessible to most hunters, practicalities of researching in the Arctic limit the range of ground they can cover.

> *[Biologists] don't check areas they can't get to.... 200 miles off shore, they don't know what's out there cause they can't get there. I think that's one of the reasons why we don't feel it's declining, because we're telling them that they can only do work so far out. They say there's nothing out there, but we're finding information where they're finding seals way out above the pack ice.*
>
> – Frank Pokiak, Tuktoyaktuk

- **Limited timeframe.**
  Inuvialuit are critical of scientists who only do studies at certain times of year.

> *Those people counting the bears, they only stay there maybe just for two weeks. And when they come back they say the numbers of the bears going down. You have to know different times of years.*
>
> – Pat Ekpakohak, Ulukhaktok

> *To me, like they do it at the wrong time. They never consult the people that are involved with the hunt ... the ones that live off the land and that go out hunting and really could tell, "Hey, I was over here a couple of weeks ago and I saw a bunch of caribou on the river here...."*
>
> – John Lucas, Sachs Harbour

- **Hunters are not seeing tagged bears.**
  What makes some hunters skeptical is that they rarely catch a bear that has been tagged by a scientist, leading them to believe that biologists are missing bears when they do their population surveys.

- **Research effects on polar bear behaviour.**
  Some Inuvialuit argue that collaring and handling the bear affects their behavior and "makes them move."

- **Sub-populations and management areas do not reflect the bear's actual range.**

> *Nineteen sub-populations! I think that there's too many management areas. Like if you go into parts of Nunavut, they got a little management area here where they say it's declining, and right alongside it you have another management area where it's abundant. So it's hard to believe scientific information all of the time because there's too many management areas.*
>
> – Chucky Gruben, Tuktoyaktuk

> *We always tell them that whatever animal they're studying, there's no boundary! They could be in Tuktoyaktuk one day and the next day over in Paulatuk. They don't see no lines—they go where the food is and they travel. Some of them stick around a certain area for a period of time, but eventually they move on.*
>
> – James Pokiak, Tuktoyaktuk

- **Community observations and traditional ecological knowledge are often ignored by scientists.**

> *Maybe because we don't have a college degree or some kind of diploma, they don't use the people. But right now, you hire the people, they're probably the best ones that are knowledgeable about what goes on.... Here's the scientist, here's the Inuvialuit. If you put them together, things would work better, with our knowledge of what we know up here, and the scientist with his knowledge, maybe they could come up with something. I mean a lot of times scientists come up here but forget about the Inuvialuit.*
>
> – John Lucas, Sachs Harbour

It is important for both the scientific community and the general public to learn about traditional ecological knowledge and hear the perspectives of

> *"Traditional knowledge is at times not recognized. And it showed here today, our elders that really told us a lot about the different things about when they grew up and the things they seen in the past and the things that they seen now. These [elders] have degrees, like doctors' degrees, of their own—in the ice and polar bears that they manage, and hunting."*
>
> – Lennie Emaghok, Tuktoyaktuk

the Indigenous peoples who live with and harvest the bears. But "there's no balance between the scientific research to determine populations and the traditional knowledge of the hunters," says one member of the Wildlife Management Advisory Council NWT.

There are inherent challenges in incorporating traditional knowledge—a distinctly oral, qualitative, and value-rich epistemology (way of knowing)—into the rigidly objective and rationalistic scientific method. Berkes (2008:9) describes them as "two distinct but equally positive sciences ... parallel modes of acquiring knowledge about the universe." Though both forms of knowledge are built upon empirical foundations and form conclusions based on accumulated observations and experimentation, the two can come to starkly different conclusions due to their fundamentally different (although not irreconcilable) worldviews. "I question the scientific methodology of how they get their information in comparison to traditional knowledge," says John Max Kudlak of Paulatuk. "The bears are out there but we don't study them with a scientific approach!"

As many people interviewed were eager to point out, many of the unique observations and breaking discoveries that biologists are finding in their studies have been known by the Inuvialuit for centuries:

> *You see a lot of reports by biologists about bears drowning or bears starving. Our people have seen that since they started hunting polar bears. And yet when these biologists see that, it's something new to them and they put it out in a report and they make it seem really bad. But to us that's old news.*
>
> – Chucky Gruben, Tuktoyaktuk

> *Like when they first start coming with this information ... [we] know that this has always been happening. Yet it's really not recognized that we knew these things from our parents.... It's something brand new only because scientists are saying it.*
>
> – Frank Pokiak, Tuktoyaktuk

Through the establishment of co-management boards, Inuvialuit have gained the authority to decline and prevent studies in their land claim region. In the spirit of collaborating to preserve their wildlife and resources, rather than invoking the right to refuse studies, Inuvialuit will often provide input on how to improve the study.

> *All the things that have happened so far have been done jointly with the co-management boards and the HTCs—without that we could control them* [studies] *about how many they can do per year or if we wanted, we can request that they quit doing. It just has to be a request from the HTC, from the people. You have to go through co-management boards that are set up. And that's not to say they are going to continue to do it, but they are doing it right now for a specific reason.*
>
> – James Pokiak, Tuktoyaktuk

Though each group's methods may differ, the Inuvialuit realize the benefit of working with scientists for the sake of polar bears:

> *The way of doing science and traditional knowledge is so far apart—the way of thinking, the way of doing things. It's hard to say, but I do know that what the scientists are doing—studying polar bears—isn't harming the polar bear and is doing us a lot of good, you know!* – Roger Kuptana, Sachs Harbour

> *I always think that what scientists say, they know a lot, but there's a lot of [local] people too that know, that do the hunting. They see all the animals [and what] shape they are in. So [scientists] know just about as much as us! Both the scientists and the hunters, they could help each other. Once you start sharing information with different people, it's always very interesting and things start happening.*
>
> – Andy Carpenter, Sachs Harbour

Inuvialuit Knowledge of Polar Bear Ecology

Inuvialuit knowledge of polar bears and their habitat has accumulated from generations of oral history, community observations, and first-hand experience with the animals. The accumulated observations of polar bears in their natural environment would give experienced hunters the equivalent holistic background of ecosystem scientists or behavioural ecologists. Very few, if any, behavioural ecologists have the luxury of studying polar bear behaviour in the Arctic because of the amount of time, the conditions, and the risk required for long-term observations. Among this study group of 16 elders and hunters, they combine over 600 seasons hunting polar bear and over 150 seasons guiding sports hunters and biologists through polar bear territory. Their observations, both of long-term trends and unique events, provide a critical complement to research being done by the scientific community.

The following summarizes Inuvialuit knowledge and observations of polar bear ecology, habitat, behaviour, and health that were shared during the workshop and interviews. Special consideration was given to exploring observations of polar bear population trends, changes in health and habitat, and how polar bears (and people) are adapting to these changing conditions.

Denning Habitat and Behaviour

Female polar bears require the warmth and asylum of a snow den to birth and rear their cubs. Polar bears begin to head inland in November, looking for dens in creek beds, inlets, along steep banks, and on islands. Where they den is often geographically specific, with members from each community knowing several places that are prime denning habitat.

"A bear will den anywhere as long as there is enough snow for them to den," says Roger Kuptana. "As long as it snows, it's all right." The critical condition for choosing a denning location is snow because the deeper the snow, the more insulation it provides.

> *Well, it's warmer, they dig when there's snow along the banks. They look for deep snow and they go quite a bit down.*
>
> – Geddes Wolki, Sachs Harbour

Snow accumulates more quickly in depressions (creeks, ravines, etc.) on the leeward side of banks and inlets because of the prevailing winds. Fred Wolki describes his experience from Baillie Island:

> *In October, there's not very much snow yet. There's not enough snow to get covered up yet, so [the polar bears] just wait and wait. And finally the wind comes and covers them up ... they wait for the wind to blow over a bank. So north and west is from where [the wind blows from] so they try to go to the south side of the islands or inlet.*

John Lucas describes his experience in finding bear dens on Banks Island:

> *Where there's a bank and the snow goes to cover it up like this [is where the bears will den]. And around [Sachs Harbour], there's a lot of east winds in the fall, all the snow collects on the fair-wind side of the bank down here. We seen dens right in the edge of the ice here—right in the beach. It's not very high [snow].... And we run into some inland too. Like you know where there's a hill with a lot of snow.*

Polar bear dens are often more complex than just a hole in the snow, often having several "rooms" and a vent to allow fresh air to enter. John Lucas describes his observations from exploring an abandoned polar bear den:

> *It's very interesting how they have their dens. One time I went into a den after the bear went out just to check. It's got a room there, it's got a room there, it's got a certain place where they go to the washroom, and they have their cubs there.... You will have a vent right to the outside here ... not far from the den.... It's not very big, the vent, it's only very small. Just so that air pressure comes. You would notice it right away because foxes always urinate [on the hole].*

Bears will construct dens both actively and passively, either digging out a hole in deep snow or waiting for the snow and wind to cover them over.

