

ELDER'S CONFERENCE ON CLIMATE CHANGE: FINAL REPORT



Simon Taipana Conference Room, Kitikmeot Center
March 29-31, 2001
Cambridge Bay, Nunavut



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FORWARD BY JAMES EETOOLOOK



Climate change or global warming is an issue that has been on the minds of many people, both inside and outside of Nunavut. Inuit Qaujimajatuqangit, its use and place in Nunavut society and government, is also an important issue. This conference brings these two topics together.

I would like to thank the Elders for participating in this conference and for sharing their experiences and knowledge about climate change and its effects in Nunavut.

Qujannamiik

[James Eetoolook](#)

1st Vice-President,
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CYRIL MALA

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DAVID IGUTSAQ

Taloyoak

ABRAHAM PIJAMINI

Grise Fiord

JEROME TATTUINEE

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ARSENE IVALU

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BEN ARNAQJUAQ

Hall Beach

JOHN KAUNAK

Repulse Bay

NORMAN ATTUNGALAK

Baker Lake

ZACH NOVALINGA

Sanikiluarq

GAMIALI KILUKISHUK

Pond Inlet

SUMMARY

From March 29 – 31, 2001, 18 Elders from all regions of Nunavut met in the Simon Taipana Conference Room in Cambridge Bay to discuss climate change in Nunavut.

Representatives from Nunavut Tunngavik Incorporated, Kitikmeot Inuit Association, Kivalliq Inuit Association, Qikiqtani Inuit Association, Inuit Tapirisat of Canada (now Inuit Tapiriit Kanatami), Nunavut Planning Commission, Nunavut Impact Review Board, Department of Indian Affairs and Northern Development and the Government of Nunavut also participated in the conference.

The objective of the conference was to gather Inuit Qaujimagatuqangit (traditional knowledge) and the experiences of Inuit Elders on climate change and its effects in Nunavut.

The Elders covered the following topics:

- In general, what has the climate been like in Nunavut?
- Has climate change resulted in noticeable effects in Nunavut?
- What are the possible future effects of climate change in Nunavut?
- What can Nunavummiut do about climate change?

During the three days of informal discussion and sharing of experiences and perceptions, many observations and statements were made. Below is a short list of the main messages and recommendations.

- Winters are getting shorter, summers are getting longer.
- We are losing the ice in our glaciers and fiords. Permafrost is melting. We see vegetation growing where ice used to be.
- The sun's rays are increasing. Inuit need stronger suntan lotion.
- We now see birds and wildlife that we have never seen here before. Ravens are everywhere and snow geese are too numerous.



- Heavier winds can be dangerous, be cautious. Because of global warming, we could become subject to catastrophes like hurricanes.
- Caribou meat tastes different now and there are concerns about contaminants and diseases. We send samples out to labs, but never get results back. Caribou hides are thinner.
- More Inuit are dying from cancers, including skin cancers. We have to find out if this is from mining or contaminants or from climate change.
- Fall ice forms later and may not be safe to travel on until Christmas.
- If trends continue, Hudson Bay (and other areas) may never freeze over. The impact on wildlife will be tremendous.
- Inuit have to be prepared for the impacts of global warming.
- Water levels are getting lower.
- The floe-edge is receding faster.
- More ships are traveling through the Northwest Passage due to the lower ice coverage in recent years.

OBJECTIVE OF AND GENERAL APPROACH TO THE MEETING

Objective of the Meeting:

To collect Inuit Qaujimajatuqangit (traditional knowledge) and the experiences of Inuit Elders concerning climate change in Nunavut. Climate change is defined as short or long-term changes to weather and seasonal patterns.

General Approach to the Meeting

The Conference was informal and recorded Inuit Qaujimajatuqangit (traditional knowledge) and experiences of Inuit Elders concerning climate change in Nunavut. The facilitators focused the discussions and recorded the experiences, information and discussions of the Elders.

The five sessions included:



1 What has the climate been like in Nunavut in the past?

- In the distant past, was Nunavut warmer? Colder?
- During your lifetime, has Nunavut become warmer? Colder?
- In the future will Nunavut be warmer? Colder?
- What causes climate change?
- Seasons (length, severity).
- Weather (temperature patterns, wind, rain, snow, ice).
- Land (permafrost, land formations, erosion, rock, soil, sand).

2 Has climate change resulted in noticeable effects in Nunavut?

- Water/ice/snow (quality, quantity, flow, ocean, rivers, lakes, ponds, floe-edge, glaciers, water levels, ice formation, thickness and break-up).
- Vegetation (tundra plants and soil, health, distribution, new species).
- Wildlife and insects (health, numbers, distribution, migration, new species).
- People (health, adaptations and changes Inuit have had to make).
- Communities (infrastructure, services).

3 What are the possible future effects of climate change in Nunavut?

- Seasons (length, severity).
- Weather (temperature patterns, wind, rain, snow, ice).
- Land (permafrost, land formations, erosion, rock, soil, sand).
- Water/ice/snow (quality, quantity, flow, ocean, rivers, lakes, ponds, floe-edge, glaciers, water levels, ice formation, thickness and break-up).
- Vegetation (tundra plants and soil, health, distribution, new species).
- Wildlife and insects (health, numbers, distribution, migration, new species).
- People (health, adaptations and changes Inuit have had to make).
- Communities (infrastructure, services).

4 What can Nunavummiut do about climate change? A Climate Change Strategy for Nunavut.

5 Closing comments, statements and thoughts from the Elders.

ELDERS' OBSERVATIONS AND COMMENTS

SUWAKSIORK: Primarily to open the meeting, I am stating on record that, according to my personal observations, I have noticed that the prevailing winds have shifted ... It is important in that the snowdrifts are now facing an entirely different direction than noted in Inuit Qaujimagatuqangit. Everything to do with climate is now seemingly skewed.

KILUKISHUK: I would like to state that I am from the Eastern High Arctic, within a land of depth and mountains. In our area, due to the mountains, we have two prevailing winds funneled into the community of Pond Inlet. One prevailing wind is from the High Arctic, funneled through Navy Board Inlet. The other is funneled from the weather patterns of Baffin Bay, via Clyde River and through Pond Inlet.

I have noticed in the last three years an accelerated rate of change in the weather. June is now the last month of spring, where it used to be later. The last three summers have been really warm, and the environment has changed. Thank you, Mr. Chairman.

PIGALAK: I am from the Kugluktuk area, although in my travels I have ranged from Kingaok to Tuktoyaktuk. I have traveled all of Victoria Island within my lifetime. Most of the land is composed of sand or soil. I have noticed that the land is crumbling into the ocean. Whole riverbanks are crumbling into the river, also other embankments around the coast. Not just near Kugluktuk, but all up and down the coast. The permafrost is melting in and around the community as well as along the whole coast.

I have also noted that the snow is now later in the fall, and in the last two years, has become freezing drizzle. I know that there are a lot of people who wish to speak, so I will hold my other comments for later. Thank you, Mr. Chairman.

QARPIK: I also live in a land of glaciers and mountains, like my fellow Islander, Kilukishuk. In our area, climate change is very evident. Glaciers are melting, our seasons have shortened and at a very fast rate of change. In all of our accumulated knowledge, we have never seen so drastic a change over a course of several years. We have spoken on the local radio in regards to the global warming issue and the concerns of the Inuit who live in Nunavut. There are new polynyas, where we have never seen any form before. The sea-ice forms later and later every year and melts earlier and earlier every spring. The glaciers have melted in some of the fiords and no longer cover the valleys.

The weather patterns have changed, winds are more unpredictable and stronger than in the past, and they are no longer ascertainable via our ancient traditional means of translating weather shifts and forecasting the future weather. Other people have spoken of these changes as well.

ARRAGUTAINAQ: I will not speak long on this issue. I would like it noted, that in our area, pre-spring is now the same as spring, and it has shrunk dramatically. Many Elders have spoken to me and they are saying the same things about the changes to the weather.

We have to look at making plans for the future. We have to be logical. I have heard Inuit knowledge from my father. We never used to have modern means of communication, but yet the old sayings of the Elders are coming through.

It is now impossible to predict our weather; our ancient methods of forecasting weather are no longer yielding the predicted patterns. Even now, the weather in Sanikiluaq is changing. Once it starts melting, there is no longer any delay in the melt. Whereas it used to freeze over at night, it no longer does and this has resulted in throwing off our entire schedule for the spring break activities on our island.

ANALOK: I too, have noticed changes to the climate in our area. It has progressed with frightening speed especially the last few years. In Iqaluktutiaq, the landscape has changed. The land is now a stranger, it seems, based on our accumulated knowledge. The seasons have shifted, the ice is thinner and weaker, and the streams, creeks and rivers have changed their characteristics.

The permafrost is melting, the land is rising, summers are way longer, freezing occurs later and later every year. I have noticed a big change in the environment over the last 20 years. It is now becoming a stranger to the old Inuinnaqs. This is very different from what we recall. Caribou cannot cross the channel anymore until later on in the year, due to later ice freeze-up. It is now hard to make piffi anymore in the spring because the sun is too hot.

UTOK: The Elders are all aware of the changes to the environment. I would like it noted that everything is related to the fact that Inuit are an oral society and Qallunaat are a literary society. Everything that an Inuk

knows is held within the mind. Right here, inside our heads. I am very interested to hear what the other Elders have to say.

ATTUNGALAK: I too, have a lot of experiences to relate, but I will keep it brief. I live inland at a cabin, and I will relate what we have witnessed from 1982 to 2001. Baker Lake is a lake, and it is not saltwater. Up until then (1982), we used to be able to travel on the lake ice during May, June and July. We did not require the use of a canoe until late July. Then, during the last decade, things started to change. Every year since then, things have started to change. It is impossible to skidoo on the lake around July now and there was a small glacier that you could walk on, even in July. We were able to walk on the ice even when the mosquitoes were around.

The lake has started to melt earlier and earlier. Now it seems that the lake melts around April and May. We are starting to use the canoes earlier. The permafrost has completely melted in some areas. I will stop for now to ensure that other people relate their experiences.

NAUYARLUK: Very briefly, I will talk about climate change. We were an oral society, so when Elders relate the changes to the climate, it is from their memories. In the past, we never used a calendar. I used to have a better memory, but I will state that Inummariit really used the moon and sun cycles to plan their year. Star constellations were also used for navigation. I noticed that it seemed exceptionally cold this year, due to a shift in the Earth's axis.

The snow on the seashore was covered with a layer of ice, prior to the ice forming on the sea-ice. There was water along the seashore where the sea-ice met the land. I was wondering if the sun would show up earlier this year.

I think that it is going to get warmer this year. I am wondering by summer whether the sun will return to its regular cycle. I will stop there for now. Thank you Mr. Chairman.

QAUNAQ: Climate change is very evident in our area. I live in Repulse Bay, but I grew up elsewhere. As a matter of fact, it was with some of the other representatives here. This was when we depended on the dog teams.

We used to be able to cache meat in late spring and it would be perfect for the winter. Now, if we try that, it will be infested with bugs. Today, the springs are very short

and summer comes earlier every year. We usually go to Committee Bay to go fishing. We used to be able to travel overland during the spring. But, this is now impossible as the snow melts earlier in the year.

It used to start getting cold in early October and ice would form. Freeze-up is later and later every year. Also, we noticed that in the spring, the snow does not freeze at night anymore. This was the practice to travel only at night, when the frozen layer can support the weight of a dog team and sled.

Now, once the snow starts melting, it doesn't stop. Also, some of the ancient weirs in some of the rivers are now above water. They are unusable now; even the cache sites are far from water now. We noticed these changes in Repulse Bay. I will stop for now, as I know other people wish to speak.

ANGUTINGUNIQ: I have lived in our area my whole life. The climate change is something we have become aware of over the last few years. We were always told to note the weather and its patterns.

I will relate my personal observations and experiences in the Kugaaruk area. Compared to the status quo of the 1960s and the 1970s, we first started to see some changes in the 1980s. The weather was less predictable and divergence between the years became the norm. The winds have shifted and the snowdrifts run in another direction. In the last few years, the change has been dramatic. The rivers, which used to run healthily throughout the summer, have become very shallow in the summer, sometimes even drying out. We have noticed that the water levels are falling in most of these rivers.

The prevailing wind has shifted slightly, by a few degrees. In my prime, there were areas of land which had snow remaining all throughout the summer. My parents always sent us off to collect snow from these snow patches throughout the summer. Now, they are melting off in early summer.

Based on our observations, the Earth's axis is seemingly off by several degrees. Thank you, Mr. Chairman.

HEZEKIAL: I would like to note that everyone in our community has noticed changes to the climate. The issues that are facing us in our community stem from our location on an island with craggy hills and surrounded by ocean.

ELDERS' OBSERVATIONS AND COMMENTS

Global warming is affecting us. Initially we were not concerned about it. The Elders forecasted this change in the weather. Winter used to be a very long season, lasting from October to April and the ice would last until summer.

The ice is no longer as thick as before, even the icebergs and multi-year ice floes. We used to have really thick lake ice when we went fishing in the winter. We too, have noticed that the spring melt is earlier and that the sun's rays are hotter. The ice deteriorates a lot faster than before. There are new polynyas in places not known for them and the summers are longer. Ice freeze-up seems to be later and later every year. Now ice forms in December.

The winds have also shifted and are now unpredictable. In the springtime, we used to have calm, clear days for days on end. Now, the winds whip up out of seemingly nowhere. The prevailing wind has shifted to the west, with occasional winds out of the north. These winds from the southeast are stronger and very unpredictable.

As well, the wind from the west used to be an indicator of good weather. Now, instead of good weather, the wind just shifts. We now experience more windy days and can no longer predict the weather, as all of the usual signs we use are now misleading. I have more to say, but I wish to listen to the Elders. Thank you, Mr. Chairman.

ARNAJUAQ: My recollection is similar to the speakers who were ahead of me. I do not wish to repeat them, so here are some of my other observations.

In the years past, we used to have extremely cold days, with ice fog hanging in the air. This used to be the norm during the coldest months of December, January and February and sometimes lasted for days. I have noticed over the last few years, the ice fog has not returned during this period, although it seems just as cold as before. Our prevailing wind used to come out of the north, but it has now shifted to the west.

I have also noticed that the winds are stronger and less predictable. I wish to listen to the other delegates, so I will stop for now.

IVALU: I am representing the Igloodik Inummariit Society. Here in the Amittuq area, we have noticed a lot of changes, some subtle, others more dramatic.

We have noticed that during the dark season, there is more discernable light on the horizon than before.

As well, the position of the sun, when it first re-emerges is off by a few degrees and has shifted further west. We have also noted that the spring sun is at a higher angle and is way hotter, especially the last two years. Over the course of about 30 years, every break-up, we were inundated with multi-year ice floes and small icebergs through Fury and Hecla Strait.

This used to really cool down our island, due to all of the ice bunching up on the north side of the island. Over the last couple of years, there have been no multi-year ice floes. All we get now are the current year's ice, which soon melts and we have no more ice in the vicinity. The island is also rising.

We used to have a spot for hauling walrus for butchering. It was in the tidal flats. Now, it is all land. Further, when the weather was calm and clear, we used to get the bluest skies. Now it has changed to a different hue and is now more interspersed with high altitude clouds. There are a variety of other changes that we have noticed, but I will stop there for now, Mr. Chairman.

PIJAMINI: I grew into manhood in the Pangnirtung area, but I moved in 1962 to Grise Fiord and have inhabited the area ever since. When we first moved there, it used to snow regularly in July and August. We would get hit with a cold snap and the water in the creeks would freeze over. We have always had very short summers. Spring is long, but summer is usually from late June to early September.

We used to have cold summers, but over the last five years, the summers have been very warm. It now starts to melt in May. The snow cover melted very early and the glaciers in and around Grise Fiord have receded inland.

