

**PETITION TO THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS
SEEKING RELIEF FROM VIOLATIONS OF THE RIGHTS OF
ARCTIC ATHABASKAN PEOPLES
RESULTING FROM RAPID ARCTIC WARMING AND MELTING
CAUSED BY EMISSIONS OF BLACK CARBON BY CANADA**

**PETITION TO THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS
SEEKING RELIEF FROM VIOLATIONS OF THE RIGHTS OF
ARCTIC ATHABASKAN PEOPLES
RESULTING FROM RAPID ARCTIC WARMING AND MELTING
CAUSED BY EMISSIONS OF BLACK CARBON BY CANADA**

SUBMITTED BY THE ARCTIC ATHABASKAN COUNCIL
ON BEHALF OF ALL ARCTIC ATHABASKAN PEOPLES OF THE ARCTIC REGIONS OF CANADA
AND THE UNITED STATES, INCLUDING:

Grand Chief Ruth Massie, Lake Laberge, Yukon, Canada
Chief Bill Erasmus, Yellowknife, Northwest Territories, Canada
Chief Michael Stickman, Nulato, Alaska, United States
Chief Gary Harrison, Chickaloon, Alaska, United States

Petitioners' Legal Representatives:

Erika Rosenthal
Earthjustice
1625 Massachusetts Ave., NW Suite 702
Washington, DC 20036
Phone: +1.202.797.5232
Email: erosenthal@earthjustice.org

Hugh S. Wilkins
Ecojustice Canada
Centre for Green Cities
401-550 Bayview Avenue
Toronto, Ontario
M4W 3X8 Canada
Phone: +1.416.368.7533
Email: hwilkins@ecojustice.ca

Martin Wagner
Abby Rubinson
Earthjustice
50 California St., Suite 500
San Francisco, CA 94111
Phone: +1.415.217.2000
Email: mwanger@earthjustice.org

23 APRIL 2013

CONTENTS

I. SUMMARY OF THE PETITION.....	1
II. JURISDICTION OF THE COMMISSION	8
III. PETITIONERS AND INDIVIDUALS WHOSE RIGHTS HAVE BEEN VIOLATED....	8
IV. FACTS: RAPID ARCTIC WARMING CAUSED IN PART BY EMISSIONS OF BLACK CARBON, A SHORT-LIVED CLIMATE POLLUTANT, HARMS THE ARCTIC AND ARCTIC ATHABASKAN PEOPLES	11
A. Black Carbon Accelerates Warming and Melting in the Arctic.....	11
1. Black carbon is a component of fine particle pollution (PM _{2.5}) —a conventional air pollutant	13
2. Reductions in long-lived CO ₂ are necessary but not sufficient for the Arctic: Reduction of short-lived climate pollutant emissions like black carbon are essential.....	14
3. Reducing black carbon can slow Arctic warming in the near term	14
4. Black carbon emissions from within and near the arctic are more Potent Climate Forcers	15
5. Black carbon emissions reductions can be implemented now.....	16
6. Arctic warming adversely affects the region and the world	16
B. Canada’s Poor and Fragmented Regulation of Black Carbon.....	17
1. Canada’s Federal PM _{2.5} regulations are insufficient to reduce black carbon emissions.....	18
2. Provincial PM _{2.5} regulations are insufficient and fragmented	19
C. Arctic Athabaskan Peoples.....	21
1. Arctic Athabaskan Traditional Cultural and Subsistence Practices.....	23
2. Arctic Athabaskan Observations of Climate Change	24
D. Impacts of Arctic Warming and Melting in Arctic Athabaskan Territories.....	27
1. Rising Temperatures	28
2. Increased Precipitation, but Decreased Snow and Ice	30
3. Thawing Permafrost: Ground Slumping, Riverbank Erosion, Wetland Drainage, and Impacts on Freshwater Ecosystems and Fish	32
4. Increasing Forest Fires and Insect Infestations in Boreal Forests.....	35
5. Range Shifts of Species Used for Athabaskan Food and Health	36
a. Impacts on Caribou	38
b. Impacts on other species used as traditional foods	41
6. Impacts on Traditional Knowledge and Culture	42
7. Impacts on Traditional Foods and Diet/Health.....	45