> *What happens is, in the fall time there's hardly no snow. They go to where they think it's going to get covered up and they wait for snow. While they're waiting, they're just sleeping in a place where they think they'll get covered up, and*

slowly the wind starts coming and they get covered up. But they always look more for little banks where it could cover up more easy.

– Fred Wolki, Tuktoyaktuk

David Nasogaluak has observed that because of climate change, the snows are arriving later: "You go where there's a lot of snow banks, further north. Less snow around [the Tuktoyaktuk Peninsula].... Sometime you see track of polar bear and the snow isn't even deep enough to make a den. No snow banks."

Denning Locations

Denning locations are often the focus of biological studies in the region, and more comprehensive studies regarding denning habitat have been completed to date. In this workshop and interviews, specific denning locations were discussed in the areas of the Tuk Peninsula and Banks Island.

You'll find [dens] everywhere—even way up inland. They're all over the place. [Denning bears] don't stay close to the shore, some of them. They even go up into the land to find cliffs so they could get covered up.

– Fred Wolki, Tuktoyaktuk

I been hunting bear up along the Tuk peninsula most of my life, and a lot of the dens I see are on the east banks. We used to get a lot of wind from the west, blowing the snow, so we get a lot of the denning areas on the east side. Twice in my life I've seen a polar bear den way up the Smoke River and way up the Moose River—about 40 miles inland. One year one big sow came out of Smoke River, about 40 miles up the river. It must've been about nine foot and it had two cubs and it was heading back out to the coast in April. But even when they travel along the banks across from Baillie Island towards Whale Bluff, way high up you can see dens up there when the snow gets deep enough. A lot of those banks are fifty-plus feet high.

– Chucky Gruben, Tuktoyaktuk

On Banks Island, John Lucas has observed that there are a lot of bear dens "on the west side" of the island, "right on the coastline, from [Gore islands] all the way down right to the south end of the Island [Kellett Point]. A lot of bears with cubs." Meanwhile, Roger Kuptana observed that not as many bears will den in between Stokerson Bay/Siksik Point and Norway Island on Banks Island because snow in the area is "too shallow."

Female bears are very sensitive to disturbance while denning. This is one reason denning studies are important when undertaking industrial development in the region. Charles Pokiak recalls his involvement with a past denning study:

A couple of elders I interviewed there said if there's a disturbance—too much noise—the bears will come out of their denning, the females. They'll try and

move .... So sometime they get chased away because of too much activity and they have to leave their young ones.

– Charles Pokiak, Tuktoyaktuk

Male bears have been known to "den" as well:

There's records of big [male] bears, when they get too fat, they go inside the ground, just like females, and wait to get skinny again. When they get too fat, just like a person who's overweight, they can't move around that much. So they go in a hole and wait a while until they get skinny again. Well, there's been reports from elders from before. My dad seen it too. They go in the hole, like any other small bears, and wait for the blubber to get thinner.

– Fred Wolki, Tuktoyaktuk

Cubs

They never eat while they are in the den. They just drink milk, rich milk.... It makes those cubs big.

– Geddes Wolki, Sachs Harbour

Figure 11: Twin cubs in a maternity den. Credit: U.S. Fish and Wildlife Service.

It is estimated that polar bears go into heat every two or three years. They usually give birth to two cubs (twins).

[First-time mothers], first year they have cubs they always have one.... Second time they have two. Sometimes if it's a big polar bear, they have triplets. But the third one is always small.

– David Nasogaluak, Tuktoyaktuk

Quite a few times I seen [triplets] north of Ulukhaktok. Most of the time they have two. Sometime, only very little times, they got one.

– Pat Ekpakohak, Ulukhaktok

There was one story from Baillie Island. They say five bears came into town—one polar bear had four cubs! They used to tell that story, the old-timers. That was long ago! Over a hundred years ago at least.

– Geddes Wolki, Sachs Harbour

Hunters believe that if there is just one cub, it is often because the other cub died or was killed by another bear.

Diet and Feeding Behaviours

> *...When there's lots of seals, [bears are] healthy all the time and fat.*
>
> – Geddes Wolki, Sachs Harbour

> *"That's why when you track down polar bear with dog team or skidoo, the foxes always follow them cause they know they're going to get seal. Bears eat the blubber and foxes get the meat. That's why they follow the polar bears."*
>
> – David Ruben, Paulatuk

The health of the polar bear is intimately tied to the health of the seal. In the Western Arctic, there are two species of seals: ringed seals (*Phoca hispida; natchiq*) and bearded seals (*Erignathus barbatus; ugyuk*). John Lucas believes polar bears prefer ringed seals to the bearded seals, but they will still hunt bigger (800-900 lb., or 363-408kg.) bearded seals.

"Well, the polar bear's diet is only blubber," says David Nasogaluak, "he'd have to be real hungry to eat the meat." When consuming seals, polar bears will eat the skin and blubber first, and will usually stash the carcass to eat later, or leave the carcass to be consumed by the foxes.

> *When a polar bear kills the seal and they're not hungry, they take the oil and leave the meat for the foxes. Only when they're hungry they'll eat the meat. That's why there's lots of arctic fox where there's polar bear.*
>
> – Fred Wolki, Tuktoyaktuk

Several hunters commented that polar bears do not like to eat their prey while it is still hot. John Lucas of Sachs Harbour shares his observations:

> *[I saw a polar bear kill a seal] and it put it in some freshly piled-up ice. Made a place for it. It left it there, hardly any fat on it, and then when we got to it, it was all covered up with ice. He'd been piling it up with ice and just left it.... It never went back for it. Of course there was no more oil on it. The whole carcass was there, but there was no more fat.*

Polar bears have become exceptionally specialized at locating and ambushing seals through their breathing holes and their dens—a skill that is taught by the mother bears to their cubs.

> *[Mothers] teach them to stay away while [she] is waiting for seals at the breathing hole. And they never try to go with their mom while she's waiting for seals. They teach them like that too. If they keep going to their mom, the seal wouldn't come up and no one eats. Yeah, they're good hunters.*
>
> – Geddes Wolki, Sachs Harbour

The Inuvialuit have learned much from watching how the polar bear hunts for seals, knowledge that in the past informed their own seal hunting. Charles Pokiak tells his story of learning how polar bears hunt:

> *The ice fog was lifting a bit and [Uncle] John was 'binocularing,' and he said, "There's a bear, Charles." And I looked too, and I said, "There's another one, and another one." There was five bears in one place! They were hunting seals all together in the same place and they were lying down…. [After I shot a bear] I went back cause I wanted to see how they hunt seals. So after we brought the bear to the main ice, we went back out, and there was mounds in the young ice-breathing holes. The bears would dig beside it and when they get in there with their teeth, they pull out the seals. That was pretty impressive! [My uncle] said he hunted quite a bit around Baillie and seen that. He passed on the traditional knowledge that way too. Just to see it first-hand! [Bears] would dig with their claws just until there was a little bit of water. The ice wasn't very thick. Maybe four inches. They'd just lay down and wait. And each bear was at a different breathing hole, just waiting for lunch to come.*

John Lucas of Sachs Harbour shared his insight as to how and why bears hunt seals the way they do**:**

> *As soon as it freeze up in October, November, and December, it would be better hunting for them in the dark than in daylight—you know—when their shadow can't be seen. When you go to a seal hole where the polar bear is observing it, you know what they do? They put a thin layer of snow on top the hole. Just very thin. So maybe the seals don't see their shadow or see them before they come out. I've seen that a few times. Just light snow right atop the water. You know, from seeing their shadow maybe and if they see a bear up there, the [seals] wouldn't go up, so they cover it with snow. [Polar bears are] very smart animals!*

Polar bears have an exceptionally strong sense of smell that gives them the ability to locate seals even when they are under several inches of ice.

> *They hunt a lot of those small seals. Young ones that are born in April—the pups. And those pregnant ones, they always have holes right underneath the ice, so they get covered up right away…. And when polar bear smells them, they get them right away cause they're right on top of the ice. Go like this and grab it. There's a lot of bears like that—they get them really easily!*
>
> – Frank Wolki, Tuktoyaktuk

In the summertime, polar bears will try to hunt seals on the beach. James Pokiak clarified that "it's easier for [bears] to get a seal in ice than in open water," although several elders mentioned how they had seen, or heard stories of, polar bears hunting seals in the open water.