The winters were very cold and the sound had very weak currents. Last summer, a fiord melted early and became impassable and the ice was thinner than we are used to. The current is stronger now and the result is thinner ice and polynyas in odd places.

As well, we have an island where we used to go hunting, and it was reachable until late June. Now, the current breaks off the land fast ice earlier and we cannot reach it anymore. Alexandria Fiord was sometimes visited, but the routes to the area have been cut off, due to the glaciers melting.

I will stop there for now, until I recall something I wish to speak to. Thank you Mr. Chairman.

AUDLALUK: I first saw the Grise Fiord area in 1953. I have lived there ever since. My observations in and around our area reveals that the warming period first started in the early 1980s and has increased its effect every year.

Initially the weather fluctuated wildly before there became a pronounced change. The sea-ice used to form in the middle of September and we would be seal hunting on the ice shortly thereafter. Today, the ice does not form until middle of October.

The dark season is no longer as dark. We now see a band of light on the horizon, where there used to be nothing but total darkness. I think that the Earth's axis has shifted a few degrees. The lake ice is no longer as thick and there is less and less water cascading down the river and the char are having trouble migrating back to the lake in the fall. Since the 1980s, the glaciers have melted pronouncedly and whereas we used to have snow in the shadowy areas all throughout the summer, we no longer have any snow anywhere during the summer.

Global warming really started in the 1990s and the spring sun is a lot hotter in March. I have never seen my skidoo seat melting in March, but one day in March, I noticed steam coming from the machine and immediately suspected fire. Upon inspection, it was the sun's rays that were heating the black material and melting the snow that was on the seat. March sunrays are a lot hotter, as that would never have happened in the past, at least not until late spring, around May. I will stop for now, Mr. Chairman.

TATTUINEE: I would like to note, that although I am presently residing in Rankin Inlet, I grew up elsewhere, notably the island and northern reaches of the Kivalliq region. I moved to Rankin Inlet a long time ago and I guess that I am considered one of Rankin's own.

However, I grew up in the northern regions and the island of Salliq. The things that I have noticed in the years of my existence will be forthcoming. The climate change issue is a massive one. I am not sure that I can make my points clear, but I will try.

The weather used to be different when I was a youth and the difference, especially the last few years, is a very big change. We used to have weather that was predictable. Calm clear days were the norm, with mixed storms on the average of three calm days with one day of storms.

The issue of forecasting weather based on thousands of years of observation has been thrown askew and the

matter of forecasting weather based on the traditional methods no longer works in this day and age. It used to be clear for days at a time in my youth, yet in these past few years, things have changed within the weather system of our region. In our region, you could forecast the following weather by gauging the sound of a rifle shot. If there was an echo after the shot that meant that it would be windy the next day.

Our ability to forecast weather has been compromised. We used to be able to forecast the wind direction of the following day, based on the clouds that tinged the horizon before nighttime. Now, the wind has shifted as well as the weather patterns. It is harder to forecast the weather now, as the clouds no longer behave predictably. As well, the clouds have changed in hue and colour and I have been worried by these changes to our weather patterns.

The land used to be covered in snow, prior to the sea-ice freezing over. Now, the land is barely covered with snow prior to the sea-ice freezing and the sea-ice no longer freezes around October. Now it freezes around the middle of December. It seems to be later and later every year, the land fast ice around Rankin Inlet.

The spring weather patterns have changed as well. There are no longer any cold snaps in spring. Once the snow starts melting, there is no nighttime freezing of the top layer of snow and it just keeps melting earlier and earlier every year. Especially the last few years, this has been noticeable in its intensity. I will stop there for now, Mr. Chairman.

NOVALINGA: I will relate the observations we have noticed around Sanikiluaq. During the early 1990s, from 1992–1994, we did not notice any changes to the environment and weather. Then, the climate started changing very fast starting in 1995-1996.

There were immediate noticeable changes to the climate and the weather patterns basically became strange to us. We used to be able to fish in the lakes in the spring months, but the ice is melting faster and we cannot fish the lakes in the spring now. It seems like the annual snowmelt is coming faster and faster every year. It used to be that it would last until May, but these last few years, it is averaging about four days before all of the snow is gone. The weather has gotten progressively warmer and warmer and pretty soon we will be experiencing spring in March. As a matter of fact, just prior to our travel to Cambridge Bay, the roads in Sanikiluaq were melting and muddy.

ELDERS' OBSERVATIONS AND COMMENTS

Over the last three years, the snow has started to melt in March, whereas historically the snow cover stayed until May. The ice is also deteriorating earlier and the land fast ice now drifts off in a huge pan. The summers are a lot longer than before.

The ice around our island used to form around late October, but in the recent past, this has not occurred until December. It now varies between the middle to late December and the ice is a lot thinner than before. Whereas it used to be about six feet thick, it now averages about three feet or less.

The weather has become hotter and less predictable. According to the information we learned from our Elders, I used to be able to forecast the following day's weather, but these last three or four years, I have not had any success forecasting the weather. It seems that the behaviour and characteristics of our weather have changed. I will stop there for now, Mr. Chairman.

FIGALAK: I have grown up around the west Kitikmeot mainland, from Tuktoyaktuk to Bathurst Inlet. I am presently living in Kugluktuk. The changes to the climate have been quite noticeable in and around Kugluktuk.

The riverbanks are eroding into the river at a quick rate, especially the last few years and this is causing new sandbars to appear and causing the river to become shallower. The temperature has become way hotter. As a matter of fact, a couple of years ago, Kugluktuk was the hottest site in Canada, at a scorching 36 C. The July temperature has continued to get warmer. Now, a lot of people are using fans to keep themselves cool. A lot of Elders are having trouble with the heat and they are stating that it never used to be that hot.

We have also noticed that when there is a forest fire, we now get the smoke. Sometimes we have seen the effect of the smoke on the weather. The weather patterns are now unpredictable and vary tremendously from one week to the next. Our land is changing, some of the lakes are draining into the ocean and the permafrost is melting. Those communities located on soft or sandy soils are in for a lot of trouble should that happen. House foundations such as pilings are moving up and down, either due to the permafrost melting or the land moving. There are many other observations, which we have experienced, but I will stop there for now, Mr. Chairman.

AQPIK: All of our accumulated knowledge of the weather patterns is unwritten and has been passed down for generations orally. I do not speak or write any English, so I cannot say that I know what they talk about in regards to climate change. But, the changes are there in our climate. The weather has changed. The patterns have shifted and there are less sunny clear days during the spring.

In the past, we used to be able to cache marine mammals in June and the meat would still be edible during the winter. Now, due to the warming of the weather, the meat gets too rotten or it gets infested with fly larvae. We now have to cache our meat in the fall. As well, we used to have no problems with the sun's rays. The rays are way hotter and people have actually suffered from sunburns.

The sea-ice forms later and later every year. The Earth's axis seems to have shifted slightly and this has caused changes in our weather patterns. The ice now has new fissures and cracks in places where there never used to be any in our past observations.

We are no longer able to predict the weather with any certainty and this has led to more people relying on the weather forecasts on radio and TV.

The light has changed as well, seems a lot brighter. However, I have noticed that snow blindness is hardly ever contracted anymore in our area. It used to be contracted every spring. I will stop there for now, Mr. Chairman.

IGUTSAQ: I am one of the younger Inuit here. I am from Taloyaok but I was born near Uqsuqtuuq. In 1947, we moved to the Taloyaok area. My family went back to Gjoa Haven. We hunt two areas of sea-ice on both sides of Boothia Peninsula. There used to be a lot of multi-year ice and icebergs in these areas. We have noticed that there are less multi-year ice floes in the land fast ice and there are hardly any icebergs anymore. It is warmer than the olden days.

I can relate to the experiences of the other Inuit here. The sun has become stronger and Inuit are now sometimes hiding in the shade to get away from the sun's heat. We used to consider it summer when all of the snow had melted. I know Eetoolook and we grew up together, but where we used to go sliding, it doesn't even

get enough snow now to slide on. The spring melt is more pronounced and way faster than before and the summers have become longer.

We used to have calm clear days for stretches at a time. These days are now rare. We also used to have snow cover before ice freeze-up. The present patterns have changed to where there is no longer any snow cover on the ground prior to ice freeze-up. I've noticed this difference. I would like to know what is causing this change. As well, our weather forecasts were almost always correct as it was based on thousands of years of experience. These last few years, it has become impossible to correctly predict the weather patterns. I have tried to forecast it based on the traditional environmental indicators, but I have rarely made an accurate forecast these last few years. I know that some of you have experienced this as well. I will stop there for now, Mr. Chairman.

UTOK: During the 1920s, we were inland Inuit in the Ennadai area. All we had were igloos in those days. I was learning my hunting skills. The snow characteristics have changed since that era. It is now harder to find the proper snow for making igloos. The snow now has many layers and it is now inconsistently grained. That has led to less usage of igloos during our hunting trips. The atmosphere seems to have become lower as well, now we see it on the horizon. I wonder if the ozone layer is depleting or whether it is some other atmospheric gas.

The summers are a lot hotter and streams and creeks that used to run all summer now dry up since the snow is melting earlier and there are less rainy days to replenish the streams and creeks. There are less stormy days in the summer. We used to get thunder and lightning regularly, but we haven't had one the last couple of years. These are the things I have noticed. I will stop there for now, as I want to listen. Thank you, Mr. Chairman.

ARRAGUTAINAQ: When we are trying to come to a consensus, it is very interesting to listen to the discussions. I remember some of the advice we used to receive from our parents. It has been brought back by the comments from the other delegates. I will relate some of the observations I have made. My colleague mentioned most of the environmental changes we have observed in Sanikiluaq.

During a blizzard, you could still see the stars overhead at night, now it seems we hardly ever see the stars due

to its intensity. As well, the snow cover on the sea-ice has started to melt. If it keeps up, the seal pups will be exposed and will get sunburned without their maternity dens.

As well, on a cold winter day, you could hear the squeak of the snow when you walked on it. Nowadays, it seems that even on the coldest days, you no longer hear that squeaking. I even took a trip out of town to a quiet enclave to see if I could induce this squeaking of the snow. I did not have any success.

As well, we used to only have igloos for housing and this required that we choose the right type of snow. The snow characteristics have changed as well in our area. It would be very difficult now, to try and live in an igloo, due to the lack of good snow. This started happening around 1994, with the changes to the snow characteristics and weather patterns. The Elders used to forecast that the weather system would change and this is coming true.

The angle of the sun has changed slightly and the seasons are melding into each other, with no discernable changes that we used to identify months in the Inuit year. We suspect that the Earth's axis has changed. One example of the difference in variables of the weather, when we left Sanikiluaq, the streets were melting and muddy. When we arrived in Montreal, it was cold and snowing. That is a big change, whereas it would still have been quite cold this time of year in our community in the past, we are now warmer than places in the South. I will limit my comments for now, Mr. Chairman.

MILORTUK: Everything that has been said about the change in the climate is true. Our climate is changing very quickly. We used to cache our meat in August, to ensure that it would be ready by wintertime. Now August is much too warm to cache meat and we have to wait until October to cache our meat.

I would like to ask if anyone has noticed the change in our char. I have noticed that the lakes are sprouting more and more vegetation underwater. I have also noticed that the flesh of the char, which used to be bright red, is now lighter in colour, almost whitish like the lake trout. I wonder what is affecting them in this manner, maybe their diet or this new vegetation?

I have also noticed that there are less calm days during our spring and the clouds have become lower and bigger over the last few years. I have also noticed that the leads

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now open faster. It used to be that the leads would not open until the snow cover was melting.

The sea-ice has changed as well over the last couple of years. It has become less stable. There is less land fast ice and the winters seem just as cold or colder than previous years' winter conditions. The spring melt is now very pronounced and begins earlier and earlier and the snow in the shady areas of the hills, which used to last into late summer, now melts in late spring. I will stop there for now, Mr. Chairman, as I would like to listen to the other Elders.

SUWAKSIORK: It is clear that the warming trend is felt in most places in Nunavut. The stars used for navigation included Tukturnjuk, Nuujituuq and in our area, Aagjuuk. They seemed to have shifted slightly as well. I am not sure if other people have noticed this, so I am relating it. It used to be that hunting and the weather were inter-related and synonymous.

If the air was cold and crackling, it meant that there would be a blizzard the next day. The location of the stars in relation to the stars, moon or sun meant different things to Inuit. Depending on the relationship of the celestial body to the clouds, it would mean different types of weather the following day. I am interested in what the other Elders have to say, so I will stop there for now, Mr. Chairman.

KILUKISHUK: I too, would like to say something about the use of celestial bodies for navigation. During the long dark months, we would use the stars and the moon for navigation and I think we are all talking about the same stars, but with slightly different names.

As well, we have different landscapes and different weather patterns based on these differences, but overall we seem to have used the same basic constellations to navigate with. I know that they are at different angles as well. I have noticed as I have traveled to other parts of Nunavut, that stars such as Tukturnjuk occupy different parts of sky, depending on where you are. I will stop there for now, Mr. Chairman.

ANALOK: The stars and the clouds were used for forecasting the weather and this was followed for generations. I too, would like to add that during the dark season, that's all we had to use for navigation, when there was no moonlight.

We used Akuttujuq and Tukturnjuk among others. Most of the stars in our skies had names, especially the constellations that were used mainly for navigation. As well, we relied on Qimugjuut and Uqalurait to gauge our direction of travel. Further, the dogs themselves were always reliable within a few miles of camp, as they knew where their home was.

Unfortunately, there has been a tremendous loss of traditional knowledge about navigational skills and survival techniques amongst our young Inuit. This is not conducive for following a life on the land if you do not know its signs and warnings.

Further changes have been observed in respect to the sun's angle and height and intensity. The environment is no longer the same and it has started to become a stranger to those of us who grew up in its embrace. I will stop there for now, Mr. Chairman.

ATTUNGALAK: I am a butcher of meat and consider myself a connoisseur of drying meat. I have some comments in regards to this issue, but I will speak to it when we are talking about the animals.

The land is either rising or the water level in Baker Lake is dropping, because there used to be an island near the airport which has, over the years become part of the mainland. It is now dry ground year round and has become a peninsula. The weather is behaving in ways that are foreign to Elders. We never used to experience this kind of weather during the winter and spring.

When we lived and depended on the land, January and February were the blizzard season. These last few years though, it has snowed the way it usually does in the early spring during this period. Baker Lake now becomes unseasonably warm both during the winter and summer seasons.

People have commented on the changes to the weather on the radio. The blizzards usually came from the north, but it has shifted. My house used to be facing squarely to the wind, but it has shifted and now gets snowdrifts where it used to be clear. As well, when we lived in igloos, we used to start getting colds only in the spring, when the igloos became damp. Now, colds seem to come and go all year round. Our health is affected, but I believe that the climate change includes lifestyle changes amongst our people as well. Further, I am not

sure what effect living in heated houses has on our health, as the temperature was always constant in the igloos we lived in. I will stop there for now, Mr. Chairman.

NAUJARLAK: In respect to the environment and its patterns, I have noticed that the sila has changed in our area as well. The wind has shifted and the earth seems to be spinning faster. The tide is increasing in Clyde River and most of the changes have to do with the timing of the seasons. They are no longer in sync with our accumulated knowledge. I will stop there, Mr. Chairman.

ANGUTINGUNIQ: I would like to note that the rivers are no longer the same. Even the streams and creeks have changed. They have different flow rates and levels of clarity. Some of the rivers are clogging up with silt and sand. I have noticed that some of them are now too shallow for fish to migrate to their lakes, both due to lower water levels and the silt and sand which has accumulated on the beds of the rivers. There seems to be a change as well in the precipitation. Thank you, Mr. Chairman.