8. Other Impacts on Arctic Athabaskan Peoples’ Health	46
9. Infrastructure Damage	47
V. VIOLATIONS: CANADA IS RESPONSIBLE FOR VIOLATIONS OF ARCTIC ATHABASKAN PEOPLES’ HUMAN RIGHTS CAUSED BY ACCELERATED ARCTIC WARMING DUE TO POORLY REGULATED EMISSIONS OF BLACK CARBON IN CANADA.....	49
A. The American Declaration Should Be Applied in the Context of Relevant International Norms and Principles	49
1. The American Convention on Human Rights Bears on Interpretation of the American Declaration	49
2. Developments in Other International Human Rights Systems Should Be Taken into Account when Interpreting and Applying the American Declaration.....	50
3. International Environmental Norms and Principles Are Relevant to the Interpretation and Application of the American Declaration	51
a. Canada is violating its obligation to avoid transboundary harm.....	52
b. Canada is violating its obligation to apply the precautionary principle	52
4. Canada Has a Duty to Remedy Breaches of its International Obligations ..	53
B. Protection of Arctic Athabaskan Peoples’ Human Rights Requires Protection of the Environment	54
1. Environmental Harm Can Violate Human Rights and Place a Positive Obligation on States to Protect Against Such Harm.....	54
2. The Human Rights that are Implicated by Environmental Harm are Often Linked and Interdependent	56
3. The Human Rights of Arctic Athabaskan Peoples Should Be Interpreted in the Context of Indigenous Culture and History, which Requires Protection of Their Land and Environment.....	57
C. The Effects of Black Carbon in the Arctic Violate Arctic Athabaskan Peoples’ Human Rights.....	57
1. The Effects of Black Carbon in the Arctic Violate Arctic Athabaskan Peoples’ Right to Enjoy the Benefits of Their Culture	58
a. The American Declaration guarantees Arctic Athabaskan peoples’ right to the benefits of culture.....	58
b. The effects of black carbon in the Arctic violate Arctic Athabaskan peoples’ right to enjoy the benefits of their culture	60
2. The Effects of Black Carbon in the Arctic Violate Arctic Athabaskan Peoples’ Right to Property.....	63

a.	The American Declaration guarantees Arctic Athabaskan peoples’ right to property	64
b.	The effects of black carbon in the Arctic violate Arctic Athabaskan peoples’ right to property.....	67
3.	The Effects of Black Carbon in the Arctic Violate Arctic Athabaskan Peoples’ Right to the Preservation of Health.....	69
a.	The American Declaration guarantees Arctic Athabaskan peoples’ right to the preservation of health	69
b.	The effects of black carbon in the Arctic violate Arctic Athabaskan peoples’ right to the preservation of health.....	71
4.	The Effects of Black Carbon in the Arctic Violates Arctic Athabaskan Peoples’ Right to Their Own Means of Subsistence	74
a.	The American Declaration guarantees Arctic Athabaskan peoples’ right to their own means of subsistence	74
b.	The effects of black carbon in the Arctic violate Arctic Athabaskan peoples’ right to their own means of subsistence	75
VI. EXCEPTION TO EXHAUSTION OF DOMESTIC REMEDIES		78
A.	Pursuing remedies at the domestic level would be unduly burdensome for Arctic Athabaskan peoples.....	79
1.	Multiplicity of regulations at the provincial and federal levels	80
2.	Regulations in numerous sectors	80
3.	Financial burden.....	81
B.	Canadian law does not provide an adequate or effective remedy for the harms caused by the emission of black carbon.	81
1.	Environmental law	81
2.	Tort law	82
3.	Constitutional law	82
C.	Canadian law does not provide an adequate and effective remedy for the rights to culture, property, health, and own means of subsistence.	83
1.	Right to culture	83
2.	Right to property	83
3.	Right to health.....	84
4.	Right to their own means of subsistence.....	84
VII. TIMELINESS.....		84
VIII. ABSENCE OF PARALLEL INTERNATIONAL PROCEEDINGS		86
IX. REQUEST FOR RELIEF.....		86

PETITION TO THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS
SEEKING RELIEF FROM VIOLATIONS OF THE RIGHTS OF
ARCTIC ATHABASKAN PEOPLES
RESULTING FROM RAPID ARCTIC WARMING AND MELTING
CAUSED BY EMISSIONS OF BLACK CARBON BY CANADA

I. SUMMARY OF THE PETITION

Introduction

Black carbon pollution from Canada is harming the Arctic environment and ecosystems upon which indigenous Arctic Athabaskan peoples depend for their lives, livelihoods, and culture. The Arctic is warming and melting at an alarming rate—at least twice as fast as in the rest of the world. Canada’s failure to implement available black carbon emissions reduction measures that could slow the warming and melting that causes these harms violates many rights guaranteed to the Athabaskans in the Inter-American human rights system. Fortunately, measures readily available to the Canadian government can substantially slow Arctic warming and melting.

In this petition, the Athabaskan peoples of the Arctic regions of Canada and the United States respectfully request the assistance of the Inter-American Commission on Human Rights to obtain relief from these violations resulting from the acts and omissions of Canada.