Cubs are taught how to hunt by their mothers, though young bears (three to five years old) who have not become good hunters will often wander into settlements, starving. Chucky Gruben explains this:

> *Some of those few bears that do come into town— they have no fat on them. They just left their mother and they don't know how to hunt. Some of them never listen to their mother [laughs]. They head right into town!*

Fred Wolki shares a story about hunting to provide insight into some of polar bears' feeding behavior, specifically that they don't like to eat their prey hot, and that larger male bears will cannibalize young bears:

> *They [were travelling] for a while and saw there was a bear. So he anchored his dogs and shot it from where he was. One shot! He hit that bear in the neck—a big one, big male. And then he find out that bear been getting an ugyuk (bearded seal) right there and he was leaving it to cool. Bears always do that. They don't like to eat [prey] hot. They always cool their seal first. Or whatever they kill before they start eating it. And what happened—he was waiting for it to cool, and here comes a little bear. Wanted to eat from his seal, I guess. And the larger bear crushed his head. One bite killed that [little] bear. So that's how he got one ugyuk and two polar bears with one shot. That bear been killing an ugyuk and was just leaving it to cool off and we just reach it in time before he start eating it.*

Polar bears live mainly on seal and rely on the energy-rich oil (*uqsuq*), but if they're hungry, they will be opportunistic and omnivorous, especially in the summer and autumn, when they have not eaten seal for several months. Inuit have observed these deviations in polar bear feeding behaviours through observing bears hunt, examining kill-sites, and inspecting what remains in the stomach of a harvested bear. The variation of prey the polar bear can eat in the Arctic is limited, but the bear has shown that it can be adaptive:

- **Eider ducks (*Somateria spectablis; qaugaq*)**

> *You know when the ducks first come, the bears are in the ice and in the water. They're diving under and pulling the ducks down!*
>
> – Charles Pokiak, Tuktoyaktuk

> *I just see a whole pile of [Eider] ducks go in an open lead. Polar bear go down ... and attack them from the bottom.*
>
> – David Nasogaluak, Tuktoyaktuk

- **Muskox (*Ovibos moschatus; umingmak)***

  ... those hungry bears in the summer, they must get muskox too once in a while [because it's] hard to get seal in the summer.

  – Geddes Wolki, Sachs Harbour

  They scavenge in the fall time too, when there's no ice…. I ran into a bear in the fall time and he was eating a muskox carcass. And bowhead one time, there was a lot of bears on that ... we seen over thirty bears there.

  – John Lucas, Sachs Harbour

- **Beluga (*Delphinapterus leucas*; *qilalugaq*) and bowhead whale (*Balaena mysticetus*; *arviq*)**

  There was actually a few [bears] one time, they were trying to get a beluga whale that was trapped in the ice—trying to get the whale. So anything that they see as food they're gonna go for it.... They really like whale oil! They'll finish the whale sometime—just eating, they have to finish before they leave.

  – James Pokiak, Tuktoyaktuk

Although the polar bear is generally considered a solitary mammal, Inuvialuit observations suggest that bears occasionally congregate to feed.

There was one time a whale been beached (*silu) on Baillie Island and the polar bear been finishing it, but then again it must've ran into it while it was still summer. A brown [grizzly] bear been going there and it was dead too beside the whale. The polar bear killed it. Polar bears were gathering there. They finished the whole whale.*

– Fred Wolki, Tuktoyaktuk

- **Other bears including polar bears and grizzly bears (*Ursus arctos horribilis)***

  Well, it's always been known that, if they're hungry, they'll eat another bear.

  – Roger Kuptana, Sachs Harbour

  ... some big males, they always try to eat cubs too.

  – Geddes Wolki, Sachs Harbour

  Talking about healthy bears, scientists too have started throwing this thing around is that bears are cannibalizing. And what we've been saying is that this has been going on for generations—bears will kill another bear for food if it's starving or kill cubs in order to mate that female.

  – James Pokiak, Tuktoyaktuk

- **Walrus (*Odobenus rosmarus; aiviq*)**

  They always go at the back, eh, where they can't get them with the tusk. And the bears kill it by chewing on its neck. They grab it like this and hold it, and that big walrus can't get out. I know even big walruses are really scared of polar bears.... They go to a herd of walruses and walk right up to them and start looking around to find a small walrus that they could kill right away.

  – Geddes Wolki, Sachs Harbour

Figure 12: Engraving by Chukchi carvers in the 1940s on a walrus tusk, depicting polar bears hunting walruses.

- **Caribou (*Rangifer tarandu, tuktu)***

  I've seen bears, some that go eat caribou.... You know they get caribou when they die. Around February, some of the young ones freeze. They scavenge mostly, but they may hunt the caribou too.

  – Andy Carpenter, Sachs Harbour

- **Grass, berries, and shrubs**

  In my young days, when I was growing up we used to kill bears hibernating and under the snow. We used to dig them out and kill them. Open the stomach, nothing in it but full of grass ... before they hibernate, polar bears eat grass. To keep their stomach open, I think.

  – David Nasogaluak, Tuktoyaktuk

  I used to see them eating grass in the mainland. One time, one polar bear, when we skin it after we got it, it was full of grass in its guts. Just like a herd of cows. [And that bear looked] really healthy!

  – Geddes Wolki, Sachs Harbour

  Berries or grass—they could eat that too in summertime. That was probably their dessert!

  – Pat Ekpakohak, Ulukhaktok

- **Humans**

One time I opened up a polar bear that was killed by defense and I find people parts! I mean, if that bear is hungry, it's going to eat anything! Most of the time it eats seal. Only in certain chances when it's a starving bear, whatever it sees moving, it's going to go after.

– James Pokiak, Tuktoyaktuk

- **Scavenging**

I had a polar bear at Pearce Point. I left my sled below on the ice. I had caribou meat and char "kwak." And this polar bear came by and started emptying my sled. He threw the caribou meat, he eat the char.... That bear, he ate good, but he didn't bother with the caribou meat. So you see, there's a preference. They don't care for red meat but they pay attention to the char.

– John Max Kudlak, Paulatuk

Polar bear comes into our camp, going to that caribou meat. He smell it first, but never bite it. He go for that seal meat instead. He start eating that piece of seal meat and he don't care about the caribou meat. They go for the fat! For the seal meat—like fish oil—that's their food. That's their survival stuff.

– Pat Ekpakohak, Ulukhaktok

Seals and Seal Habitat

Like I said, it's not really noticeable now, but as the ice recedes more and more, it's going to be harder for polar bears to get the seal which they feed on.

– Roger Kuptana, Sachs Harbour

As with polar bears, seal health fluctuates throughout the season.

In the springtime [seals] don't have much fat—there's not enough salt in the ocean.... In the spring time, when [seals] start being hauled up, that's when they start losing their fat, sleeping all the time on top of the ice. But in July they start getting in shape again.

– Andy Carpenter, Sachs Harbour

In the seasons where seals were not abundant or were in poor shape, both Inuvialuit and biologists observed how this affected polar bear health.

I know one year it was really bad, there was hardly any seals, and when you get the seals you know, they were just poor [and not fat]. And a lot of them were sick…. Well that's the same time that [CWS biologist Ian Stirling] noticed that polar bears weren't very fat and that. They were kind of in poor shape.

– Andy Carpenter, Sachs Harbour

Numerous hunters and elders spoke about how climate change was affecting seals, their habitat, and the ability of both Inuvialuit and polar bears to hunt seals.

> *Now you got global change so the weather temperatures get pretty warm. You see the ice take off earlier—right from the shores too. And that takes most of the seals out. There's thousands and thousands of seals in the springtime when they first come up in the cracks, but the ice is still there. But all those seals take off with the ice floes. When you go to Horton River with a boat now, you hardly see any seals. You might see one or two, but that's about all—really hard to see seals now. Not like long ago they were right among the ice floes.*
>
> – Fred Wolki, Tuktoyaktuk

> *In Paulatuk, we get a lot of north-winds for three or four days and the ice piles up. The seals have [permanent] breathing holes in these little bays—on thin ice, close to the land, close to the beach. But other years when it's not as rough they're further out. North-wind always helps the ice in that area—same as the east wind that blows it out.... It's good conditions for them for seals, but for us, we're getting to a point where we need a boat and paddle because there's so much open water now.*
>
> – John Max Kudlak, Paulatuk

> *And for that matter, I think that the climate change makes the bears go out. If the water's warm, there's more current than used to be. You could notice that every spring, when the weather gets warmer you see the current start to get stronger! And if there's current there's a lot of stirring of seafood. That's where the seals are eating. And they have fish to eat. But if that current is taking them somewhere and the seals follow the food, just the same way as a polar bear follows its food. They probably go somewhere else. And the seals are following their food to where it's plentiful. Same thing as the caribou, going to look for its food. So that's what I think. And where the seals are, that's where the polar bears are, that's why we don't see them much anymore.*
>
> – Fred Wolki, Tuktoyaktuk

Of course, different hunters from different communities have observed varying degrees of climate change and the effect on the seals. Pat Ekpakohak, one of the few Inuvialuit hunters who still travel up to Melville Islands in the high Arctic, has unique observations of the bears and seals in that region:

> *[It's] not a food problem for them—lots of seal. I think that they don't want to stay there no more some years because the ice is not thick enough for them to stay. They'll make a living someplace else further north. I seen it myself on the Melville Island side.*

Many hunters hypothesized that with the ice receding, polar bears will move to more northerly ranges to locate their food.