IVALU: I would like to note that the ice freeze-up occurs later every year and I have noticed that it now snows when the ice is starting to freeze. Prior to that, it used to have snow cover on the land before the sea-ice froze and it seldom snowed during this freezing period.

It used to be cold clear days as the ice started to freeze. Now, even as it is freezing up, the snow starts falling and creates weak ice that is more susceptible to melting or giving way. The snow has also changed its characteristics and is no longer subject to the cold days when there was no evaporation.

As well, we have noticed that the day comes earlier and earlier every year. It now starts to brighten even before the winter solstice. Either the Earth is shifting or our calendars are wrong. The ice used to freeze on the rivers, but now even in the dead of winter, there is water on the rivers that well up and freeze. The cold has lessened in its ferocity as well. We used to get days in the winter where it was so cold that ice fog developed and it would last for days. Nowadays, it seems to hesitate just at the stage where ice fog would develop. I have not seen any days this winter where it developed ice fog. Thank you, Mr. Chairman.

KILABUK: I have been listening and learning more about the traditional knowledge of our people. I have

also been taught about the land and today it is getting stranger, I mean by the weather patterns. Iqaluit recently went through a warm spell and this was February, when it should be blizzardy. Then, right after that it got really cold and a big blizzard sprang up without warning. We are unable to ascertain the clues we used to read in order to forecast the weather. Thank you, Mr. Chairman.

PIGALAK: In our area, the sand and silt is being eroded to the point where some of the rivers are getting too shallow during the seasons when they should still be navigable. There are more sandbars around the rivers. The ice is jamming up against these sandbars and creating more sandbars as they are pushed from one place to the other by the tides. The barge has had some problems with the changing bottom levels, especially the last few years.

If this keeps up, Kugluktuk may become farther and further from the ocean, or barring that, parts of the town may erode into the river. The soil is mainly composed of sand and soft soil, so if the permafrost melts, we may be in trouble. I am concerned about the future effects of global warming. Thank you, Mr. Chairman.

QAUNAQ: I have noticed over the last few years that the traditional means of preservation of our country foods is affected by the sun's changes in intensity. It used to be perfect in the summer, in terms of preserving and drying our food for the winter. It has become too hot and the fish meat is peeling off of the skin as the fat is melted. When the fish were migrating upriver, it used to be the appropriate time to put away the surplus in our caches. If we do that today, it will be far too rotten by the wintertime when we return to collect it. We cannot attempt this traditional practice anymore. We have to freeze it at the community freezer until later in the fall, when it is cooler to cache it for the winter.

Even the summer snows have disappeared. Where there used to be snow in the shady areas, even small permanent ice patches, which remained throughout the summer have melted. I have noticed as well, that during the spring we no longer experience the cold nights. We used to wait until it had got cold enough for the surface layer to freeze, at which time we would travel throughout the night to our destination. It no longer gets cold enough for the surface layer to freeze over enough to support the weight of a qamutik and most nights, it doesn't get cold enough to freeze even the surface layer.

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As well, during the summer, we no longer experience the swarms of mosquitoes, due to the puddles drying out faster and not allowing the larvae to hatch into adults. However, we have noticed a huge increase in the numbers of houseflies. So many of them are around that sometimes you think the side of the house is black, and it is completely covered with these houseflies. They are now too numerous compared to the old days.

Thank you Mr. Chairman.

PIJAMINI: I wish to return to the discussion about stars and their use in the traditional Inuit lifestyle. The celestial bodies were used almost solely during the dark season as the only means of navigation, especially in the High Arctic. Some of the other delegates have alluded to it, but Tukturjuk was used during the middle of winter when it inverted and moved south.

Inuit also used the snowdrifts and the prevailing wind to estimate their position on the ice and land. I moved up around 1962 and my first impression was one of ice and more ice. There were huge glaciers and the summers were very short. It would start freezing up around September and as I recall, it would snow in August. A few times, I remember we were still seal hunting on the ice into August and sometimes the sea-ice never completely melted and it didn't leave the Sound. Then it would freeze-up over the previous ice cover. Nowadays, the ice cover completely melts and we now have progressively longer ice-free seasons. The open water season is pronouncedly longer than even 30 years ago.

The sun is hotter and the median high temperature now reaches over 7 C, which was unheard of even ten years ago. The glaciers in our mountains have steadily digressed to the point where they are no longer perceptible to our eyes. We have to wander up onto the mountain reaches in order to see the glaciers at this point in time. The melting of the glaciers has effected us and we cannot use our usual shortcut via the gooseneck valley because it has melted to the point where there are house-sized boulders blocking the skidoo path. We are no longer able to travel to the other side of our island where there are char. The river, as Larry stated, is getting shallower and shallower, to the point where it is hard for the fish to reach the lake.

KOIHOK: I am an Ahiamiut and I have traveled all over the mainland via dog sled. We were based out of Kingaok. The last time I traveled to Kingaok, the side channel

which I remember vividly, was bone dry and had become part of the land. The original mouth is composed of sand and other sandy materials and it has moved to a different location.

It now has a river mouth that is at a different location and is now strange in that we have to change our traditional recollection of the river mouth. This was a major route for us and we are not sure of the new river mouth, whether it is navigable or not. As well, we are not sure how this new river mouth will act, once the ice is forming.

We moved to Cambridge Bay in 1959, when the landscape was still bare and it consisted of mostly sand. The vegetation has really grown around here and whereas it used to be sparsely vegetated, now it is mostly vegetated and it is becoming a different land than what we remember from our youth.

Further, there used to hardly ever be mosquitoes around here when we were growing up. Now this land has changed to a vegetation-covered land with mosquitoes everywhere. The land is rising and there are more and more raised beaches and the permafrost is melting.

QARPIK: We have been affected by global warming in our community of Pangnirtung as well. People have been expressing their concerns over the local radio about the environmental changes they have observed over the last few years.

Our sea-ice is affected to a large degree. The formation and erosion of the ice occurs later every winter and earlier every spring. Nowadays the ice starts melting and is gone by May and it doesn't even begin forming until late December. We also used to get a lot of multi-year ice pans and icebergs during June and July that would enter our fiord and come out again. Now, these same ice pans and icebergs melt before they complete their circulation of our fiord. There are also less ice pans and icebergs entering our fiord. The currents seem to be stronger as well, as this contributes to the premature thinning of the sea-ice.

KILUKISHUK: This year has been memorable because within one year, the melting of the snow was way earlier than normal and the seasons have melded together. There is no longer any transition period between the seasons. There was a sudden cold snap in August that affected the caribou's fur growth and further hampered them in

later fall with ice covered snow. The weather has started to baffle the Elders in our community as well.

KILABUK: I have noticed that the seasons are changing. Fall is later and later every year. Thin ice is now the norm in Frobisher Bay. Winter is late every year according to the Elders within Iqaluit. The winter season also has shortened. Even in what we used to call early spring, the sea-ice is now precarious and unnavigable by snowmobile in some areas. Spring no longer has the long cold nights, which resulted in the top layer of snow freezing, enabling us to travel faster.

Without getting soggy, the snow just starts to melt from the inside out with ice on the bottom and the top layer soaking up the sun's rays. That's how it behaves now. There is no more distinct transition between the seasons. I have noticed that the summer is longer and this has allowed foreign species to the Inuit to migrate from the South.

SUWAKSIORK: I think that the calendars have been fast-forwarded. The seasons have changed completely, where even the snow has been changed. The snow forms at a later date, continually melted by the sun until it finally forms in what used to be winter, and then it is inconsistently grained. The snow now becomes crystallized underneath the top layer of packed snow. The top layer has become thinner and in what used to be early spring, it melts away really fast. Spring is really short now and what used to be fall, is more like late summer and it isn't even cold in fall anymore. We have had progressively longer summers over the last few years. It is a bizarre time. Thank you, Mr. Chairman.

HEZEKIAL: It used to be that winter was the start of very hard work that lasted for months. It used to be that winter was here from October to March. The seasons have changed immensely since our youth. It seems that fall is starting, but it is a prolonged fall and it gets progressively colder at a very late date almost coinciding with the Southern centres that dominate our satellite receivers. If this keeps up, we would have the same number of seasons as the South. Winter is later every year. Spring comes earlier and summer stays longer. Cape Dorset is on an island and if we no longer have snowmobiles, we may have to erect a bridge to the mainland. I will stop there for now, Mr. Chairman.

IGUTSAQ: The winter has diminished quite markedly and the summer, which used to be very short, is now quite

long. Once the spring melt comes, it doesn't stop even at night and the snow cover melts away sooner than it used to. It snows less in the fall and the prevailing wind in the winter has shifted because the snowdrifts are aligned differently now. We now have very peculiar weather shifts, with traditional fall weather interspersed with cold winter days.

ANGUTINGUNIQ: Traditionally, every early spring was noted by the fact that the top layer of snow froze, enabling us to travel faster. It was only in spring that it would stop the freezing of the top layer. Once this starts today however, there is no gradual warming. Now, it all melts at once it seems. The fall season has gone awry all of a sudden. It is as mild as what we see on TV. It no longer gets cold until December and the snow that falls tends to melt now even in the supposed fall.

We have noticed in the spring that the lake ice is thinner than in previous years. Our seasons have changed to a point where our traditional names will have to change for the months because they no longer correspond with the seasons as we used to know them. Thank you, Mr. Chairman.

TATTUINEE: I have also noticed the changing of the seasons, both in terms of their length and their melding into one season. The fall comes later and it is now December before the ice starts freezing. The fall is not as



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cold as we remember in our youth and its characteristics have changed.

Before we used to have pre-spring, early spring and then spring. Spring is coming earlier and earlier, with no distinct change from pre-spring to early spring. It used to freeze over at night. Now even when it gets cold the snow does not freeze over its surface layer. The summer season has lengthened considerably and there is no longer any length to the changeover from spring to summer. The fall season seems to be running away, where it used to be easy to recognize after early fall when it would start getting cold. Now it seems to stay that way for weeks at a time prior to the cold weather coming in. Now, even into December, the lake ice is dangerously thin whereas it traditionally would have been thick enough to lay our nets by then.

Things have started changing over the last few years and the seasons are no longer distinct and now run into the times when it would have been another season.

NAUJARLAK: The seasons have definitely changed to a point where it is now unsafe on the sea-ice. Traditionally, it would only have been unsafe during early spring. When the sea-ice first starts melting, it would go through several stages prior to the last melt when the sea-ice would be drained of all surface melt water and it would become very white and thin prior to melting.

Now, even during spring when it starts melting, there are no longer any stages of deterioration of the sea-ice. Now when it starts melting, it goes directly to the last stage of melt. It becomes drained of melt water earlier and it melts faster. We are having some problems with the timing of our spring camps these last few years due to this early melting and lack of traditional stages of melting of the sea-ice. We may have to leave earlier every year in order to conduct our spring camping. Thank you, Mr. Chairman.

ATTUNGALAK: Baker Lake is just a big inland lake and we have always used the melting of the lake to time our spring camping as well. The seasons have changed immensely since the 1990s. Now without warning, spring charges in and the lake ice has become thinner and now even in May, it starts to develop drainage holes in the melt water pools. The rivers have started to run earlier these last few years and we now are able to use our canoes earlier.

In the fall, when traditionally it would have frozen up on Baker Lake, we can now canoe effortlessly for several more weeks. Now it freezes over in December, which is the latest freeze-up that we can recall. This has played havoc with our traditional means of preserving our country foods. As well, there is no way that you can leave alone on a trip anymore because of the unpredictability of the seasons. When our Elders, older brothers provide advice, we should listen. I was told by my older brother not to bother leaving on my trip as I would have a hard time and might get stuck. I did not listen and a few miles outside of Baker Lake, I got stuck. I did not pay heed to the advice of my older brother and I paid for it.

It is baffling, this change that has occurred over the last few years. It is starting to make hunting chaotic in that the weather is harder to forecast and has led to a lot of unfortunate situations where Inuit have lost their lives. I think that we have to look at what is causing these climate changes and try to address them. Thank you Mr. Chairman.

ARRAGUTAINAQ: In our area, the Belcher Islands, the winter season has become abruptly shorter, disrupting our traditional calendar and timing of traditional activities of collecting and harvesting the riches of the land and sea. Now spring arrives with a flourish and instantly transforms the environment and this occurs earlier every year it seems. Our traditional seasons have become strange and are no longer present in some cases. What traditionally had been winter is now a longer fall season where it is cold but not cold enough to freeze the seas. Our snowmobile season has been shrinking and if it keeps up, we will be only able to use our snowmobiles during the winter months.

I am not sure how much of an effect it will have, as we are no longer subject to the whims of the environment for our sustenance needs. We are able to buy foods at the stores, but for those of us who prefer to eat our country foods, it may have an effect. I have noticed that there are no more easterly winds and I have missed that over the last few years. As well, the spring season is warmer and the snow layer no longer freezes over at all at night. Further, the sea-ice now is subjected to different currents, which tear off big pieces of land fast ice barring our path to and from our spring camps. The seasons are changing and displaying different characteristics than we are accustomed to. Our climatic seasons are not the same anymore.

UTOK: It has progressively become warmer. I recall that only in our traditional area did the trees occur, but when I returned there via plane last year, a lot more of the tundra was inundated with trees, small mind you, but they have moved north and east. The area we used to inhabit has been overgrown with vegetation, mainly shrubs and small trees. It has become almost like a mini-forest where we used to have our main camp. We visited the site in 2000 and it was almost unrecognizable due to all of the growth that occurred during our absence. I think this is due to a shorter spring, a longer summer and longer frost free falls.

NOVALINGA: The seasons have definitely changed over the last couple of years. We have noted that winter is shorter, spring is earlier and hotter, summers are lengthening and the fall has become as mild as the fall in the South. Now, during the spring, the cracks along the shore melt faster and in only a couple of days become impassable for snowmobiles. The ice is a lot thinner and with these shoreline cracks melting faster, the ice leaves way earlier than we are used to. The seasons as we knew them have disappeared, replaced by this strange set of seasons which are more in line with the seasons in the South.

PIJAMINI: The lands that the Inuit from Grise Fiord use for their sustenance are still growing in terms of new areas being explored and used. The changes are still noticeable even in the short time we have been up in that area. The land is changing at a fast rate, especially these last few years. The glaciers are melting and exposing lands, which were covered by ice for thousands of years. The ice is also giving up timber, logs that have been held by the icy grip of the glaciers for thousands and thousands of years. These logs, according to the researchers, are originally from the area. These researchers have been studying the land for as long as I can remember and they have also been seeing these logs emerge from the ice.

The ice is melting faster, resulting in stronger melt-water rivers being emitted by the glaciers. There have been researchers that have been in Ellesmere without the approval of the communities. An example is the researchers who were discovered on Inuit Owned Lands in 1994. There have been others who have been discovered over the recent years who are not applying for permission for accessing the island of Ellesmere. The land is changing at such a fast rate, who knows what we will see in another decade. Thank you Mr. Chairman.

ANALOK: In regards to the changes to the land, the land has risen to the extent that the old wharf, which used to be on the water, it is now sitting high and dry. This land has become a stranger to us. For example, Tinijjaq, which used to be on the shorefront, is also now high and dry, far removed from the water.

It used to be October when the snows would come, covering the land completely and enabling us to travel. Now it doesn't even get snow around that time. They have to use aircraft to conduct their fall hunts now because they cannot reach it via snowmobile. The fall season is completely changed and this has affected the land to a point where it has forced Inuit to change their practices to accommodate these climate changes.

The lakes are melting faster. Inuit used to ice fish during the spring. Now it is too dangerous to fish on the ice during our traditional spring fishing season. As well, it has changed in regards to the ice formation. It forms later and later every year and that has affected the late fall char fishery in Cambridge Bay. The only way to fish now is with a small boat, as the ice is still not formed by the time the season opens.