The ice is melting away now, and that's what I'm worried about. Polar bears always stay on the ice, they never stay one place. Like in the [high] Arctic islands they could stay, but they don't stay on the mainland side—too warm for them. They go further north where the ice is. Polar bears, they don't stay in the warm place. Polar bear could swim for hundreds of miles without ice, but it's got to hunt in the ice floes.

– David Nasogaluak, Tuktoyaktuk

Where the food goes, so goes the bear! While changes in the ice and currents are affecting seal populations in some regions, several hunters and elders spoke of polar bears adapting by migrating into new and more northerly ranges.

I believe they will only follow their food. Where there's a lot of seals there's a lot of bears. And the current from the waves, the water must take the seals somewhere. Or they probably drifted out by the ice and it takes longer to come back. That's why there's a lot of difference in some years. They follow their food. The seals—they migrate too, just like any other animal.... Sometimes no bears, next year it could be full of bears.... Wherever the seals go, that's where the bear goes. You know, the bears, they live on seals. If seals can't find the right place to winter, they gotta be somewhere else, they follow the food chain, and that's where the bears are.

– Fred Wolki, Tuktoyaktuk

Migration and Travelling

There's a lot of bears but they just move. Sometimes nothing, next year it could be full of bears.

– Fred Wolki, Tuktoyaktuk

"A polar bear is always wandering," says Roger Kuptana of Sachs Harbour. "Since people have known them, they're known to travel and travel. They're not like black bear and brown bear, which are territorial." The main motivations for polar bears to travel are to locate food, locate a den, and—in the case of male bears—to locate a mate.

Males are following the females, and where the female goes, there's definitely bound to be a male following her tracks. Like you know, even though it's three or four days old and covered up really good, a big bear will follow that right until he catch the female.

– John Lucas, Sachs Harbour

Polar bears have a huge range and are always moving. Individual bears have been tracked from Greenland to Alaska, or from Alaska to Russia. Some collared bears have been monitored swimming over 500 miles.

[Polar bears] don't see no lines [on a map]—they go where the food is and they travel. Some of them stick around a certain area for a period of time, but eventually they move on.

– James Pokiak, Tuktoyaktuk

[Biologists] did a study here and the population was real healthy. The next year they came back for two years and couldn't find next to nothing.

– Frank Pokiak, Tuktoyaktuk

For female bears, the two travel periods are October – November, when they are going inland to den, and April, when they return to the coast. In March and April, these females will be pursued by male bears eager to mate. Bears will also travel at different times of the day.

My dad always says [that during] March and April, polar bears always travel at night. They sleep when the sun is hot and wake up when it gets cold. I seen that two or three different time.

– David Ruben, Paulatuk

Me and my wife were polar bear hunting in spring time in Melville Island. We're tracking one bear, and when we're getting close to it, we seen it striking something on the snow, on the fresh snow on top of the ice. When we get close to it we seen it dragging its head on the ground, on the ice. It was sleepwalking! Me and my wife we seen it real close. First time I seen a bear sleepwalking. Steady walking. He kept at it for a long, long time. About 15 minutes at least—sleepwalking! ... They have a GPS. It never, never turned anywhere too. It walked for a long, long ways without lifting its head.

– Pat Ekpakohak, Ulukhaktok

Bears will also travel in certain directions depending on the weather and the season. Many Inuvialuit polar bear hunters know these habits well.

You know they can smell a seal through [solid ice]. When you watch a polar bear, you never see a polar bear travelling that way, fair wind. Always headwind. Always going like this to smell seal holes and that. They're always going headwind.

– John Lucas, Sachs Harbour

And that day I saw 11 bears while we were filling the tags. There seemed to be a lot of bears. For some reason they were all coming from the east and travelling to the west. For some reason we just hit it right on and bears—I saw 11 bears that day.

– Lennie Emaghok, Tuktoyaktuk

John Lucas describes the migration route, or polar bear highway as he calls it, taken by groups of polar bears between Victoria, Melville, and Banks islands:

Between Melville and north of Victoria Island, where they migrate the most ... In spring time, all the polar bears are heading west, from north of Victoria Island to Melville Island. I think they're from the north of Victoria cause when you get polar bears from up that way, they don't have a tag on them.... We had a couple of bears coming from Victoria Island, you know the strait is only about 11 miles apart right there.... The ones we see at the north end of Banks Island, the majority of them were coming from the east side of us. So they were heading west.... Sometimes we see their trail, eh. It's like a highway of polar bear tracks!

Geddes Wolki observed that on the west coast of Banks Island, in "March and April and May, they start really migrating [north]." Roger Kuptana has observed that on the east side of Banks Island "around [the] DeSalis area, the polar bear movement is usually not that great there."

Bears are always travelling in search of food and the ideal hunting conditions. Several hunters commented on what conditions the bears look for.

So, these bears, they just move all over, they don't go from point A to point B—they're hunters! They're always zigzagging! Last year we watched a bear make a full circle like this. They're look[ing] and hunting for the ideal condition when the ice is young—young ice is really the ideal conditions!

– James Pokiak, Tuktoyaktuk

Well, most of the times they are travelling where the old ice and the young ice meet. That's where they hunt ... the young ice is where a seal makes a fresh seal hole.

– John Lucas, Sachs Harbour

Well, it really depends on the way the ice forms. Sometimes when the ice comes in, it stays in the shore like that. But there's cracks that come in from straight out when the ice is moving and you see bears following the cracks towards the shore. That's when there's plenty of bears because the ice is not moving and they're hunting in those cracks.

– Fred Wolki, Tuktoyaktuk

"You don't see any real old polar bears. They'd be skinny and starving. My granddad said they go out and just keep going North because they don't want us to see them suffering. So they keep going, and that's why we don't see any skinny, suffering animals. Cause they're so old that they don't want to show us how pitiful they look. And that's a story from our elders."

– John Max Kudlak, Paulatuk

Everyone observed that bears would take "shortcuts" overland.

You know, from my experience, when the polar bear is migrating, they never travel only by ice or by the ocean. I [have] seen polar bears migrating overland when they're migrating up north. Quite a few times I see polar bear tracks heading north or heading south this way. They know a short cut overland.

– Pat Ekpakohak, Ulukhaktok

Hunters are observing that more bears are inland, not only females looking for dens, but males as well. This may not be a new phenomenon, and could be because people are travelling further now in the springtime and fall with the skidoos. However, the distance bears are travelling inland is surprising. Several bears recently traveled over 400 km south of the coastline to the communities of Ft. Franklin (Deline) and Ft. McPherson—communities that have never seen polar bears before.

> *Right now with the climate change, you know that bears are losing a lot of their habitat out on the ice. But they do adapt to go someplace else probably, and you see a lot of them on land now ... there's more bears on land now ... [In the past], you'd see some on land but ... I think they're seeing more travelling on land.*
>
> – Andy Carpenter, Sachs Harbour

In the coastal regions, bears will migrate through the communities, either wandering through on the land or blown to shore on ice floes. These could be starving or nuisance bears in search of food, but other times they're just waiting for the ice to come and get thick enough before they move out. Charles Pokiak and others have observed that:

> *Some of those few bears that do come into town—they have no fat on them. They just left their mother and they don't know how to hunt. Some of them never listened to their mother [laughs]. They head right into town!*

Bears wandering into communities is a relatively recent trend, as Frank Pokiak points out: "It was very seldom that a bear would come into town—once every 10 or 12 years. But the past 10 years we've had a few more." Having bears in the communities is obviously a safety concern, but communities are well prepared to chase the bears away. However, if the nuisance bears keep coming back in, "that's when you know that they might be dangerous and you [get rid of them]," says Andy Carpenter.