KILUKISHUK: The things that we have observed in the Tunnunig region in regards to the landscape are the retreat of the glaciers that used to be right on the edge of the sea and in some cases, produced icebergs. Almost all of the glaciers are retreating, especially those on Bylot Island. They have retreated, in some cases upwards of three miles and are no longer visible from the shoreline. There is now new land that has escaped the grip of the glacier after many years. The caribou, which used to eat nothing but lichen have switched to other plants due to the change in the climate.

The land is sprouting vegetation. The rivers have started running earlier and they become nothing more than a trickle when only the melting snow of the mountains and hills feeds them. The change in precipitation has resulted in this as well. Even on the clearest days, there is a difference in the hue of the approaching weather and the land is shifting in some areas, probably due to the permafrost melting.

KILABUK: We have noticed the sandbars eroding around the tidal flats. Whereas it used to slope gently downward, we have noticed that it has become steeper and more pronounced. In some of our old camps, the sandy areas have become vegetated and are now more vegetation than sand. The area where we used to pick berries around our

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old camp has changed to more shrubby vegetation and less of the traditional berry patches.

Thank you, Mr. Chairman.

QAUNAQ: Our traditional camp around Committee Bay is mainly gravel interspersed with sandy areas and rocky patches. It is now covered by a diversity of plant growth and it is hard to see the gravel now. We used to travel via boat using a sail and some of the routes we used to navigate are no longer navigable due to some of the areas becoming too shallow. When we used to collect sand and gravel for the community, we used to find old narwhal and walrus tusks, which we would then clean and sell to the store. Those areas are all now covered by plant growth. We have noticed the changes to the areas where we have grown up in our lifetimes. Thank you Mr. Chairman.

ATTUNGALAK: In an area named Savvaqtuuq, a traditional migration route camp, the river is becoming shallower due to sand build-up and the old inuksuit and place markers are being buried in the sand. It is building up and covering these cultural relics. The soil is being

eroded and the sand underneath is being exposed and blowing onto these old areas. The permafrost is melting in some places because in some areas, the land is buckling. In Kivvakataq, the old tent rings are being covered with vegetation and are starting to disappear. There are more areas that are no longer bare hillsides or barrens. They are starting to sprout with vegetation.

AUDDLALUK: The seasons have definitely changed and the climate is exhibiting untraditional weather patterns and has created havoc with the Inuit seasons. This is mystifying to us Inuit who are living with these changes in our lands. For example the sea-ice, which is like land to us Inuit, has started to change its characteristics. The sea-ice now shears off and once it starts to melt, there is no stopping it.

The ice now melts off around July and the floe-edge has shifted inland to a new area. The winter has lost a good month of its original length. Inuit are now experiencing new phenomena, such as sunburns and other warming related factors.

There is new land emerging from the ice caps as they retreat further and further. Two lakes, which were fed from a melting glacier, have merged into one big lake. The glaciers around our area are receding at a very fast rate. We are seeing new lands emerge all over our land use area.

ANGUTINGUNIQ: Some of the old tent rings have started to disappear as well in our area. It has started to change as the Elders forecasted many years ago. They stated that the land would eventually return to its pre-ice condition and would eventually be void of winter. They said that before the ice age, the lands were quite productive and warm and that this would revert back to that condition. I am wondering whether these old sayings are coming true.

The vegetation has been growing at a very fast rate, unlike anything we have ever witnessed prior to this last decade.

SUWAKSIORK: I wish to relate the changes in our traditional camping grounds. Due to the earlier melting of the snow cover, the vegetation has enjoyed a longer growing season and with the later fall seasons, the land is starting to undergo a variety of changes. This consists of land buckling, shallower and shallower seas, drying creeks and streams and the shifting of the earth due to the melting of the permafrost.



NAUJARLAK: The Elders stated that this was the way it would develop with the world on the doorsteps of the Arctic. They stated that the climate and weather would change and part of this would be due to the youth forgetting the ancient rites to placate the environment and its resources. This is the result of the development and the pollution of the environment.
Thank you, Mr. Chairman.

MILORTUK: The lakes in our area have started to develop more plants or weeds that are overtaking some of the shallow areas of these lakes. This is a direct result of the waters getting warm enough to offer these plants the conditions they require. We are not familiar with these plants, at least to this degree of growth.
Thank you, Mr. Chairman.

TATTUINEE: I would like to relate that in all of the lakes that we have visited, even in the Wager Bay area, the lakes are accumulating this weed growth. I have seen this develop over the years but the growth has been significant these last few years. I have seen this occur to the point where every lake has this vegetation growth. It even clutters up the nets that we set up over the winter now. Thank you, Mr. Chairman.

UTOK: Yes, that is the case now. According to the information I have received from my Elders, that the rocks in the rivers, streams and creeks filter the water. The growth on the rocks is due to their collecting the spores and other matter from the waters. I have noticed that there are more plants within the waters of the lakes and streams. Thank you Mr. Chairman.

KILABUK: I would like to state that I have also noticed this type of plant growth in one of our main fishing lakes. It looks like some kind of water plant or weed that is light green in colour. I have seen it occurring in more and more lakes. I don't know what it is, but our Elders do not know it, as they have not seen it before, at least in this region.
Thank you, Mr. Chairman.

EETOOLOOK (NTI): It is time to call it a day. Your comments are being recorded.

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NOVALINGA: Yesterday we focused on the changes to the environment so I will continue in that context. The sun is the root cause of this climate change.

It is way hotter and has caused sunburns in Inuit, especially during the months of June, July and August. Even without the snow to reflect the sunrays, Inuit were still experiencing sunburned skin.
Thank you, Mr. Chairman.

IGUTSAQ: During the winter, in our youth, it hardly ever used to snow, as it was too cold. The only snow we would get would be from the blizzards, at least until spring. Now, even in the winter, we get snow flurries where we never used to have them.

Some rivers that have char are no longer being used as they have become too shallow for the fish to migrate upstream. Although some of these streams are close to the ocean, due to change in water levels, the char are no longer able to reach the lakes. The land has reclaimed some of original lakes as well. They have drained into the land and quite a number have drained over these last three years. The birds are being affected as some of the original nesting areas have disappeared. The land is changing indeed. Thank you, Mr. Chairman.

PIGALAK: I was mainly listening yesterday to the changes other Inuit have observed in the lands and ocean. The ocean has become a strange thing, no longer portraying the characteristics we have come to depend on over the millennia. Parts of the Sound no longer freeze over. Sachs Harbour hardly froze over and there is now a polynya between the islands where there never used to be one. This is causing the Inuit in this area to experience difficulties in trying to harvest polar bears due to the thin ice and impassable polynyas. The sea-ice now breaks up in early June and it deteriorates extremely quickly now, practically becoming dangerous overnight.

The focus of the new discussions was on the animals, changes to their characteristics or new species never seen before and are now sighted regularly.

UTOK: It is clear that the animals are being affected by this climate change. As an example, caribou skin characteristics have changed during the last ten years. They have become softer and thinner. Caribou with brucellosis are becoming more common. The bearded seals blubber has changed colour, to a yellowish tinged colour. The char are also changing, in terms of the colour of their flesh. They have gone from a bright red to a pale orange colouration of their flesh, to a point where some of them look more like lake trout flesh.
Thank you Mr. Chairman.

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FIGALAK: In regards to the animals, I have a few observations I would like to pass on. The Inuit hunted everything that was edible and we rarely ever saw new species when we were hunting for food over the entire tundra in search of the next meal. To see these birds now residing near our community has accentuated the changes to the climate.

There have been more and more traditionally unknown insects like wasps and even dragonflies are immigrating to our lands. Lucky for us, we have seen these animals on TV or else we would not have known what species they were. Thank you, Mr. Chairman.

ANGUTINGUNIQ: When we were caribou hunting in the summer on the west side of Pelly Bay towards the mouth of the bay, we encountered some weird looking ungulates. They were reddish in colour and were they ever fast, way faster than any caribou could lope away. They also bounded away, with long white tails flashing at each bound. I have seen them on TV before. I have seen these deer on shows about hunting whitetail deer. I am sure that is what they were. Unfortunately, I could not even get a shot at them as they were so fast and that is the first time that I have ever seen this kind of deer in our area. They may have migrated beyond their usual grazing areas, or perhaps they found that this area is conducive to their grazing. I don't know. Thank you, Mr. Chairman.

ANALOK: I have noticed the birds which migrate to the North, especially the snow geese that arrive on our island, are increasing. During the period of fledglings, the male ducks would gather in groups close to our camp. Now they are migrating to further areas and they are nesting further away. They are moving further away, perhaps due to the increased mineral exploration activity in these areas. Thank you, Mr. Chairman.

ASHEVAK: I wish to relate our observations in regards to the birds in our area as well. I am referring to the small dark coloured birds, the little sparrows. The Lapland longspur is no longer as numerous as in the past. I really miss their songs when they are singing their territorial songs in the spring. I recall that this was the signal of spring, when the birds would erupt into territorial songs all over the tundra and it was fun for us because it meant that we would have fun in the summer chasing the young birds prior to their preparation for the long trip south.

We are getting different kinds of small birds, small sparrows that have different songs. On top of that,

whenever September rolled around, almost all of the birds would be leaving for the warmer climates of the South, but even up to late October, the birds are staying a little longer each fall.

Further, thick-billed murrets would migrate further south for the winter, but due to the later and later ice freeze-up, they seem to be staying all year around. Canada geese would be seen rather routinely, but the population has increased as we are seeing more and more of them. We are also noticing that the char are multiplying as we notice more and more of them migrating upstream in the fall. They seem to be everywhere now.

SUWAKSIORK: In the Arviat area, the snow geese have multiplied to a point where there is now a commercial harvest of approximately 500 geese. They seem to be moving further and further from their original nesting areas and even into our community.

Elders always told us not to play with animals or to exploit them unnecessarily. I have noted that there are numerous caribou caches, which were not used by those that cached them and we continually have to expose the cache to allow the flies to finish the decomposition of the meat. We should listen to the advice of the Elders and not waste meat of any kind because it is disrespectful of the animals. This applies to cows, which are nursing calves of the year. They should not be shot as this puts the calf in danger of starvation. Thank you, Mr. Chairman.

ATTUNGALAK: We are starting to experience more and more strange animals that we are not traditionally familiar with and this has led to changes in our hunting tactics. Animals were hard to come by and they were extremely afraid of Inuit. Once they smelled or sighted Inuit, they would run away.

It seems that the animals have changed their characteristics as well. Now it is quite easy to harvest caribou, it could be a combination of contributing factors, including climate change, technological advances and other adaptations by the animals. They have also moved closer to the communities and I have noted that their skin is softer, from what I don't know. It could be the pollutants in the community areas that are causing this thinning of the skin.

It could also be a result of their diet change, and I have noticed they are eating more vegetation and less lichen. Their meat tastes a lot different when they have switched diets to this vegetation. The animals are changing, both

physiologically and characteristically. The meat seems a lot softer and lighter in colour and the taste is vastly different from when we hunted caribou via dog team. We have noticed that the snow buntings are now quite rare in our areas and that is a big change from when we were youth growing up on the land.

We have also noted that due to the warming trend, there are new insects that we have no knowledge of. This new insect is a large red bug and they seemed to be headed east. They could be fleeing the forest fires further south, who knows? I have also noticed that the snow buntings are no longer as prevalent as before. The names we call them are different. I recall these as Amauligaaq, Pukillik and Amautilik.

I have also noticed that there are new creeping, crawling insects, which have many legs and one looks like some kind of snake. I have seen other insects, which are unusual in shape and character, but they don't hang around. I will stop there for now, Mr. Chairman.

PIJAMINI: Our land and climate have changed as well in our area. Whereas the wind was always cold, even during the summer, it now blows with warmth in the summer and even the spring. Our island has always been sparsely populated with small birds, especially the darker Lapland longspurs. I have started to notice these small birds, which I only used to see near Pangnirtung, they are called Qaingaaq or American pipits. They are becoming more numerous than our existing small bird species. There are more and more forays by strange birds that are looking at exploiting the Arctic's vast resources of arctic cod and other food fish species specific to the North.

As with my compatriot from the mainland, Mr. Pigalak, I have started to notice birds which I used to only see on TV, little birds which have multi-coloured bills, that fly home with multiple cod in their beaks and that burrow into the soil. I think these are the Atlantic puffins, which are located some distance south migrating north due to the disappearance of the ice cover during the summer months. Whereas the king eider was the more common of the ducks, we are starting to see more and more of the common eiders. On top of that, the ducks seem to be coming a couple of weeks earlier in the spring. The ducks used to arrive in May and the snow geese would arrive around late May to June. Most of them are headed for further northern reaches of the High Arctic islands.

We have not noticed too many new species, but the northern animals seem to be thriving. The arctic hares

are multiplying at a rapid rate. We are starting to find more lakes, which contain char and further north, some of the plains are literally covered with arctic hares. Our hares are a lot bigger than the hares around here, up to 15 or 20 pounds.

But, our caribou, the Peary caribou are smaller than your caribou. They are hard to discern in the winter because they are so small and white. They are the opposite of the musk ox, which are dark coloured and easier to spot in the winter. They are increasing steadily than when we first moved here. Our main fishing lake on the south side of Makinson Inlet, called Pirlirarviguaq for the starvation endured by the party of North Baffin Inuit who were attempting to return to their families, was the only means of procuring food as the ice no longer had any sea mammals within the inlet. This lake gets so low that the fish cannot migrate back due to the low water at the mouth of the lake and the fish get stuck within the drainage system of the lake. We usually go there via plane now, due to the route being blocked by boulders. We now see mosquitoes where there used to be none and more ravens. I will stop there for now, Mr. Chairman.

QARPIK: In Pangnirtung, the animals that we grew up with hardly changed over the years, but these last few years, birds which were quite rare, have started to arrive and stay in our area. Birds such as the common eiders and Canada geese have not only arrived, they are breeding and nesting here now. As well, sea birds that were familiar at least in this area, have started disappearing here. The birds I am describing are Sarraaq, (red phalarope) and Qinnirqtaat (Lapland longspur). There are now caribou in the immediate vicinity of our fiord. They have steadily migrated closer and closer. Our Elders used to say that it would again be over-run by caribou. I never used to believe it until I started seeing and hearing about the caribou moving into our areas. They are now quite close. Initially the HTO would not allow the hunters to go after the caribou closest to our fiord, so that they could continue to migrate closer. Now some of them are going further north.

IGUTSAQ: We have started to notice that the seals are starting to be affected by climate change or pollution. It used to be unheard of to catch or even see a seal that had no fur. It is something we have started hearing of these last ten years. This was the first time that an Inuk caught a seal with no fur.

This was in the fall near Taloyoak. Due to the fact that it was unknown within Inuit Qaujimagatuqangit, the seal was

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left behind because of the uncertainty of the effects of the meat. The skin was bare of fur and very easy to rip. It looked as if it was sunburned or something. Even on a clear day now, it is a lot different now, because the animals are changing. Thank you, Mr. Chairman.

QAUNAQ: In the Kivalliq region, we are the northernmost people and we are not yet subjected to the changes to the degree the other delegates have noted, but things are changing nonetheless. However, geese were quite rare in our area, both snow and Canada geese. We now have geese in more areas, not just in Qaggitalik, which was the main area for hunting geese. The geese are returning, but the small birds are disappearing. My own suspicion is that the ravens are eating all of the young birds because of their own overpopulation's growing needs. The ravens are like pests now, disrupting everything and eating everything. The Lapland longspurs are disappearing in our area and I have noted that a late frost in the spring killed hundreds of small birds, which were caught unprepared for a lasting cold snap.

The caribou are now infested with brucellosis and the change in the sun's rays has affected their skin quality. I have heard of complaints from the women of the skin's change in durability. It tears easily and the hunters have started to find that the skins are ripping right off as they are attempting to butcher the carcass.

ANGUTINGUNIQ: Like my colleagues, I have noted changes to the caribou physiology, both in terms of diseases and other physical ailments or effects from this warming trend. Mainly we have been seeing the effects of brucellosis on the caribou. Caribou are in pain from their infected joints and the joints swell up and affect their mobility. Due to my own compassion for animals, which are incapacitated due to disease, I have killed two caribou, which were in such bad shape. I knew they had no longer the strength to continue. I was afraid to partake of their meat and left them for the scavengers.

I have noted that the Lapland longspurs are disappearing, along with the red phalarope. The snow bunting is still around, but it seems that there are fewer of them now, either due to the climate change or predator pressure.

ANALOK: The behaviour of the animals has changed up and down the food chain. I have observed the change in the birds of the area. There are fewer birds of the varieties that were the main bird species when we were growing up. I recall when the Lapland longspurs would fly straight up

and sing on the way down, their territorial songs spewing all over the tundra. Now, even when the birds are around, they don't seem to exercise their territorial songs anymore. They don't seem to want to sing their songs anymore. Maybe it attracts the wrong kind of attention. The caribou are also affected as they try to traverse the gulf and they end up drowning due to the thin ice.

PIGALAK: The ravens, which used to migrate further south for the winter, are now wintering over near our community and increasing. The common eiders, which rarely arrived in our area, are now more prevalent. Areas which used to be void of birds are now full of birds, sometimes to their own detriment. I recall sometimes when the migratory birds come early, hunters would find lots of dead birds, which had been caught by a late cold snap. The recurring polynya is now filled with common eiders and other strange birds. There is now a continual stream of strange birds, which seem to be canvassing the area for its resources. I saw a strange bird, white with a big beak that I had seen only on TV. I think it was a pelican. It sure was strange. Thank you, Mr. Chairman.

NOVALINGA: I will speak about the changes we have observed in the seals around our island. Since 1998/1999, the seals mysteriously died off and they were seemingly in very good condition. These carcasses were sampled and sent off for analysis, but apparently we made a mistake in freezing the samples prior to sending them off. Our ring seal population has been decimated and it is not unusual to see less than five in a day anymore. According to our observations, the seals that are sick approach the boats with no fear. Our Elders stated that a similar die-off occurred in the 1950s. We are very concerned about this turn of events and would like immediate research on what is causing our seals to die.

Arctic char that had migrated to the sea and returned for the winter used to have nice red flesh, but these days their flesh is more whitish and has changed, maybe due to their diet which has changed and is affecting their meat. Canada geese are numerous now, but they do not nest here. Rather, they come here to fledge their feathers and there are so many that they do not flee.

KILABUK: I would like to make a short statement on the Canada geese as well. We are starting to see two kinds of geese. Plus, there are many more than there used to be. They seem to be overtaking the other kinds of geese. Thank you, Mr. Chairman.

TATTUINEE: Animals have been affected, especially the birds and other avian species. In 1970, when we moved to Rankin Inlet, the Lapland longspurs were present in large numbers but today they have disappeared or moved somewhere else further north. The snow buntings are in the same boat; they too, have largely disappeared and have been replaced by other birds.

Our char used to be amongst the best in the North, but one year the river continually crested its ice sheath and created a large ice field in the mouth which did not melt and when the river started running, the char were dispersed all over the land and into the lakes and as a result, many were lost and it has not recovered since. There were a multitude of small ponds full of char everywhere. I have noticed the same thing as the other delegates in regards to the colour of the flesh. The char are not red anymore and sometimes are as white as the trout.

The caribou around the area are very skinny and do not contain any body fat. This was due to the wet snow that fell and then froze, creating an ice blanket. More caribou have fallen victim to disease and brucellosis. I will stop there for now, Mr. Chairman.

ATTUNGALAK: I have been waiting for this issue to come up, in regards to caribou. I am an inland Inuk, dependent on their meat and I undertake food preparation of all kinds for the upcoming winter. The taste of the caribou as I recall it in my youth, has changed. They are eating a different variety of vegetation and this is affecting their taste. Their physiology is also changing. It could be a result of their diet or their proximity to the communities and their pollution.

The fish in Baker Lake have changed as well. The char used to be nice and plump with deep red flesh just like the old movies show. They have changed a lot. The ravens are overpopulating their environment and are affecting our food preparations and it is really aggravating to have to constantly ward off all of these ravens. They are especially bothersome to the dog team owners and harass the dogs in packs, not allowing them to eat their rations. Inuit can no longer have outdoor food porches, as the ravens will completely devour them in no time. We are not allowed to cull them either, as they are branded a scavenger bird and protected with a fine.

We are now discovering the caribou skins are so thin and scraggly, that they cannot be made into winter clothing anymore. Inuit have depended on the caribou for their

clothing for millennia and if we can no longer use their skins for winter clothing, this will affect our culture and lifestyle. I will stop there, thank you, Mr. Chairman.

ARRAGUTAINAQ: I have been reminded of my youth and was reminiscing about the birds and their songs, which signaled the sprouting of spring, but nowadays there are no more Lapland longspurs or buntings. They have been replaced by different small birds, which now migrate to our islands. Our ancestors always stated that the animals would return to their original areas and this seems to be happening today. They also stated that the animals would disappear and we have no way of stopping that. It seems that the land is returning to its original climate, that is what my Elders used to say.

KILUKISHUK: The story is the same in our area as well. There are new insects which bite humans. They resemble mosquitoes, but are smaller, almost like sand flies. They are becoming a nuisance. The char have been researched by using tags and it has become clear that they will occasionally migrate up a different river to another lake. This occurs once in a while but I cannot determine whether or not this is due to environmental stress or low water levels in their home lake. We are also getting large fish which have very thick skin that were getting caught only via nets right in front of our community and these were different type of char or salmon.

PIJAMINI: On our island, it may still be too cold for new species to arrive and we have not seen too many new species. I will make one note though on the animals up here. The hares do not have any fleas nor do the caribou have warble fly larvae. The only animals with fleas are the ptarmigans, which have only avian lice or fleas. It is too cold, I think for the fleas to live in the open.

ARNAJUAQ: I have noticed there has been a major reduction in Lapland Longspur populations in our area. I am not sure what has caused this, whether they are moving elsewhere or dying off. Our char seem to always have a ringleader that leads the upstream migration so I suspect that the char have leaders or bosses, which dictate the times of downstream and upstream migrations. Thank you, Mr. Chairman.

IVALU: These little birds arrive when there is still snow on the ground and when there is a long cold snap or blizzard, they could be subject to extreme conditions, which kills some of these birds. There are hardly any Lapland

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longspurs anymore. Other small birds, which have different habits and songs, have replaced them.

Our lake was being depleted of char at one time, which was, according to our Elders' sayings, due to Inuit arguing over the fish that they caught. This led the char to seek another lake that was not subject to Inuit arguing over them. These char with thinner bodies and whitish flesh have replaced them.

Inuit have an old saying: "A tongue can cause the animals to disappear as they do not like a sharp tongued Inuk." I recall also that there was a massive die-off of eiders one year, when a long cold snap caught them off guard and they littered the sea-ice with their carcasses. There were a lot of suffering birds and to this day, our eider duck population is still low. They take flight immediately if you get anywhere close to them. We also had an area where snow geese nested, but because Inuit were emptying the nests and not leaving any eggs behind, they migrated to a different area. Animals are sensitive to exploitation and the tongues of men. Thank you, Mr. Chairman.

NAUYARLAK: We moved from our camp at Avvaqtuuq and there were no Canada and snow geese, no narwhal around. They are continually migrating to our areas now and the snow geese are increasing steadily along with the Canada geese. Inuit in our community did not grow up with geese and they have not collected eggs as much and therefore the geese population has grown.

We have noted that harbour seals are arriving in our area. They go on the land, instead of the ice, but these ones had missing fur and they were oozing some kind of oil and some of them were even missing their hair follicles, just like when they are stripped of hair by women for the black or white kamiks. Thank you, Mr. Chairman.

IGUTSAQ: It is unfortunate that the samples sent in by Inuit for diseased or dead animals are never returned to the communities with the results. The issues facing Inuit would be better understood if the results were sent back to the communities. I am sure that there are a lot of Inuit waiting for the results of the samples. My recommendation is that the Department of Sustainable Development should invest in research facilities here in Nunavut so that Inuit could send their samples in for analysis. If we knew what was causing these problems, we could at least try to minimize the damage. Thank you, Mr. Chairman.

AQPIK: Research is too slow to find out what is causing this change in the animals. There are never any answers sent

back to the communities and if this keeps up, Inuit will no longer send any further samples as the tests or analysis seem to take forever and there is never any further details.

There are more and more birds migrating up North. We saw this owl, which looked almost like a snowy owl, but smaller. We have a variety of names for the months when birds are up here: Nauyaqaliut; Mittilaaqaliut; Mittivqaliut. They all seem to come at the same time in the spring. Maybe the birds are coming because the winds have shifted. The murre are no longer arriving, as we no longer have easterly winds pushing them adjacent to the floe-edge. The ravens are now overpopulated. In our youth, it was very rare to see ravens. The ravens that were around would always try to guide the Inuit to the caribou, so that they could get some of the parts offered in thanks for their assistance. Now, all they do is sit around the community dumps.

I always reminisce about the spring songs of the little birds from my youth, but these days, there aren't many of them left anymore. When the birds came at the end of winter, they always seemed to ask, "piuviit?" I always answered, "Yes." There are hardly anymore of these birds in our area or else they have migrated further north. Thank you, Mr. Chairman.

QARPIK: We have not had the opportunity to hunt caribou near our community since the 1950s, but the ancient caribou trails are still discernable although they are starting to grow over with vegetation. It was inconceivable to imagine hundreds of caribou around these areas, let alone to have caribou return to these areas. Yet, in the last three years, caribou have been migrating to these areas in ever increasing numbers. These caribou are quite numerous now. We are getting these young hooded seals with no spots, blue on the back and white on the bottom since 1998. They seem to be coming in the fall.

I am more concerned with the growth of the seagull population. It has exploded and they are becoming a nuisance as well as the ravens.

PIGALAK: I would like to relate three things I have observed that show that there are new species coming into our areas. I, and other hunters, have seen sea lions, seals with brown, short, coarse fur and no claws. These are definitely non-ice seals. They would never be able to keep a breathing hole open with no claws.

We are getting capelin, a small fish with pointed snouts and the seals and fish are eating them. In Qaggivik, they

get washed ashore during storms and we eat them. They are very good to eat. The snow buntings were always the sign of the coming spring. They seem to be disappearing. We also saw a pelican. I will stop there for now. Thank you, Mr. Chairman.

KOIHOK: I am from the Ahiamiut. We are also aware of the same issues as the rest of the delegation. They have spoken the truth. Musk oxen have also been affected. I have noticed some musk ox that stayed in the same spot for three days, hardly even moving. Some of them died. When we depended on the musk ox for dog food, they would flee at the sight of the dogs and when pressed, would form their defensive circle. Now, they don't even flee from dogs. This was a situation where the musk oxen were just standing. I have never seen that kind of behaviour. One of the dogs killed one of them when they came to our cabin. Then the dog died and this was 1958.

The foxes are scavengers and will eat anything edible and they can get sick. Foxes have gotten sick and died from their scavenging. We have to determine what disease is affecting them and what causes the scavenger to die from eating a diseased animal. Foxes also attempt to catch seal pups and are sometimes successful. The foxes are subject to rabies and other diseases. Foxes, ravens and gulls are a part of nature.

UTOK: I would like to relate the experience we had near Arviat. We saw what looked like seven sandhill cranes, but as they got closer, we noted that all of their plumage was white. One of our group said that they had seen these birds on TV. They were way bigger and had red markings above their eyes. I believe they are called whooping cranes. As well, eagles are being seen with more regularity. These are so big that they can carry off a young caribou calf that is less than two weeks old. After that, they are too big. We have also noticed that the caribou skins are way softer and are getting harder to craft into clothing. The caribou leg skins were always used for kamiks. They were so soft that they ripped; it may have been due to the lack of good grazing resources that year, because there was an ice sheath. This spring, we noticed that the plankton has increased and we are seeing new types of plankton in the ocean. Thank you, Mr. Chairman.

ARRAGUTAINAQ: I forgot to mention ravens in our area. I recall that the only places that the ravens used to nest were on the cliffs. Now they are everywhere, where there is some protection from predators.

I have also noticed what looked like kittiwake gulls, but these had no markings of any kind on their wingtips. This was weird and I could not ascertain what type of gulls they were, as I had never seen them before. Thank you, Mr. Chairman.

NOVALINGA: It has been the last three or four years that we have experienced the effects of global warming. It is obvious that the seasons have shifted, some longer, some shorter. The weather patterns have changed as well, the fall weather has changed with less storms and less snow. Even in early spring, there is no more snow on the lakes and they melt a lot faster. If this early melting continues with the later freeze-up, in 20 to 50 years, we may no longer have ice in Hudson Bay.

I imagine that some of us would migrate north. Our sea-ice is now averaging 2.5 to three feet thick, whereas it used to be six feet thick. It is a lot thinner, plus it rots and deteriorates much faster. Now, even before the end of May, the sea-ice has broken away. We have had a few cases where Inuit had to be rescued by boat as a whole coastline had become ice-free. We may no longer be able to harvest seals or polar bears. Inuit are a marine-based people.

The seal pups in our area are in danger from the lack of snow cover and earlier melts. Our seals may migrate or die off if they cannot replenish their population on the sea-ice. I am very concerned that this is the way things will progress in Sanikiluaq. Thank you, Mr. Chairman.

ASHEVAK: I am very concerned with the rapid rate of change in our ice. We are situated on an island and if this trend continues, we may no longer need snowmobiles. We will however, need to think of linking the island to the main island. The increase in the wind is due to the warm air colliding with the cold air. We may get stronger winds that hit our communities, like what you see in the South. We cannot control the weather and the precipitous changes we are seeing could worsen our weather and drive up the cost of storm damage to our meagre equipment. We cannot do anything about the global warming as we are getting hit first with the changes to the climate. Thank you. Mr. Chairman.

AQPIK: The land mammals, which we subsisted on for parts of the year, ate only their choice of lichens. They have changed their diet or something else is polluting their food. They are no longer subsisting on lichen and their meat has changed. They are now feeding on the bushes

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and willows. Previous caribou had large amounts of body fat to prepare for the winter. We now rarely encounter any caribou with this kind of fat layer; I am talking about the fat that used to be three inches thick. This was due to the layer of ice that covered almost all of the vegetation and this continued late into the spring. This has occurred on and off over the last few years, this freezing rain. Thank you, Mr. Chairman.

PIGALAK: Talking about weather change, in 1998, Coppermine, as it was called then, was the warmest place in Canada at 36 C. The prevailing wind used to be from the west. It has changed direction.

Compared to previous years, August is still warm. There were days in August when Inuit were either indoors with fans or hiding in the shade. It was hard to move anywhere without sweating. It seemed like the whole town was hibernating. In the fall, around October, it would snow, but every day it would melt and cover the tundra with a layer of ice. The caribou moved elsewhere to easier grazing grounds. Thank you, Mr. Chairman.

ARRAGUTAINAQ: I have a few short comments to make, Mr. Chairman. The reason for this meeting is the issue of global warming. The questions we should be asking ourselves include what will we do next? How can we adapt and survive?