Climate change is requiring bears to adapt their home range and migration routes:

> *The icebergs are melting from the south—they're further away from us now and there's hardly any icebergs. There's no multi-year ice. It's melting due to the extended summer season….The polar bear especially lives in a colder temperature than any other animals, so they follow the cooler temperatures, they go further north.... Lots of animal migrations change with the global warming. Lots of animals, not only polar bears, are changing their migrations.*
>
> – David Nasogaluak, Tuktoyaktuk

If bears have to expend excess energy reserves travelling, this puts additional stress on the animals. Although bears are adept at swimming long distances, travelling through open water is tiring, especially for the young cubs. Frank Pokiak shares observations of several bears in Alaska:

There was one [bear] that was way out where Russia and Alaska joined. It swam for 500 miles after [the biologists] collared it. The only time they get the satellite information is, I guess when they get onto an ice floe, when the satellite starts reading, but it swam that far. And there was another one outside of Point Barrow, when I was there last spring. It swam over 500 km straight out—a mother and a cub.... This female bear that was tagged swam out to the ice floe, it came back in a couple days but it didn't have a cub with it. And they found another bear when we were there. It swam into Barrow and it looked like it was going to die. It just ran to the beach and lied down. They were trying to drive it away but it came back and fell on the ground. They became concerned about it and thought it was starving. They checked it and it had thick fat. The only reason was it was so tired from swimming. After a couple days rest it got up. So all the bears they see on the shore that aren't moving, maybe they automatically think it's going to die. They really thought that bear was in bad shape and not going to survive, but all it was doing was resting two days!

"...Open water changes their migration! They don't [want to] swim, they like to walk when they're migrating by the ice. That's the number one thing you gotta know. When there's straight open water, there's no polar bear. Ice come in from the north, solid ice, there's the polar bear!"

– David Nasogaluak, Tuktoyaktuk

"We're in the state where climate change is taking over now!" says elder Fred Wolki. "If [there's] lots of open water, unless a bear swim across, it won't come to the shore anyways. That's why there are less bears. They're probably out there in the better hunting area where it's not moving and cracks are way out for hunting—it's better habitat for bear where it's not moving."

With the changing climate, there is a lot more open water for the bears to contend with while travelling and hunting. Furthermore, the open water is rougher.

I hear from hunters when they go out, that it's open water and it doesn't close up anymore. I feel that when we stayed at Baillie Island, some years there's lots of open water. When there's lots of open water there's hardly any bears until the ice start getting thicker…. [It's] midwinter when it starts to close in—that's when bears start coming in [sometime in February or January].... When the ice start getting thicker, the ice start getting further and further piled up, that's when the bears start coming in, because it freezes right away because the ice is thick.

– Fred Wolki, Tuktoyaktuk

Nowadays I feel there is more open water from what I've seen and I think that makes it tougher for the bears to hunt the seals. If they run into a lot of water, of course the bears are going to have a tougher time finding food, and we're going to have a tougher time hunting them!

– Chucky Gruben, Tuktoyaktuk

Ice Conditions

Inuvialuit are very attuned to what is happening with the ice, both through personal observations and through the oral history of their elders. More recently, in working with scientists, Inuit have become aware and very concerned about the forecasts of multi-year ice loss and changing ice conditions.

During the workshop, elders and hunters discussed the progressive changes they have witnessed in the ice over their lifetime.

> *In the 1950s there was big ice all over the place. Now you don't see that ice anymore.* – Fred Wolki, Tuktoyaktuk

> *In 1960 when I first went across [Amundsen Gulf to Banks Island], a couple of times we don't get the sea lift even—ice never even melt. We had to fly in by airlift instead of barge[ing] groceries and fuel.*
>
> – David Nasogaluak, Tuktoyaktuk

> *There were no more ice floes off Banks Island this summer ... they were really high when you were approaching Sachs Harbour, and [now] you don't see nothing—a few chunks of ice further north from the west coast of Sachs Harbour ... it really changes a lot. That ice used to never melt the whole summer when I was there from 1960 to 1970.... The west coast of Banks Island used to be just white—never melt—the last ten years when I was there. Now you can barely see some ice floes from way out the north side. Probably only the north side gets the ice floes. That's hurting the polar bear migration!*
>
> – David Nasogaluak, Tuktoyaktuk

> *There's one area here called Whale Bluff [south-east of Cape Bathurst]. It's about 300 feet high. Sandy [Wolki] would go so far offshore that he can't see the bluff anymore. So just by hearing stuff like that, you can tell that ice conditions were a lot safer back then [before 1984] than they are now.*
>
> – Chucky Gruben, Tuktoyaktuk

> *Fifteen years ago [1994] we used to go to Baillie Island, it was calm and every day you used to see icebergs three times bigger than this building, right up against the shoreline. That's multi-year ice!*
>
> – Chucky Gruben, Tuktoyaktuk

> *Up until about 10 years ago [1999], I used to go out yearly, I used to see quite a bit of multi-year ice until, and now, I never see any. And because there's no multi-year ice, you can't go as far [out], where the polar bears are as abundant, way out on the open ice.*
>
> – Lennie Emaghok, Tuktoyaktuk

And I believe that it's the weather conditions right now that changes everything. It could change a lot of things like current, the current could get stronger and open it up because ice is so thin now, and for that matter, the cold doesn't reach the water anymore, it can stay warmer and easier to open. And the ice is not thick enough to pile up nowadays. Long ago you used to see mountains of ice. But you don't see that anymore, because ice is not as thick. We used to get seven-feet-thick ice sometimes when it packs up. You could go, just like climbing a mountain in some places. I don't think you see that anymore out in the ice.

– Fred Wolki, Tuktoyaktuk

Right now it's not too noticeable [around Sachs Harbour] because there's still a bit of ice around. Although, over the years, ice has gotten really thin, because all the multi-year ice is gone. That stuff used to be about 15-20 feet thick. Now it's lucky to be four or five feet. And it doesn't take very much wind or very much current to break up the ice anymore. And the ice is going out a lot faster—so it's going to affect us!

– Roger Kuptana, Sachs Harbour

Preferred Ice Conditions for Polar Bears

These are the different ways that the ice has to form so you can see the polar bear. If that doesn't happen, you won't see them.

– James Pokiak, Tuktoyaktuk

The ideal ice habitat for bears depends on a blend of conditions. If the ice is too thick, there will be no breathing holes where they can hunt seals. Conversely, if there is too much open water, bears cannot easily hunt seals either. These stories explain the kinds of ice bears prefer and where such ice would be.

Bear are moving away because with that thick ice, old ice, there's no seal.

– Pat Ekpakohak, Ulukhaktok

The ice conditions have a lot to do with where the bears are. If it's really rough they move elsewhere where there's better hunting. They don't follow a GPS. Where the ice is good for hunting is where you'll find them. They're out there but they're not in the same spot. If it's rough out around Pearce Point, they might move towards Pin-1 or Bailey Island where there's better hunting. Cause some years there's not much around Pearce Point cause [of] the rough ice—huge, huge blocks of ice so they can't hunt—so they go east or go towards Bailey Island or straight out to Cape Parry or Nelson Head. That's where they do their hunting. Ice has a lot to do with where you see them.

– John Max Kudlak, Paulatuk

Where there's no ice, they're on the shoreline instead of where they should be, out on the ice. I think it's got a lot to do with their health in the fall time ... they go a long time without hunting seals, going without their regular diet that they have to really push it in the winter just to survive. After freeze-up.

– John Lucas, Sachs Harbour

Bears prefer to hunt where there are cracks and (relatively) stationary ice. Elder Fred Wolki explains:

They'd rather hunt on not moving ice.... I would think that if there's too much open water, bears have no place to hunt. Unless they cross to the main ice, it's the only place they can hunt. But if there's too much water, they rather prefer staying where there's no movement of the ice, where there's cracks.

Chucky Gruben relates how good hunting habitat for bears also makes for good hunting conditions for Inuvialuit, and how this is changing:

You get a lot of cracks when you get into multi-year ice. When you have multi-year ice, on a cold day, wherever it's floating around, next day it could be frozen and you could go on that ice. Now you can't do that! Now you don't see as much multi-year ice. The more multi-year ice you have, the better travelling ice conditions you have cause it's going to freeze faster. The more multi-year ice is better habitat for polar bear. It makes better hunting conditions for you!

James Pokiak shares his point of view on what makes good habitat conditions for polar bears:

First of all, you need ice. Secondly you need wind once in a while.... You need the wind and the current to open up so that after it calms down and re-freezes, it turns into young ice. That's the ideal conditions for polar bears. That's the best hunting spot for polar bears—in the young ice. Ice that's anywhere from a day to a couple weeks old, depending how windy it is. That's the ideal conditions for polar bears.

Hunters often observe bears in areas where biologists may not expect to find them. During two seasons on Baillie Island, James Pokiak observed bears from the floe edge:

For two different years, on Baillie Island, I seen it out there where you go to the shearing zone [floe edge]. I been out there when there was a lot of slush on the Beaufort. A lot of slushy water with pancake ice here and there. One time I was out there and counted 12 bears walking out there on the slushy stuff. It was just amazing! Maybe in a three-mile span—that's not counting what was on the other side of those ones or beyond. So those slushy conditions I found were really good hunting conditions for the bears too! Unfortunately because for safety reasons, we can not go any further where the big bears are because of that. Like they pointed out earlier, there's so many bears out there that the guys doing their study don't know about because those guys can't go that far.

Where wind and current put “pressure” on the ice, causing it to pile up, is a good place to find bears.

> *That pressure ridge on the west side [of Banks Island]. I’ve been there. Seal kills every few feet ... it opens up and then freezes over and there’s lots of breathing holes.... That’s where [the bears] like to hunt. They have pressure ridges, they have seal dens and that where the seals have pups. They have a hole under there where they swim to.*
>
> – John Lucas, Sachs Harbour

> *Pressure ridges opening and closing all the time. Bears like to stay there and go hunting.... When it goes, every day it moves, it never freeze, that’s why they’re hunting in those areas.... If old ice floating around, a lot of old ice—like packed together –bears don’t stay there because it’s too thick. That old ice, like 10,000-years-ago ice, there’s no bears in the area cause it’s thick ice and there’s no seals. Only when there’s a very few icebergs floating around, in between, that’s where a lot of bears go sometimes. Cause there’s young ice there and icebergs are floating around and in between there’s lots of seals too. When it’s packed together, there’s no bears. And rough ice, when it’s really rough ice, there’s no bears. And hunting through smooth ice, smooth ice for a long ways, there’s not many bears there. A little bit of “manelaq,” little bit of rough ice, there’s a lot of bears around there.*
>
> – Pat Ekpakohak, Ulukhaktok

If the ice is frozen too thick, there will be no seals and likely no bears as a result.

> *That’s when I was 17 years old [1950], I thought there was no bears that time, I was the only one that get bears. It was frozen so much there was no open water and nothing at Baillie Island.... I got two starving bears that fall. No open water, that’s why they were so skinny.*
>
> – Geddes Wolki, Sachs Harbour

Several people observed that when there is open water, only the females will remain close to land, whereas the males stay further out in the multi-year ice.

> *Sometimes when the open water open up, hardly any bears, only female bears close to the land. The ones we can’t kill. [The big bears] go out to the thick ice eh, the ice way out, just like land you know! It’s where the polar bear stay.*
>
> – Geddes Wolki, Sachs Harbour

John Lucas confirms this and adds that polar bears will be found on the opposite side of the lead from shore.

When you run into polar bears, there's young ice and open water, that's where they're going to be. Not up here, over where it's solid—they're going to be out here trying to find food. That's where they always are. Either there's an open lead or young ice.... A lot of times they are on the outside. They always have the young ice on the wind side of them. Cause they're smelling into [the wind] looking for seal holes.

– John Lucas, Sachs Harbour

Currents and Wind

With the melting of multi-year ice, water becomes more exposed to arctic winds, creating stronger currents and choppier water. Several hunters commented that the currents are "stronger" and "less predictable" now than they were in the past. This affects the bear's ecosystem, and also makes hunting and travelling on the ice more challenging for the Inuvialuit.

"If the water's warm, there's more current than used to be. You could notice that every spring, when the weather gets warmer you see the current start to get stronger!"

– Fred Wolki, Tuktoyaktuk

Sometimes if you're trying to take a short cut this way you're going to run into open water. Sometimes right to the beach, and it's very deep there. There's a lot of current. Every year is not that same there, it's always changing.

– James Pokiak, Tuktoyaktuk

It [used to be] all solid ice through the Dolphin and Union Strait. Some years you could go across [from Paulatuk] to Homan Island, Ulukhaktok. But now there's so much open water, the currents really influence you how far you can go out.... From Cape Parry there's so much [ice] moving steady you can get drifted out—even a little crack will turn into the blue ocean. So that's how strong the current is in that area. It's not a good feeling when you're drifting out!

– John Max Kudlak, Paulatuk

Inuvialuit are also noticing seasonal trends with the currents in their territory:

And another thing, in January and February, after the cold weather, the current really slow down for a couple of months. Really hardly any current. I notice this over the years I was hunting on Banks Island and here. When you shoot a seal [in open water], it barely move. Later on, that current gets stronger, in April, end of March. Something to do with the Earth.

– David Nasogaluak, Tuktoyaktuk

And it doesn't take very much wind or very much current to break up the ice anymore. And the ice is going out a lot faster.

– Roger Kuptana, Sachs Harbour

Changes in both the ice conditions and the weather have been occurring over the last 20 years.

The biggest change that I've noticed is the ice. The ice is getting a lot and lot thinner than what it used to be. We used to get what we used to call multi-year ice which came to 10 to 20 feet thick. Now we're lucky if it's four or five feet thick.... As soon as there's a strong wind it breaks up right away ... because of the winds and the currents, whereas before it never used to change that much.

-Roger Kuptana, Sachs Harbour

The other thing I know is between the Paulatuk area and the Nelson Head area, there's no old ice—there's no pile-up ice. "Manelaq" they call it, rough ice ... It used to be smooth [ice] all the way, good ice. Now we can't even go out there straight from Holman anymore.... When I used to go out to Nelson Head long ago, when you go down here [to Cape] Parry area without hitting the rough ice. Now you can't even go out here in the winter time. It's all open water and rough ice. So much wind and warm weather. [This started to change] around the late 80s.

– Pat Ekpakohak, Ulukhaktok

These changes are making predictions about the weather and animal behaviour more of a challenge.

You know you have to watch more closely because of the weather. There used to be a time where you could just about predict the weather. Now it's just impossible to predict the weather because it changes so fast. You could have good weather one day, and a couple hours later it's blowing—it's just difficult to predict the weather—all these guys! Now it's pretty hard to do that.... I'd say about 15 years since I started noticing it.

– Chucky Gruben, Tuktoyaktuk

See, when you look at polar bears it's good, but we also gotta look at the weather too. Over the years it's been warm, we all know that, one month difference in the season—two weeks in the spring and two weeks in the fall. What that one month does to the bear, we don't know.

– Norm Anikina, Tuktoyaktuk

The most obvious result of climate change in the North has been the rising temperature. Although winters still remain cold, elders recall that it was much colder in their day.

I remember one time I got a bear at Whale Bluff. It was so cold, it was eighty below. When I cut the bear it freeze right away!

– Fred Wolki, Tuktoyaktuk

I think a little bit change too, like the ways, about a month earlier all the ice melt. Around July, it used to be ice melt. In June here, one month earlier, you know it all melts, no more ice already. So it changes—melts one month earlier. I think more warm days are coming up! In June there's always no more ice already as there used to be. No more ice only in July. I think when we were young, I think it was more colder. Because, when we were at Baillie Island, it always reach 50 below. Now it hardly reach much 50 below I think. We used to go hunt, even when it's 50 below.

– Sandy Wolki, Tuktoyaktuk

I can remember myself back in the late 60s, early 70s. When you're out polar bear hunting and the ice open up with the open lead, next morning you're able to drive on it! Now, you can't do that. I mean that's how cold it was!

– Chucky Gruben, Tuktoyaktuk

Population Dynamics

Some years, not many bears; some years, lots of bears. They keep doing that!

– Fred Wolki, Tuktoyaktuk

Whether this is a population cycle or just movement of the bears from one area to another is uncertain. Several elders suggested that there is not much variation in polar bear numbers, as opposed to caribou, muskox, and foxes.

That was in the 1920s. In 1935, that's when it was washed away and that's when people start moving to Stanton area. Just to let you know, they kill a lot of bears in those days but the bears are still there—bears never change!

– Fred Wolki, Tuktoyaktuk

[In the 1950s] we were at the North Star [Harbour]. There were plentiful bears in those day, see them every day, 11 or 12 a day around Whale Bluffs. As soon as ice goes you see bears walking around. In the 1950s, and it never changed when we left.

– Fred Wolki, Tuktoyaktuk

Grizzly Bear and New Observations

One new observation which surprised nearly everyone was the discovery of a hybrid polar bear-grizzly bear on Banks Island in April 2006. While some believed that inter-breeding between polar and grizzly bears was possible, the discovery of the "polar-grizz" was a surprise to Inuvialuit and biologists alike.

While polar bears occupy the ice, grizzly bears were thought to occupy land. There was a limited area on the Beaufort coast where the two ranges overlapped. However, Inuvialuit have seen polar bears on Banks and Victoria islands, suggesting that the bears crossed over the ice at some point. These reports of sightings date back to the 1950s.

> *There started to be a few [grizzlies] on Banks Island too. John Lucas get one at the [north] tip of the island, and Fred Carpenter get one towards Mesik Pass long ago, 40-50 years ago I think.*
>
> – Geddes Wolki, Sachs Harbour

Sightings of grizzly bears are now more common.