There is no question that Inuit will survive and adapt, but our accumulated knowledge will have to be revised if this new weather system is to be understood. We are depending more and more on the TVNC weather forecast. Our weather in March was 2 C and 0 C at night. The weather is changing so rapidly. The winds have shifted and this brings more warm air from the mainland. We can expect that there will be more changes to the weather of our area, and indeed in all of Nunavut. If some of the Elders' comments are an indication of climate change across Nunavut, we have to take it seriously. Thank you. Mr. Chairman.

EETOOLOOK (NTI): It is obvious that our weather is changing. The winds are more powerful than our Elders remember. There have been cabins that have been blown away or apart by strong winds. We will have to prepare for the changes that occur in Nunavut and we may have to look at learning about the new species arriving into our areas via books. We do have to prepare and that is an important point that Arragutainaq made.

ATTUNGALAK: Thank you, Mr. Chairman. I want to add my comments in relation to the changes in the weather. Our lives as Inuit have been affected by this climate change. We have to prepare for the upcoming changes so that our youth can have a fighting chance. The winds are changing by becoming unpredictable and sudden. Nowadays, without any warning, a storm can whip up out of nowhere.

In the old days, you always had some warning, even a few hours with which to look for a spot to hunker down in. It has affected our family practices and the climate is now vastly different. It used to be cold and clear for days on end. This is now a rare phenomenon, to have more than one clear day. Any clear weather is now very short.

The moon has changed colour, turning yellowish. En route to Bake Lake, we noticed a cloud, which was dark and brooding. We knew that we would get either a blizzard or snow based on our traditional knowledge. We thought we had at least several hours. Just as we got on the lake, the blizzard hit us out of seemingly nowhere and we got lost. It took us a while to find our community. This has affected me personally. We erect cabins to facilitate our traditional activities on the land. My cabin was destroyed by the winds. We were taught by our Elders to survive on the land and to know the weather patterns, which could affect our lives. We have to work at relating our knowledge to the youth as our Elders did before with us.

We do not like to see change, but we will have to prepare for the changes that are affecting our lives in Nunavut so that Inuit may continue to survive on top of the world. Thank you, Mr. Chairman; I will stop there for now.

IGUTSAQ: It is definitely getting warmer and for those of us who grew up when even summers were cold, the hot weather is almost painful and it's almost impossible to sit in the sunlight as it is too hot and Inuit were also trying to hide in the shade. Inuit have to look at wearing suntan lotion all of the time. There are more cases of sunburns occurring amongst our people and if it keeps getting warmer, Inuit will have to adapt or move further north.

All of our ancient weather forecasting knowledge is off balance due to the changes in the characteristics of the weather patterns. I believe that it is still important to note and observe the direction of the prevailing wind, even if it has shifted positions. We just have to re-orient our directions based on this new direction. Thank you, Mr. Chairman.

TATTUINEE: Just listening to all of this Inuit knowledge made me reminisce about my grandparents' stories and I got real sleepy waiting my turn. It caught my attention to note that parts of Nunavut may become ice-free in 20 years or so. I have noted that the ice is getting thinner every year around Rankin Inlet. I have heard from the Elders that it is due to the saltwater becoming smoother and less stringent. This is most likely due to the fact that the saltwater is increasing in temperature and is not as cold as it once was.

I have noticed that melt water streams are drying up in early summer, whereas they used to run all summer. I have noticed that there is less precipitation in the summer. It hardly seems to rain anymore. I personally think that the tundra is drying up or melting into the land. I have more observations, but I will stop and listen for now. Thank you, Mr. Chairman.

ANGUTINGUNIQ: Last year was the most dangerous year in my recollection. The sea-ice around our area developed a polynya where one has never been seen. The area was covered with thin ice and it became very dangerous to travel around this area. It was unseasonably warm this winter. We used to get a lot of ice fog, but this year there were hardly any days where the ice fog developed. It was unusual, but the summer was also a lot warmer than previous summers. I recall that quite a number of years ago, freezing rain fell for several days and as a result, the caribou died off.

It is now impossible to dry fish as it is too hot and the fat melts off the skin and the flesh falls off. This is the first time that I have noticed the wind changing directions and shifting throughout the entire blizzard. The wind gusts seem to come from everywhere, not just from one direction anymore. Our cabin was also destroyed. The winds are now unpredictable, stronger and can whip up a storm in no time.

Our water has also changed in characteristics. Whereas the water from the lakes used to be clear and not mineralized, they have become all the same. When you boil water from anywhere now, it turns black without the tea being added. Don't forget that we have to discuss these findings with our descendents so they may avoid these bodies of water that are not conducive to a good cup of tea. I think this is important to pass on this type of knowledge before it becomes irrelevant in this changing environment. Thank you, Mr. Chairman.

KILUKISHUK: I would like to relate my grandmother's sage advice that I believe to be true. In the old days, Inuit

never used to worry about the weather until the white man came into the North. Then the government herded us into the communities and weather became an enemy to those Inuit who lived in these communities as it collided with their clocks and workdays. In those days, when Inuit could not get any animals, it was according to the old taboos that someone would get sick.

The snow on the sea-ice allowed our Elders to be able to forecast the duration of the spring ice and when it would break-up. When the sea-ice is covered with a lot of snow, it will melt earlier than normal and if it hardly has any snow cover on it that means it has become thicker and will not melt as fast.

According to our Elders' knowledge, if Inuit held their feelings inside of them without letting them out, they became sick, due to all of that inner turmoil. As well, when Inuit had a secret, which they held to their bosom, they would go hungry sooner or later. According to my grandmother's advice, when nature acted in a certain manner; that meant that something would go wrong. I noticed those same elements last spring and I knew something bad would happen. A week later, the boat from Rankin Inlet sank and a few days later, there was another accident in Clyde River. In the old days, long rolling wavy clouds meant that there would be a long ice season. That doesn't apply anymore in this day and age. I will stop there for now. Thank you, Mr. Chairman.

MILORTUK: In our area, in Repulse Bay, the wind has changed over the last two years. There has been such an influx of stormy weather that some of the Inuit have not been able to reach their camps outside of the community. It is especially hard on the boat owners. The winds whip up unpredictably without any warning and people have lost their boats. Inuit are starting to become very concerned about the health effects of eating their traditional diet. This is due to the inordinate amount of cancer among our people who subsist on an entirely traditional diet. It seems that cancer causing agents are everywhere, in the air, in the water and in the land and these factors have to be analyzed, especially the water. I would like to know if global warming is a contributing factor in the incidences of cancer amongst our people. I am very concerned and would like some answers. Thank you, Mr. Chairman.

QARPIK: According to the traditional knowledge of our ancestors, we have to keep in mind that they are the benchmarks for the change to our environment that is occurring in Nunavut. They were collected over millennia

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and should be used by the government in looking at the changes to the climate.

The saltwater has changed as well. When the low tide arrives, the tidal zone now dries up. An Elder recently asked me, "I wonder why the tidal flats are no longer wet when the low tide is at its ebb?" He answered his own question and stated, "This means that the sea-ice will not form until a lot later in the fall." He said that if the tidal flats were very dry during low tide that means that ice would not form for a long time.

I believe my Elders and Milortuk's words as well. Our people were always outside in the old days and they had very healthy blood from eating only the traditional diet. Perhaps it is this sedentary lifestyle that is causing Inuit to lose their health and the fact that we are eating more and more of our food from the stores. I believe our blood is not as healthy as our forefathers because we do not have the same lifestyle and diet anymore. Our ancestors were never sitting still and that is why they were extremely healthy. Thank you, Mr. Chairman.

AUDLALUK: I believe that this issue was mentioned previously, but I will proceed. Generally, during the light season, when you hunted on the ice, it was white light. But now, the light seems yellowish.

The traditional route to Pilirarvigjuaq overland via the glaciers is now impassable due to the melting of the glacier. This has exposed house-sized boulders with no passage between them. A landslide that covered the route through the mountain valley blocked the other overland route, which was previously used by our people.

Our cousins from Greenland used to be able to travel to Grise Fiord via dog-team. The route from Alexandria Fiord through Sverdrup Pass is now almost impossible to navigate with a dog team and that is why they are no longer arriving in Grise Fiord.

We are observing the changes to the wind patterns as well. Inuit were aware of the westerly winds that used to bring in the good weather. That does not apply anymore. The westerly winds that used to bring the good weather have shifted.

During the winter, January, February and March were the coldest months in the year. The coldest period now lasts only a month, during parts of January and February.

The polynya that occurs in Jones Sound keeps the weather warm in November and December and contributes to the late ice formation around the sound. There are less strong winds during the winter and these

strong winds are now from one direction only. I will stop there for now, Mr. Chairman. Thank you.

PIJAMINI: We are talking about global warming and its effects on Nunavut's people, land and climate. The saltwater is definitely warmer than previous years. Rarely in the past, did people ever go on the local radio to inform other hunters of dangerous ice conditions, but these last few years, it has become the norm for certain areas to be avoided due to dangerously thin ice. There are areas, which never freeze over, even in the deepest winter cold due to strong currents. The land and its resources are just being re-discovered by our people as we never had the opportunity to question the Elders who used this land prior to the government re-locating Inuit to Ellesmere Island. Even though we have only inhabited the area for 30 years or so, we are noticing changes to the environment.

The glaciers, which used to reach right into the sea, have all receded, some to the point where you can no longer see them. Permanent snow, which used to remain in the shady areas, has started to melt and is no longer available for water in the summer. I stated that I grew up in Pangnirtung and when I finally went back, it had really changed based on my recollection of the land and community before I left for Grise Fiord. The Inuit really depended on this water for their tea, so they no longer have that option for good clear water. Thank you, Mr. Chairman.

UTOK: We lived inland where there were plenty of resources we depended on for our survival. We were taught to glean some of the lands' resources by our Elders, whom had learned from their ancestors and passed it along. I recall that the Elders used to get really old and they would still be moving around.

My recollection about these Elders is that they would use a little sled upon which they would push themselves to the lake to fish. I recall this because it seems like our Elders die earlier and most of the deaths are due to cancer. Cancer seems to be a result of our being herded into houses and changing our lifestyle from one on the land to one in the household.

I believe that the change in temperature between the outside air and the household air causes a lot of sickness. In the old days, our water and food were fresh from the land. In this day and age, with Inuit in the communities, our water is chlorinated and fluorinated and our food is mostly from the store, which can take days to arrive from

the South and with all of the household items emitting pollutants, who knows?

Our Elders used to warn us about holding our feelings inside and not asking for help when overstressed or when feeling overwhelmed, as this would cause hardship and an unfulfilling life. When we were children, we were always asked to go outside as soon as we got up, so that we could go to the washroom, as well as to study the skies. The first question was always, “What does the sky look like?” Sometimes we had to go outside again if we were not clear in our descriptions. When we were outside, we were observed and managed, in terms of our behaviour. With peer pressure and large community populations, our youth lose their cultural pride and engage in criminal activities.

QAUNAQ: At this time, we are being asked to relate our observations in respect to water, ice or glaciers. In our area, the sea currents are getting stronger and stronger every year. Parts of our coastline are rising and the sea is getting shallower in those areas. The ice always comes down from the direction of Igloodik.

We took part in the Hudson Bay Traditional Ecological Knowledge Study and it was proven that the current in Hudson Bay only moves in one direction along the coast. Repulse Bay and Hall Beach have lost a lot of Inuit to cancer. Inuit suspect that the old DEW Line sites are the source of the cancer causing agents.

About 20 years ago, Inuit started to find seals, which came from a southerly direction, with what looked like grease on their coats. It seems that September is the month when seals are in this condition, with this gunky stuff on their backs. When we send the samples to the South for analysis, we never get any answers or information as to what is causing this condition in the seals. We have heard that it is the oil of the seaweeds that grow around here. That is very hard to believe given that there are upwards of 13 ships at a time in the old days. There was an oil spill and the Inuit were asked to clean it up around the community. Nowadays, this type of oil spill would have caused a lot of trouble. During those days, we also used to dig for gravel and sand. We used to find a lot of old tusks, both from walrus and from narwhal. We never find those anymore.

ATTUNGALAK: There are all kinds of worrisome sicknesses now. Just this summer, we got an advisory to wear sunglasses, hats and suntan lotion. This is

worrisome for those of us who have never had to wear this before. If this type of environmental stress were the norm during our ancestors' days, we would never see the really old Elders, who are so old that they cannot walk.

Although we have the advantages of modern medicine and technology, Inuit are getting sicker than before. Is today's lifestyle causing these health problems or is it the concentrations of Inuit in the communities? We are in dire need of research into the effects of houses and household items and the abrupt changes in temperature you experience when going inside or outside of a house.

We never had that type of exposure to all the different chemicals that are within the makeup of any modern house. I am sure that you have all heard that Inuit from the Kivalliq have been told not to eat such and such a part due to heavy concentrations of heavy metals or pollutants. Usually, these are the best parts of the animals.

Our Elders taught, steered and pinpointed the direction we had to follow in regards to all aspects of our lives and it is important that we do our part in disseminating the information which was passed on to us to safeguard and pass to our descendents. Bake Lake has two rivers, which are both big and strong, but the Inuit have noticed that the water in the lake is getting brackish. I don't know whether it is the treatment of the water, but the Inuit who like fresh water have to get their own water for their tea. When a lake has fish, you can usually use the ice for tea, but last year there was a residue in our ice water. This has not occurred this year.

NAUJARLAK: I would like to relate the advice my grandfather gave to me and his other descendents in respect to your lifestyle, the environment and ill health. I was told that in certain times of environmental stress, such as earthquakes or volcanoes, a lot of dust was released into the atmosphere and when people inhaled this, they would get sick. The main source of ill health was due to the breaking of a taboo, or of offending the spirits. I would like to relate this sage piece of advice, should you ever have to experience meagre resources. When we were hunting with no extra rations available, we would bring some blood which would be mixed, only with iceberg ice until it was no longer thick and resembled soup, then we would drink the mixture and all throughout the day, we would not be hungry and could last until one of the hunters had caught a seal. Thank you, Mr. Chairman.

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SUWAKSIORK: I would like to relate what I heard from my forefathers in respect to the environment and our dominion over the resources. The real Inuit, the Inummariit, were one with the environment, the land, the water and the animals. We were dependent on its resources and did not try to do anything that would offend its spirits.

Part of the knowledge we have been provided with is if the winter is chock full of blizzards, then there will be lots of water. If not, then it will be drier. I say this because although we have had a lot of blizzards, our creeks now dry up and I have noticed that the wind is not the same anymore.

I am an Inuk and therefore cannot relate my experiences at all in English. I can say a few words, but I am an Inuk. I am melding these two pieces of advice. The weather was very important to us when we lived off the land and we were inland Inuit. When you saw sundogs and if they did not drop, then you could not eat fish the entire day otherwise the weather would pay you back for disrespecting its wishes. Thank you, Mr. Chairman.

KILABUK: I would like to ask a question to the floor. Is the experience of other Inuit similar in that, when Inuit are drowned, that the following year's ice will be thin? Has this happened? I am asking because our Elders stated that the ice would not be the same for eight years. I am referring to the tragedy in Iqaluit where eight Inuit lost their lives. I know that the last few years, the sea-ice has been uncharacteristically thin in and around that entire area where they were lost. Thank you, Mr. Chairman.

IVALU: That is what Inuit say. The saltwater has definitely warmed up over the last decade or so. In the past, the northern part of our island would collect all of the ice coming in from Fury and Hecla Strait, and this would have a cooling effect on the whole island.

I suspect that the water that we drink, especially if it contains trace elements which are harmful to humans, causes cancer. The fact that we now live in houses is also a contributing factor. When we lived in igloos and sod huts, the temperature was always constant. Since we now have forced air heaters, the air does not circulate as readily. These are contributing factors and should be part of any research into ill health. Thank you, Mr. Chairman.