> *Grizzlies are going to the north of Banks Island right now.*
>
> – David Nasogaluak, Tuktoyaktuk

> *Today there are more grizzly bears on Holman Island. It's like they're coming in from the mainland. And sometimes we see their track on the ice hunting seal, hunting seal just like the polar bear*.
>
> – Pat Ekpakohak, Ulukhaktok

Some hunters discussed the implications of grizzly bears encroaching on polar bear habitat. These implications include increased competition for food (and now mates), increased conflict, and the possibility of the spread of disease.

> *One time [in 1992] I seen a bear killed by a grizzly on Victoria Island. We seen a bear and one grizzly bear was chasing them. In about three hours we were on it. There was a big fight you could see. That polar bear was about two or three years old. One leg somewhere, the other leg here.*
>
> – Joseph Haluksit, Ulukhaktok

> *And I know grizzly bears in the springtime and later on, in Bailey Island, they go out on the ice in the spring, grizzly bears.*
>
> – Andy Carpenter, Sachs Harbour

> *There was a grizzly bear in Paulatuk that had rabies. Right close to the community.... They seen a grizzly bear sitting down, dropping its head once in a while and he figure it was a wounded one, so I start slowly going to it with a four-wheeler. Expecting he was going to get up and run, but it just keep dropping his head. When they kill it, it was foaming in the mouth. There was something wrong so they cut off the head and send it to Inuvik to see if it's sick or not. Sure enough it was a rabid grizzly bear!*
>
> – David Ruben, Paulatuk

Inuvialuit Observations of Polar Bear Health

Community Perceptions of Polar Bear Health

> *Normally all the bears are always healthy. Normally! You hardly see anything that's starving like that. Maybe one out of a hundred bears starve. Normally, they're always healthy animals*.
>
> – Fred Wolki, Tuktoyaktuk

Although hunters frequently see a skinny or starving bear, they rarely ever see what they would consider an "unhealthy" or "sick" bear.

> *Some of them might be thinner than others, but that doesn't mean that they're unhealthy.*
>
> – James Pokiak, Tuktoyaktuk

> *Never saw 'em. There was some that are pretty skinny you know, but a lot of them—I seen a few of them you know that come right into town. And they'd start chasing anything—I seen one starvin bear kill one [of the dogs].*
>
> – Andy Carpenter, Sachs Harbour

> *I seen a lot of that—hungry bears. It's just skin and bones. But normally we just kill them cause [they're] too dangerous because they go for anything to eat. So we have no choice but to kill it because they're trying to kill a dog or something. Too dangerous. They want to eat anything when they get like that*.
>
> – Fred Wolki, Tuktoyaktuk

Hunters use several techniques to identify the body condition of polar bears. The first is a visual assessment of the shape of the animal.

> *And like Fred said, the way some of them are shaped when they're starving—Fred is right when he said you could actually see the ribs.*
>
> – James Pokiak, Tuktoyaktuk

> *You can also tell how healthy a bear is too just by the shape of it. You get some bears that are so fat their bellies are just about touching the ice. One time I got one that was 33 years old. And all of his fangs, his four fangs, they were worn down halfway. But it was the fattest bear I had ever got.*
>
> – Chucky Gruben, Tuktoyaktuk

Assessing the condition of the body while hunting is now made easier through the use of binoculars. Binoculars also allow visual identification of bear sex and health, and allow hunters to "glass" surrounding conditions to see if cubs are accompanying the bear.

Today it's different. Binoculars come in handy. We have binoculars, GPS—travel in the dark is not problem. I guess years ago, you can't see it from a distance, so they have to travel to it to assess it—if it's too skinny or the fur coming out. Maybe they leave it if it's a sick bear or an old bear.

– Norm Anikina, Tuktoyaktuk

However, in the past, hunters could tell if a bear was fat or not by the shape of its paw track.

[Our elders] said, when they're after a polar bear, if they want it for food, like they see a lot of tracks, but they'll go after the ones where the back of the foot is kind of roundish. Like a fatter foot is kinda roundish. A leaner one is one that is not too fat so they wouldn't go after it—why waste my time.

– Charles Pokiak, Tuktoyaktuk

Figure 13: Fleshing a bear in Sachs Harbour, 1958. Credit: R. Knights/ NWT Archives/N-1993-002-0131.

The best way to assess the body condition and health of a bear is based on the fat. After the bear has been harvested, the fat quantities can be assessed during a rough dressing, and later through the fleshing of the hide.

Especially after you skin them you can really tell how healthy they are by the amount of fat they have.

– James Pokiak, Tuktoyaktuk

[The fat] would be all over. A lot of it on the back, you can see it everywhere, except on the legs and that. And if a bear is not healthy, they are very skinny—they haven't had a good year hunt, you'll find they are very, very skinny.

– Roger Kuptana, Sachs Harbour

An indirect assessment of body condition is based on the behaviour of the bear.

...the ones that [are] hungry, they go for the camps. They smell some seal or something, you know, and they go to the camp and they're not scared eh. But the healthy ones are always, they come to the camp sometimes, you know, but they run away easier.

– Andy Carpenter, Sachs Harbour

Polar Bear Behaviour

Bears enter communities because they are young (starving) bears, adjusting to the learning curve of the seal hunt, or migrating through the territory.

... the younger ones that [have been] driven away by their mothers, they're not really ready to hunt yet…. They get pretty skinny. So it's a lot of younger ones.

–Andy Carpenter, Sachs Harbour

Starving bears often become "aggressive" or "nuisance" bears to the community. Hungry and starving bears can be very dangerous, and will attack dogs and even people.

If bears haven't had a good year hunting, you'll find they are very, very skinny. Angry, because of hunger. And when they get that hunger, they're not afraid of anything.... A starving bear is very dangerous. That's something that you wouldn't want to see out in the wild without anything to defend yourself with.

– Roger Kuptana, Sachs Harbour

I think if it's too skinny, it will run to you! If it's fat it's going to run away from you.

– Frank Pokiak, Tuktoyaktuk

Roger Kuptana predicts that if seals and other food become scarce, polar bears will become more aggressive:

That I don't know.... I guess they would [become more aggressive]. Probably on land if the ice goes away. Probably making them more aggressive if the ice recedes cause they wouldn't have that much to eat. Well it would be hard for them to catch seals.

When a bear enters a community, people will try to scare the bear off. However, if it returns or becomes aggressive, it will have to be killed for safety reasons.

I seen a lot of that—hungry bears. But normally we just kill them cause it's just too dangerous because they go for anything to eat. So we have no choice but to kill it because they're trying to kill a dog or something sometimes. Too dangerous. They want to eat anything when they get like that.

– Fred Wolki, Tuktoyaktuk

Several hunters commented about "spooked bears." These are bears that became "jumpy" after harvesters shot and missed them.

> *Elders from long ago, always tell stories that once you shoot at a bear and miss it and he gets away from you, they said [the bear] gets scared and becomes a poor hunter. Every time they hear a seal, they know when the seal comes up to breathe. And when they jump, the seal just goes down. And they get to be poor hunters that way. They get scared.*
>
> – Fred Wolki, Tuktoyaktuk

> *You know when they get hungry, they get "jumpy" when they're hunting. They never get seals anymore. If they been disturbed before with the chopper or anything, like dogs, you get starving bears because when they go hunting they get nervous. That's what my grandfather told me and my dad.*
>
> – David Nasogaluak, Tuktoyaktuk

One reason why hunters need to be knowledgeable and effective is so they will not let bears escape wounded or "spooked."

Threats to Polar Bear Health

While the polar bear has become the poster child for global climate change, the Inuvialuit are concerned about other activities and pollutants that threaten the polar bear and its ecosystem.

Industrial Development

Figure 14: Polar bears approach submarine near North Pole. Credit: U. S. Navy.

> *I'm not too worried about global warming myself right now. What I'm more concerned about is that we all know that industry is coming back to the area and now they want to do work offshore, a lot further now than they used to. And I really believe that if they start, I think we're going to start seeing even more changes in the migrations of not only the polar bear but all the marine mammals along the Beaufort Sea.*
>
> – James Pokiak, Tuktoyaktuk

Increasing industrial development in sensitive Arctic habitats presents several threats to polar bears and other animals in the region. These include increased traffic in the region (such as planes, icebreakers, and heavy equipment). The increased traffic could "spook" bears and disrupt mothers while they are denning.

> *I could tell you what I think what's not good for the habitat. All the oil company stuff that's happening out there—all the drilling proposals, the seismic. It's right in the habitat of the polar bear—summer and winter.... With all that activity that's happening, polar bears tend to shy away from activity. And with all that's happening there, which is the prime habitat for polar bears, summer and winter, there's no telling where, 10 years down the road, how much effect it's going to have.*
>
> – Lennie Emaghok, Tuktoyaktuk

Several people addressed concerns over the number of ice-breakers and submarines in operation in the Beaufort. The potential for increased shipping in the Arctic represents a hazard to the already fragile sea ice, with the possibility of spills or other contamination (e.g., introduced species).