ANALOK: There is an old sunken boat from the 1940s around here. We found a seal that must have suffered a terrible death when it got stuck inside. Parts of it are now

visible as the water is receding and that is how we found the seal. The land is rising in these parts. We have also noticed that the water levels in the rivers are lower. I myself have caught two fish that had been tagged in the west via my nets. They were tagged in Inuvik, and I am not sure how long they took to get here, but it is obvious that fish travel great distances. Thank you, Mr. Chairman.

ARNAJUAQ: I would like to relate what we used to experience when we were hunting inland. The water on all of the lowlands was yucky and we did not like to drink from it. However, whenever we reached the high areas, then we would find good drinking water. This was how it was, when we would walk for days to reach our summering areas. Thank you, Mr. Chairman.

ANGUTINGUNIQ: I was always told that we should be wary of the sun when it had sundogs as they often brought bad weather. We were told to be wary of them and not to look directly at them for more than an instant. We were also told that when a rainbow appeared continuously for more than a day, that indicated that an Elder tied to the land was now dead.

The signs from the weather were treated with great respect as they had messages for those who listened or saw behind the sheer beauty of these signs. There is also the issue of the hummocks, which used to be really hard on your ankles when you were backpacking caribou. They seemed to have disappeared at that time of the year, but only develop later on.

TATTUINEE: I am supporting the statements made by one of my colleagues in regards to the wavy cloud formation and the impending weather that was signaled by this type of cloud formation. It was true back then, that there would be clear days ahead as these clouds indicated that the winds were pushing the low pressure system out of the area, but these days the following weather system after a day such as we describe is no longer clear. It seems to be followed by another low-pressure system. The high-pressure systems are not as strong as before as they get pushed out right away.

We have also noticed that the saltwater is not as salty anymore, at least in our hunting areas. A further note to the forecasting of weather according to our forefathers knowledge contains this advice. When you were out on the sea hunting seals and when you shot at a seal and missed, if you could hear the echo for a long time after

the shot, that meant that there would be good hunting weather for several days and the length of the echo indicated the number of days it would last. These signals are no longer correct these days. The weather has changed its characteristics. Thank you, Mr. Chairman.

QAUNAQ: I just remembered the question from yesterday. The lakes have grown green fur. I believe it is some kind of algae or waterweed. They are called Amuuqajat and Minuuniyiqtat. They are growing like crazy in our lakes. At present, it is apparently snowing like it rains cats and dogs. Yes, like my friend here, I have heard about the sundogs and moon dogs and how they also mean that an Elder is dead.

According to my grandmother, when the summers are full of lightning and thunder, more than the usual amount of Qallunaat will arrive that fall or year. That is what I was told, and as far as I can tell, that seems to be the case. I will stop there for now, Mr. Chairman.

PIGALAK: The characteristics of our land have changed. When we were out hunting via snowmobile, we noticed that one of the slopes was seeping water and there was mist coming out of the ground. When we approached it, there was something seeping out and it didn't look like just water. It may be from the melting of the permafrost, but I am not certain of this. I would like to know what exactly is seeping out of the ground at that location. Thank you, Mr. Chairman.

IVALU: Our creeks and rivers have that same characteristic when they are freezing over in the fall. When the water hits an ice dam, it wells up over the ice and creates a wet, freezing slush that eventually freezes on top of the original ice layers. In some cases, this layering of seeping water can inundate the soil layer and cause ice underneath the plants. Thank you, Mr. Chairman.

ARNAJUAQ: We have a term for the clouds. They are called ikulliaraaluit. They mean the coming of good weather for a couple of days, but these days they seem to be playing with us as the expected good weather lasts only a day or so now. Thank you, Mr. Chairman.

QAUNAQ: We were always told not to whip seaweed around like a dog whip. Otherwise, the weather would change for the worst. It would last for days depending on how much it was used as a whip by an Inuk. Thank you, Mr. Chairman.

ANGUTINGUNIQ: Seaweeds and willows were the species that we were not allowed to use as a whip as it would have dire consequences on the good weather we were experiencing. I have noticed that there are several lakes which do not freeze over because the water is being warmed by a trickle of hot water from the depths of the earth. I have seen the outlet near the area, which never freezes over. Thank you, Mr. Chairman.

MILORTUK: When we were growing up in our youth, I do not recall any periods where it was windy for more than two days. It felt like most of the time, we had very good clear weather with hardly a breath of wind. I say this because today, it seems like it is always windy, with hardly any calm, clear days. Of all of the winters I have experienced, this winter was the stormiest and windiest in all of my recollections about weather. Thank you, Mr. Chairman.

PIJAMINI: We used to be scolded all the time for the improper use of plants and other resources, mainly mushrooms as this would bring fog. Thank you, Mr. Chairman.

QARPIK: The statement that was made by one of my colleagues, I wish to elaborate upon it. Our winds are generally generated from the glaciers, which are channeled by the fiords to our community. Most of the time, when a wind whips up in the morning that means that the wind will die in the evening. If the ozone layer is indeed being depleted, then that means that the glaciers will melt. As the weather warms up and collides with cold air, that is how wind is generated and if we get more warm weather, that will mean more winds and stronger ones too. We are now getting wind from all directions as opposed to the fiord channeling the winds down. If it does get warmer, we will have really bad weather, like we see on the TV. Thank you, Mr. Chairman.

TATTUINEE: I would like to state that the issue of the warming climate is affecting us all. The weather has been so chaotic and unpredictable that we are having the toughest year in terms of losing young Inuit to nature's wrath. It now blows out of seemingly nothing and the young people are paying the price. Thank you, Mr. Chairman.

ATTUNGALAK: Definitely true. This winter was the busiest season for our search and rescue people in Baker Lake. It has certainly gone down a different lane than what we have come to expect. I have noticed and now reminisce about the calm, clear days with the surface of

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the water mirror-like for days on end. Usually, this used to last about three days, but today it is rare for the calm, clear days to be strung together now. The wind has lost its bearings as well. It now seems confused about which direction it should be blowing and it quickly shifts to another direction every few minutes.

Thank you, Mr. Chairman.

UTOK: In deep winter, it used to get so cold that when you walked on the snow, it would creak and squeak underfoot. I have noticed that this doesn't occur anymore even though the temperature seems to be hovering around the same level. It used to snow heavily during the fall, prior to the sea-ice forming. It doesn't behave that way anymore and when the ice is deteriorating during the spring, it now gets sheared off in huge blocks and chunks, thereby cutting off the Inuit routes on the sea-ice. Thank you, Mr. Chairman.

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Prior to the break for the second day, James Eetoolook asked the facilitator to reiterate the points that were made throughout the day. The points that were highlighted included the changes to the weather and the environment, the water, ice and snow, as well as the effects on the traditional practices of the Inuit.

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ATTUNGALAK: We can see the forecasted changes to the climate in the Bible's scriptures. It states that in the end days, the weather will change. It would be good to get some information, either a presentation and as public knowledge literature, because Inuit want to know what is causing and effecting the climate change we are seeing in our lands. It is important that Inuit know what is happening so that we can at least prepare for the changes that are forecasted by the scientists. It is vitally important that the Elders get the information, so that they can integrate that with their traditional knowledge and make the necessary adjustments. The real Inuit have to know. We have to have public relations officers who can travel to the communities and explain what is causing these changes to our land and weather. It is important because we can then prepare the delegates for meetings on the environment on both the national level and the international level. We have to tell the world what their problems are doing to our environment through pollution and changes to the climate. It could affect their lives too, if all of our ice melts. Thank you, Mr. Chairman.

ARRAGUTAINAQ: Inuit have always afforded the outside world its dues when it comes to researchers and their findings. We have made doctors out of mere researchers whether it is in anthropology, archaeology, sociology or other theologies. How can ITC (now ITK) disseminate the information that they are spouting? Inuit need to hear it in the communities. When NTI had a meeting, there was a big blizzard that delayed the meeting. We are in dire need of information officers in relation to this change in our climate. We need ITC to try and delineate the Inuit portion from the monies given to the Aboriginal peoples. We are not part of the Indians and Metis and therefore we should be getting more funding separate from them. We have to get more funding for Inuit knowledge studies because if we do not have our ancestral knowledge transcribed on paper, then scientists will continue to scoff at our knowledge. It is equivalent to science, if not more reality based, as we have honed it over millennia. Thank you, Mr. Chairman.

ANGUTINGUNIQ: I was wondering about the garbage dumps, which are burned in the communities. They include animal skins and other refuse thrown out by the residents. Our ancestors always told us never to burn birds' skins as the birds are a part of nature and she would not be happy and the result would be bad weather. Animal skins are like that, too. The GN should be initiating a recycling program for skins.

KILABUK: I would like to make a statement on that. When we are told to go to the government buildings to deal with our issues, it is hard to go when you are not made to feel welcome. All of the government offices are under lock and key and this is not conducive for Inuit hunters who wish to meet with the government staff.

AQPIK: We are discussing the bread and butter issues, which affect all communities in Nunavut. I have heard that the solar panels, which are used in some communities, are cheaper than diesel for heating houses. The forced air heating systems in use are not exactly healthy, especially for those who have lung complications. The health officials are insisting that they be housed in units with boilers, as this does not use forced air. The air is always full of dust and other pollutants and I think that contributes to some of the health issues facing Inuit today. Thank you, Mr. Chairman.

ANGUTINGUNIQ: There are a multitude of other sayings we heard from our Elders in respect to the environment, the animals, the weather, life and so on. They practiced this lifestyle over millennia and formed certain “scriptures” that they had to adhere to. As long as you practiced proper stewardship over your lands, the land would have vegetation and the animals would return when the land had enough resources to sustain them. These and other practices ensured that Inuit had enough to survive on. Thank you, Mr. Chairman.

PIGALAK: I have been speaking with Peter Kamingoak over the last few days on this climate change issue. The Elders have made their observations and their statements support the theory that the Earth has tilted slightly in its axis. This may not be due to global warming, but it could help explain some of the changes to the weather patterns. This is collaborated by the other delegates, as to their observations on the angle and placement of the sun on certain dates in the year. Thank you, Mr. Chairman.

PIJAMINI: I have lived in the North all of my life. I initially grew up in Pangnirtung, where I then moved to Grise Fiord in 1962. The Inuit who have been there since the 1950s are aware of these changes in the placement and angle of the sun, especially the dark season. It used to be completely dark during the dark season, when there was no moonlight or starlight available. Nowadays, even during this period, there is now a band of light during noon. This never used to happen before. The winds have shifted as well, probably due to this tilt. Thank you, Mr. Chairman.

NOVALINGA: Inuit never burned any skins left over out of respect for the animal or bird. If this saying is applicable all over the earth, I just thought of all the chickens that are slaughtered for food all over the world. If they are burning the skins, then that is sacrilegious to Mother Earth. The Earth does not appear to have moved, but the axis is off its usual place according to our traditional Inuit seasonal calendars. Thank you, Mr. Chairman.

QAUNAQ: There are two types of Northerners now -- those of us who grew up entirely on the land and those who were born in the communities or cities and who are not connected to the land as we are. We see the weather everyday. It is difficult to listen to someone who is not connected to nature talk about the weather.

ASHEVAK: There are things that can help a situation and others which can make a problem worse. This is right before our eyes and we are all aware that change is happening, but knowing that we are the people who stand to be the most affected is scary. It is scary to know that there are that many pollutants in our environment.

We cannot make a change in this type of circumstance knowing that our health risk is greater with these pollutants in our environment. There have been many cases where Inuit in the communities were told that they were okay, all the while they had cancer and it wasn't until it was too late that they discovered the damage. We should research the cause and effects of these pollutants because we are the ones who are paying for the other countries' mistakes with our lives. It was very rare to see any kind of cancer in our youth. It is only the last 20 years or so that cancers have ravaged Inuit, so there is probably some correlation between this pollution and the health changes in the Inuit people. Thank you, Mr. Chairman.

ATTUNGALAK: I would like to make two points in regards to this issue. Inuit have moved into the communities only recently, in the last 30 years and for some families, even up to a few years ago. We are still very attached to the land of our birth and continue to monitor the annual cycles. All of our accumulated knowledge indicates that there are big changes afoot. Even our practices now are disrespectful of our land. We should gather the bones and skins in a communal area, with no burning, only the natural decomposition of these materials back to the earth should be allowed. These are not just taboos or shamanistic practices. We have to manage our resources very carefully. These are cultural values passed down for millennia and we wish to retain them for our descendants. Thank you, Mr. Chairman.

PIJAMINI: I would like to state my support for Jose's stance on some of the issues surrounding climate change. In relation to the change in the angles of the sun, and what I have personally observed over the years, I would like to relate this story. I was asked to participate in a marketing tour of Ellesmere Island in Europe with Basil Jesudasen and one of our stops included India and the first iron mill made in the country. Apparently it had been aligned with the stars at the summer solstice. It has apparently been askew for many years and is no longer aligned with the stars. Thank you, Mr. Chairman.

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IGUTSAQ: In respect to the differences in the scientific and Inuit beliefs, over the last two years, the polar bear biologists have been maintaining that the population is decreasing rapidly. This is their prognosis after a population study that is only applied during the warm season. Many times when Inuit have seen a helicopter doing a population survey, they have noticed bears that had been hiding until the helicopter flew past. A hunter harvested a bear that had not been noticed by the surveyors, even though it was situated directly along their flight path. Gjoa Haven hunters harvested two bears in this same manner and they noted that shortly after the ice formed, there were hundreds of tracks on the sea-ice, stemming from bears of all ages and sizes. Some people cannot accept the words of the scientists because they are not out there seeing with their own eyes the population of the bears.

That seems to be the scientific community's stance as well. They cannot accept the words of Inuit alone, they have to see it for themselves. They should incorporate some type of ground assistance in the surveys, which would account for a more complete survey and would generate much needed financial assistance to the hunters who are losing their sports hunt funding. Thank you, Mr. Chairman.

MILLS (FACILITATOR): I just wanted to relate the top ten changes we have been hearing the Elders alluding to as part of climate change in Nunavut.

TOP 10 GLOBAL WARMING MESSAGES

10. Winters are getting shorter, summers are getting longer.
9. We are losing the ice in our glaciers and fiords. Permafrost is melting. We see vegetation growing where ice used to be.
8. The sun's rays are increasing. Inuit need stronger suntan lotion.
7. We now see birds and wildlife that we have never seen before. Ravens are everywhere. Snow geese are too numerous.
6. Heavier winds can be dangerous, be cautious. Because of global warming we could become subject to catastrophes like hurricanes.
5. Caribou meat tastes different now and there are concerns about contaminants and diseases. We send samples out to labs but never get results back. Caribou hides are thinner.

4. More Inuit are dying from cancers, including skin cancers. We have to find out if this is from mining or contaminants or from climate change.
3. Fall ice forms later and may not be safe to travel on until Christmas.
2. If trends continue, Hudson Bay (and other areas) may never freeze over. The impact on wildlife will be tremendous.
1. Inuit have to be prepared for the impacts of global warming.

ARREAK (FACILITATOR): In addition to Hal's list, other concerns expressed by the Elders include: water levels getting lower, isostatic rebounding, the floe-edge is receding faster and more ships are traveling through the Northwest Passage due to the lower ice coverage in recent years.

AQPIK: I would like to state that due to the sunrays being stronger, Inuit are going to have to start using sunscreen lotion. Can they make it less irritating to the eyes? At present, a lot of Inuit are not wearing it due to the irritation they get from the lotions. Thank you, Mr. Chairman.

MILORTUK: I want to discuss the issue of the winds getting stronger and more unpredictable in our areas. We can no longer just accept these changes and make a concerted effort to protect our equipment in the communities in light of the changes to our weather patterns. The wind now whips up out of any direction and this presents a problem for boat owners. I think that NTI should look at financing some sort of hunting equipment insurance coverage for Inuit hunters. I feel that this should be a priority especially as the climate changes. Thank you, Mr. Chairman.

QARPIK: This is a very serious issue, this climate change. Just in listening to the comments made during these discussions leads me to believe that the changes will not affect all the communities at the same time. We should prepare for a time when other communities in Nunavut no longer have the sea-ice to hunt from. Things like community trade in country foods should be considered. Our future is not going away, so we have to prepare to the best of our ability and face the challenges coming our way. Perhaps we have to revise our thinking. For example, the Bible's scriptures about the last days. We are living it and there is no way around it, so we have to prepare for it

as well as trying to comply with the behavioural changes that are advocated in them. The ozone layer has a hole and the scientists know this and the people of the North now accept it. Thank you, Mr. Chairman.

KILUKISHUK: I think about the consequences that result from the actions done with the inadequate knowledge base of the younger people or visitors to our lands. Prior to the government civil servants arrival in the North, Inuit ran their lives in accordance with the time honoured traditional practices. They knew what actions would result in bodily ailments and we were always told not to commit these actions and we would be admonished if we had inadvertently committed these actions. This resulted in a healthy lifestyle, which was inline with the natural laws Inuit followed. These were the laws of the Inummariit, which had to be adhered to. I believe that nature reflects the moods of the people and some of these ancient taboos are listed in the Bible. Personally I think that cigarettes are only the third leading cause of cancer. Here are some of the things I am observing in our community that can lead to problems with our health.

1. The unfettered ability today to follow one's desires is the leading cause of illnesses.

2. AIDS and other sexual diseases are a result of people not tempering their carnal desires.

I would ask why it has come around and who is to blame? As Inuit, if we had followed the ancient traditional laws, our present circumstances would be better. Because of our sins, we are causing the deterioration of the environment to proceed faster. Thank you, Mr. Chairman.

ATTUNGALAK: Here is my theory on the climate change issue and the deterioration of the Inuit health in general. I have never really experienced the incapacitation of the sick, but I have seen those Inuit who have been sent to the hospitals, only to return when all hope is lost. If there was some way to teach our youth the dangerous aspects of this climatic chaos, I am all for it. We have to impart the knowledge for our youth to survive in this new and chaotic world and we have to explore all avenues to enable this younger generation to amalgamate the new reality with the old cultural knowledge of our forefathers.

The settlements, when they were first built, were rather haphazard in their design. Nowadays, they use metal pilings and most of the houses now face the existing prevailing wind, so that the entranceways are supposed

to be protected from the wind. This robs the house of heat as most of the house is insulated to the same level and there is no consideration of the walls that bear the brunt of the winter winds. The house shudders during strong winds. I think that there has to be more research into better pilings and research into the environmental realities of each community, so that our houses can be better adapted to our disparate local climates.

On top of that, I believe that our water delivery and quality should be reviewed. It is not to the Elders liking to drink water that has been chlorinated or fluorinated, as they never grew up with chemicals added to their water. Some waters should also be off limits for consumption as they have heavy metals and other chemicals bleached from the land naturally. As an example, apple juice is made from apples and it is subjected to strict laws as to its ingredients. That is how municipal services should be reviewed, in my opinion. There have to be better plans as to the services and facilities that are provided to the communities and there needs to be more input from the Elders, both organizationally and personally. I shall stop there, thank you, Mr. Chairman.

KILABUK: While we are in the recommendations stage, I have wanted to see a wildlife specimen research facility in Nunavut, for all of the samples that are sent out by Inuit, to be analyzed in Nunavut. There have been other companies, such as Shimano, who came into Iqaluit and stated that they had these funds available for habitat protection projects.

There should be more research into snowmobiles and how they can be improved to be more of an all terrain vehicle. Insurance is possible for snowmobiles, but it is impossible to get insurance for a boat under 22 feet. There should be compensation for flood damage, especially during full moon tidal phases. Thank you, Mr. Chairman.

PIGALAK: The house foundations have to be inspected as the permafrost is starting to melt and most of the pads for the houses are made of sand. The house was subjected to such forces that it moved on its foundations due to the permafrost buckling. We may have to look at drilling pilings if the permafrost is melting.

The wind has shifted and the weather patterns are worse. Our equipment has been lost due to the severity of the storms, as we have no previous known storms of that

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intensity and boats were pulled from their berths on the land. The boat was properly anchored, but apparently it filled with water and overturned. During the waves this fall, the community water reservoir was breached and we ended up with brackish water. The waves were actually washing over into the reservoir. Most of the people immediately switched to watering their own containers for tea and other drinking water. There will be a lot of work required to meet the environmental challenges we will face as the permafrost melts, the weather patterns worsen and sea level rises. I will stop there for now, Mr. Chairman.

ANALOK: One thing that is not being mentioned in this discussion about the climate change issue. Our Elders used to talk about how the weather would change, due to the world's population following their own wishes and desires.

The Elders no longer like to make dry meat because the sun is too hot and it cooks the meat. This was predicted in the Bible and I believe we are experiencing this. We cannot change what the Creator has planned for us. Thank you, Mr. Chairman.

NAUJARLAK: I would like to comment on what I observe during clear days. It used to be a deep, light, blue sky for as far as the eye could see. I am wondering if the scientists could answer the question as to why the sky has changed its hue and colour on the calm, clear days of spring. I believe that it is the pollution from the cars, trucks, snowmobiles and power plants that has affected the hue and colour of the sky. I believe that it is intermixing with the atmosphere and dirtying the colour. It is like humans are introducing their own dirty atmosphere by poisoning the air. Although the sky seems endless, the countless humans emitting pollution in small doses everywhere is affecting the sky. Thank you, Mr. Chairman.

IVALU: Everything that is being said is truthful, especially in the statements about the respect for the skins and other left over materials. This stems from our belief that an animal will return to life if the unused skins and bones are left in a good habitable area. We have to be vigilant about the practices that are disrespectful of nature. I personally have seen the predicted outcome when this was intentionally done as a show of disrespect. I was born in the fall when the land had snow cover, during a fall storm. I would try to go outside without a shirt, but I was always admonished not to go outside.

When a person is born on a good day, they were asked to go outside without their shirt or pants so that the bad weather would go away. On the opposite side of the spectrum, Inuit who were born on windy or stormy days were always told not to go out without clothing on.

One time I intentionally went out without a shirt on, during a very calm, clear day. Within about an hour after this incident, the weather changed and it started snowing and blowing. This was an indication that I was born on such a day. I have seen it for myself. This type of unintentional disrespect could cost someone his or her life, so we have to remember what type of weather existed during our birth. Thank you, Mr. Chairman.

ASHEVAK: I would like to return briefly to the question as to how we should be preparing our communities for the inevitable changes that are going to happen to us. Even if we are unprepared to say that things are changing, we have to be objective because if we recognize it later on, it will be too late. Whenever a strong wind comes to Cape Dorset, the people get scared easily, because we are not used to such strong winds. That is why we must prepare now, before the weather changes and becomes dangerous to all inhabitants of a community.

We must ensure that there is always a safe haven for those people who wish to flee from a storm. Perhaps we should look at something like bomb shelters, dug into the rock, to ensure that there is a place for people to flee to.

Another danger is for those communities, which have high, steep slopes that can produce avalanches. That is another threat, which would require that all houses have metal pilings and other safety measures to ensure structural integrity in case of a storm or other natural calamities. We also have to ensure that all communities have a safe boat harbour. Without protection, a lot of boats have been lost in our community. We have to build better wharves. If we aren't prepared, we could get into a lot of trouble, especially if the summers are going to become longer.

We have to make wharves and docks for our boats, so that we can rest easier knowing our boats are safe. We are aware of the financial strains that it would place upon our government, but our people have to be safe. If you remember the story of Noah and his ark, we should be reminded that his people laughed at him up until the day that the doors closed and God let loose the flood waters. Insurance premiums can be dealt with if there is

enough political pressure and if there are enough people getting this insurance. Thank you, Mr. Chairman.

QARPIK: We have a history of very strong winds in our community of Pangnirtung, therefore some of the houses are tied down with strong cables to prevent their flying off into the fiord. When the winds are really strong, all the houses are shaking and moving and if it weren't for the fact that the house is tied down via cable, I am sure it would break into pieces. Thank you, Mr. Chairman.

TATTUINEE: I would recommend that the windows that are low enough for children to look through be more than two panes of glass with some sort of anti-radiation block. The windows should also be able to open and close in winter. The houses should be revised so that they are better suited for our climate. Thank you, Mr. Chairman.

PIJAMINI: I believe that in those communities that have a history of really strong winds, that the houses should be tied down to prevent damage. They have to design the schools better as they are usually the facility of choice for the community to gather into. The area facing the prevailing wind should have fewer windows along with an emergency generator. The other point I wish to support is the one about the communities requiring better boat facilities. We have lost quite a number of canoes, due to the fact that there is no place for the boats during a storm. Thank you, Mr. Chairman.

ARNAJUAQ: The delegates have pretty much emptied the issues I had cached in my brain and almost all of them have been mentioned. Some Inuit are dependent on only land mammals, others are dependent only on marine mammals and some of us are dependent on both land and marine mammals. I recall that when I was young, I was asked to shoot a seal in July on the sea ice. We do not have very strong winds and therefore do not have a landing area. I would also recommend that wharves and docks be made, especially if our summer months are going to become longer.

ATTUNGALAK: Yesterday, we were talking a bit about food preparation and how the climate change has affected us. We should look at building facilities that would be available for the Elders to prepare their traditional foods. The reasoning behind this is if the funding is made available for building a facility, we can build it and then leave it for the younger generations. We need to utilize our Elders' knowledge better, especially for planning the

design of a meat processing facility for the preparation of our traditional foods. Thank you, Mr. Chairman.

IGUTSAQ: The housing units that are presently constructed have to be under better standards, to better be able to meet the rigours of the Arctic climate, especially if it is changing. A lot of the old foundations are tilting and breaking and this costs a lot of money to repair. The I-beam flooring can really cut down on the decay factor of the floors. We should be using better materials to build our houses so that they can last longer and suffer less damage during storms. Thank you, Mr. Chairman.

QAUNAQ: This summer, every time a strong wind whipped up, most of the anchor lines would be snapped. The anchoring points should be repaired or fixed properly, so that they are not broken every time a storm whips up. There has to be emergency standby generators available for the smaller communities. The Hamlet office, schools and nursing stations should have these necessities. In larger communities, they can prepare working on emergency plans and emergency equipment to meet their needs in an emergency.

Presently, all the communities have a small community freezer. Often, it is overflowing with meat and some people have no room for their food. They should be investing in large community freezers, especially as our population is increasing. If the climate keeps changing, the communities will have to buy large freezers. I would also recommend that all communities start planning for some sort of disaster plan. Thank you, Mr. Chairman.

KOIHOK: Our ancestors only carried light objects, as they had no cargo carrying capability other than their dogs and themselves. The only things that they carried were what they needed for survival. Because they only carried what they needed, it seems they lived less stressful lives. Our ancestors were in tune with nature. They did not worry excessively about the future, other than planning for the winter ahead. This meant that sometimes we hunted all day and night to ensure that we had enough food for the upcoming days as well as caching the remaining food for the winter. Our ancestors held feasts and celebrated when they had enough food for themselves plus enough cached for the winter. Other things, such as the return of the sun and birds, were days of rejoicing. It seemed that the weather was mostly fine back then, because people did not worry about the weather.

Today, our weather seems heavy and brooding, just like the minds of the people who are subjected to tremendous

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strain. I notice that people are complaining about the weather. We were not allowed to do so, as this would affect the upcoming weather patterns. It is as if the weather has become a burden on the Inuit and as a result, the weather has become unpredictable and brooding. That is why we were never allowed to complain about the present weather, because we would give it strength by doing so. Another custom known was when people died or drowned, then there would be bad weather for several weeks, for nature would be mourning her loss.

I am stating my concerns because the weather issues weigh heavily on us and we are getting stuck more often out on the land, due to the bad weather. Our ancestors often walked for days and they did not worry about the weather. Perhaps it is our use of machines and clocks that has resulted in this change in mentality of the Inuit in the communities. We have to remind ourselves that not a soul controls the weather, except for our Creator. That brings me to the third concern. My Elders always asked us to share with other Inuit families, because if you did not do so, then the weather would get bad, due to our lack of respect and love which was expressed in sharing of the catch. That has to be continued. Thank you, Mr. Chairman.

ANGUTINGUNIQ: We seem to be concentrating on the construction materials or the methods of construction of our homes. I want it noted that since the windows are low on our houses that sooner or later a child could fall to the ground. Some of the things we are not allowed to do are being undertaken because some of these actions are dangerous to people's health, according to our forefathers. We could have another conference just on the taboos and other actions that were not allowed in our days and which are being broached in this day and age. Some of the young people have to be told what they should not be doing as this has consequences to one's life. Thank you, Mr. Chairman.

AQPIK: I would like to see metal pilings for all the houses that are built in the future, and those houses that had metal pilings filled with concrete were the best and most stable foundations. When they use a gravel pad that means that the freezing and thawing of the ground affects the foundations. Thank you, Mr. Chairman.

PIGALAK: We should not forget that the climate change and global warming will affect our recreation facilities. We are thankful for the existing facilities, but we will have to look at artificial ice, due to the earlier melt and later

freezing periods. They should look at this from a long-term perspective and start planning now for the inevitable changes that are occurring in this day and age. They should include new plans for the changing of the land, including pilings and other types of foundations. The present style of construction takes too much money and they use a lot of gravel and sand. We should not forget wharves and docks for the communities. Thank you, Mr. Chairman.

QAUNAQ: The cable that was powering one of the navigation lights broke in our area. They should have generators or be self-powered. The communities should also keep those old fire pots as an emergency light for when the power goes out in the community and a plane needs to land. Thank you, Mr. Chairman.

IGUTSAQ: The communities should also each have a satellite phone for emergencies, especially during storms or blizzards. Thank you, Mr. Chairman.

UTOK: The firefighters should not be forgotten as the climate change could affect their ability to fight a fire, due to large snowdrifts that are occurring in the winter. If this was the case, the fire trucks could not reach a house on fire. It would be up to the people to fight fire with extinguishers. Thank you, Mr. Chairman.

NOVALINGA: They should look at using sun cells or photovoltaic cells to power some of the facilities. There would be a period of about two months where they would have to depend on some other source of power, but this would cut down on the amount of diesel required for electricity generation.

MILORTUK: Country foods, such as smaller animals should be researched and other food items should be checked for levels of pollutants. This research should be done so that our people will know what effect eating our country food has on them. Thank you, Mr. Chairman.

At this point, there were no more people on the list. James Eetoolook asked for closing comments from the various leaders in attendance. Everybody made a short statement, and then Hal Mills and Malachi Arreak (the facilitators) worked on a list of recommendations that had been identified by the delegation.

RECOMMENDATIONS BY ELDERS

1. Lotions should be made better
2. Insurance for hunting equipment
3. Trading country foods
4. Stronger metal pilings – better foundation research
5. Cabling houses
6. Cancer risk awareness
7. Water supply – many concerns and issues raised
8. Nunavut research facility, quick turn around of information
9. Disaster compensation
10. Disaster centres with generators
11. Community wharves, docking areas
12. Communities should prioritize emergency safety precautions with the Government of Nunavut
13. Windows should be triple glazed – colour shift for sunray protection
14. Electrical wire stabilization
15. Pass on Elders knowledge to researchers and young Inuit
16. Preserve/cache wildlife with meat plants, larger community freezers
17. Find alternative ways to generate power
18. A conference on physical lifestyles, taboos should be held
19. Artificial ice for arenas