> *We don't want to see [polar bears] disappear because of industry you know. Well, sooner or later they are going to start drilling for oil and gas up here. The Arctic is very sensitive to this kind of stuff, especially if it goes under the ice. If there's an oil spill, it will affect everything.... It will affect the seal. And the polar bear will get it. It's just a chain reaction, you know.*
>
> – Roger Kuptana, Sachs Harbour

> *I don't know how much longer it's going to be before ... they get more contaminated and ships start going back and forth and that sort of thing. If you have an oil spill out there, I think it's going to be a catastrophe for the bears. They rely on sea ice to survive. It's going to be, not for us, but for the animals—the seals, the bearded seals, the polar bears, it's going to have a big effect! Opening up the shipping route up here. I think it's going to involve us cause we're subsistence hunters to the bears, and seals and bearded seals. It's going to have a big effect anyway.*
>
> – John Lucas, Sachs Harbour

Collaring and Research

The study of polar bears over the last several decades has been a very invasive process, requiring the tranquillizing, handling, and occasionally collaring of the animals. Although the Inuvialuit recognize the value of these studies, they have been concerned about the impact of these research activities on polar bear health.

... after they collar and disturb the bears, the [bears] have to go somewhere else ... they're trying to get away from man-handling and putting collars on them... If you got a collar on a wild bear, they're going to be pretty bothered for a while—he's going to take off for a while.

– Lennie Emaghok, Tuktoyaktuk

… when they put a collar on the bear and try to go after a seal, and the collar gets all iced up and gets heavy, and then that bear can't hunt anymore—it's too heavy, gets too thick with ice. [They even start going into the flesh, that collar].

– Charles Pokiak, Tuktoyaktuk

Contaminants

While the Inuvialuit can determine the degree and types of research and industrial development in their territory, other threats are beyond their scope. Pollution and contamination are major concerns when it comes to animals, and as Roger Kuptana points out, "unless the world changes, there's really not much we can do."

Well, bear are on the top of the food chain. And whatever the seal gets from contamination, the bigger animals gets from feeding on it ... [but] it's not just the polar bear we're concerned about, it's the fish and caribou, everything on the land. It's a great concern to our people, regardless of where we live in the North.

– Roger Kuptana, Sachs Harbour

It's just passed on from one animal to the next. And eventually, it's going to get to humans. Right now we don't know what, when you get a polar bear that's been eating seals that are contaminated, the bear that we're eating, we don't know how to check it if it's contaminated, but we eat it anyway.

– John Lucas, Sachs Harbour

Disease

Some additional concerns mentioned during the interviews included disease and pathogens. Rabies is common in arctic foxes and has been observed in grizzly bears, and some hunters have seen bears they thought might have lice.

Conclusion

Inuvialuit traditional and contemporary knowledge of polar bear health is informed by their historical relationship and continued interaction with bears over centuries, and by continuous changes in the Arctic environment. This report is a brief summary of that knowledge from 16 respected elders and hunters, representing most communities in the Inuvialuit Settlement Region. The goal of this study was to document the knowledge and observations accumulated by these experts and passed down from their ancestors, and to better understand the intrinsic value and socio-economic importance of polar bears in the Western Arctic.

Figure 15: Inuvialuit hunter going home with polar bear. Sachs Harbour (1957). Credit: R. Knights/NWT Archives/N-1993-002-0096.

An important part of Inuvialuit survival, polar bears provided food, clothing, and fuel as a means of subsistence to many of these elders and hunters in the recent past. While today the uses of polar bear may be different than in the past, polar bear harvesting provides an anchor to the traditional lifestyle, on-the-land skills, and hunters' identities that form the cultural fabric of the Inuvialuit. Given the spiritual, cultural, and economic relationship of the Inuvialuit with polar bears, decisions affecting polar bear management must also consider how these decisions will affect communities, households, and hunters. Conserving both polar bears and the traditional knowledge of polar bear harvesting for future generations is a primary motivation for this study. Such conservation is a guiding principle for the co-operative management of, and research into, polar bears in the Inuvialuit Settlement Region. It is one to which the Inuvialuit remain fully committed.

Appendix A – List of Figures

Appendix B: Methods, Sample, and Analysis of Study

Methods and Analysis

The methods used to gather this knowledge included a community-based workshop, one-on-one interviews, and a brief literature review. The community-based workshop was conducted in Tuktoyaktuk, NWT, during October 2009, and included elders and hunters from four of the six communities in the Inuvialuit Settlement Region (ISR). The workshop included two focus group discussions and a mapping exercise. Focus group discussions were divided based on geographic range, with details provided in the following section on the sample. The discussions were conducted in English although many elders were more comfortable speaking in Inuvialuktun. The mapping exercises involved participants tracing their approximate hunting ranges prior to and post-1984, using a 1:2,000,000 location map of the ISR and clear overlay. One-on-one Interviews were conducted with residents of Sachs Harbour in March 2009. These interviews utilized the same or similar questions as used in the workshop.

Both workshop and interviews were digitally recorded and then transcribed. Transcripts were coded using *NVivo 8*, based on the headings and sub-headings used in this report. Verification interviews were conducted with select participants from the interviews and workshop, who had the chance to review the transcripts and provide additional comments and insights. Numerous sources were cross-referenced when possible. Most of the time, shared knowledge and similar observations were found in both focus groups and one-on-one interviews, though personal and individual opinions and values may have varied.

Findings were summarized and combined with a brief literature review based on the references listed in Appendix D, and were compiled in this report for review by the Inuvialuit Game Council and the Wildlife Management Advisory Councils (NWT and North Slope) before publication.

Sample

The participants at the workshop were selected based on recommendations from the Wildlife Management Advisory Council NWT. From a long list, participants were chosen based on their experience, knowledge, and articulation. Efforts were made for the sample to be representative of the regions and communities within the ISR[1]—Aklavik (1), Inuvik (0), Tuktoyaktuk (6), Paulatuk (2), Ulukhaktok (Holman) (2), and Sachs Harbour (Ikaahuk) (5)—and to include men, women, elders, and senior hunters. Fifteen men and one woman participated, this gender bias reflecting the

[1] Number of representatives from each community in brackets (). Note: Participants have lived and travelled throughout several communities in the ISR, so their knowledge extends beyond the current community in which they live.

fact that polar bear hunting and guiding is largely (though not entirely) a male activity, with women primarily involved in the processing of hides, and secondarily involved through participation in wildlife management processes.

The age of workshop and interview participants ranged from 44 – 77 years, with the average age being 61 years. Ten of the 16 participants are still active polar bear hunters and have a historical understanding of polar bear populations combined with current observations of polar bear health, habitat, and behaviour.

The elders and hunters in this sample had spent a total of 603 seasons conducting subsistence hunts. The number of hunting trips each season ranged from “every day” (prior to 1984) to one or two trips a season. Beyond subsistence hunting, participants spent an additional 153 seasons in total leading or helping with sports hunting, 36 seasons guiding biologists, and 28 seasons employed as wildlife monitors. This accumulated experience indicates that, from the early 70s onwards, these participants spent several weeks or months from early November to late July in a position where they could observe polar bears in one capacity or another. Prior to the establishment of a quota to self-regulate hunting, many hunters would spend the whole year hunting for bears along with other land and marine mammals.

Appendix C: Focus Group and Interview Questions

Past and Present Importance of Polar Bears

- First polar bear experience?
- Why are polar bears important to you and why is it important that Inuvialuit continue to hunt polar bears?

Polar Bear Health

- How do you know that a polar bear is healthy?

Trends in Polar Bear Health and Populations

- Are you seeing a change in the polar bear population? If so, why is there this population change?
- Are there more or less polar bears now? [*quantify if possible*] At what times and places did you see more or less bears?
- Have the bears looked different (better/worse/healthier/leaner/ skinnier) in the last 5 years? The last 25 years (since the IFA)? The last 50 years, since the Dew-line (late 50s)? How do you observe these changes? Why do you think this is happening?
- Have you heard of, or seen, these changes in polar bears happen before?

Habitat

- What are good habitat conditions for bears?
- What conditions make a good den?
- What changes are you seeing happening to polar bear habitat? How is this affecting the bears? How is this affecting your harvesting and travelling on the ice?

Migration

- Are you seeing changes in where bears are travelling? Going closer to the communities? Travelling further? How do you observe this? When do you observe this? What do you think this means for the health of the populations?

Polar Bear Feeding Habits

- Polar bear feeding habits and changes in feeding habits?
- How does the health of the bear depend on the health of other animals? Are you observing any changes in interactions between polar bears and other animals?

Stewardship

- Can you tell me about the traditional laws or rules for hunting polar bears? What lessons would you share with the youth about stewardship and conservation of polar bears?

Appendix D: References

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