The Arctic Athabaskan Peoples

For 10,000 years, Athabaskan peoples have lived in the Yukon, Northwest Territories, northern British Columbia, Alberta, Saskatchewan, and Manitoba, Canada, and in Alaska. While their ancestors were semi-nomadic, most Arctic Athabaskan peoples now live in settlements with small populations. Athabaskan peoples include the Gwich’in, Dene, Dogrib, Sahtu, Den Cho, Tanana, Kaska and many other communities.

Athabaskan traditions, food sources, and livelihoods are inextricably tied to the ecosystems of the Arctic tundra and boreal forests. Many Athabaskans “live off the land” for all or part of the year, hunting, fishing, and gathering berries and plants. Caribou, moose and salmon are cornerstones of the traditional diet and, like other animal and plant species critical to Athabaskans’ subsistence diet, depend on a healthy Arctic environment for their survival. Athabaskans depend on snow and ice to travel to hunting and gathering grounds.

Our traditional values, our cultural values, our connection to the land and the wildlife and the fish and the environment: those are the most important things in an Indian world.

– Roger Alfred of Pelly, Yukon

I notice more changes in the landscape, more permafrost melt. Last summer we were walking on the mountain and you could see that a whole area had slid, exposing permafrost melt.

– Cindy Dickson of Old Crow, Yukon; Executive Director of the Arctic Athabaskan Council

Athabaskan culture similarly depends on a healthy Arctic environment. Hunting and gathering are important as cultural practices and as opportunities to pass on cultural traditions. Community sharing of food obtained from hunting and gathering is also important in maintaining Athabaskan culture. Understanding Arctic weather and environment is an important aspect of Athabaskan culture and essential to subsistence and survival. As their homelands warm and melt, the tundra and boreal ecology recede and change dramatically. Arctic Athabaskan peoples find the land

and environment they have known so well, and relied upon for millennia, transformed and unpredictable. The steady compass of traditional knowledge that sustained Athabaskan culture for generations is no longer a reliable guide.

Canada's Black Carbon Emissions and Rapid Arctic Warming and Melting

Arctic surface temperature has risen rapidly since the late 1970s. According to NASA's Goddard Institute for Space Studies (GISS), the annual mean surface temperature (land and air) for the Arctic in 2011 was 2.28°C above that of the period between 1951-1980. The Government of Canada projects median temperature increases for the western Canadian Arctic will range from 6°C to 12°C by the 2080s.

A significant cause of Arctic warming and melting in Canada and Alaska is Canada's failure to regulate emissions of black carbon, a component of sooty fine-particle pollution. Canada emits roughly 98,000 tons of black carbon annually. Because this black carbon is emitted in or near the Arctic, it has a significantly higher climate warming impact than black carbon from lower latitudes. Major sources of Canada's black carbon emissions are diesel emissions and the burning of biomass in agriculture and other sectors.

Black carbon is a potent climate warming agent. Scientists have recently estimated that its warming effect on the global climate is second only to that of carbon dioxide. In regions of ice and snow like the Arctic, black carbon has been identified as a particular problem because it warms in two ways. While in the air, black carbon absorbs sunlight and heats the atmosphere. When it falls out of the atmosphere onto snow and ice, black carbon reduces the reflectivity of these surfaces, accelerating the rate of melting, and exposes darker water or land underneath that absorbs more incoming sunlight and leads to additional warming.

The weather changes so fast... in the wintertime it can be 50° F below one week and 50° F above the next. When I was in grade school it used to be 40-60° F below for two months straight, no breaks.

– Michael Stickman of Nulato, Alaska, and AAC international chair

Every summer it's getting hotter. Our winters are not as cold as they used to be. We used to have 55° C below long ago, and now it's very rarely we get 30 to 40° C below. Sometimes even in December we get a little rain.

– Mae Andre of Fort McPherson, Northwest Territories

Black carbon emissions from within or near (north of 40°) the Arctic are more potent climate forcers. Although relatively smaller than emissions from lower latitudes, emissions from within or near the Arctic have a disproportionate effect because there is a greater likelihood they will deposit on Arctic ice and snow. Reducing emissions from sources in or near the Arctic will thus make a greater contribution to slowing Arctic warming and melting than the size of these sources might suggest.

Arctic Warming and Melting Violates Arctic Athabaskan Peoples' Human Rights

Arctic warming and melting is dramatically degrading and damaging the environment and natural resources that are the heart of Arctic Athabaskan peoples' lives, livelihood, and culture. As a signatory to the Charter of the Organization of American States, Canada is bound to protect and defend the rights set out in the American Declaration of the Rights and Duties of Man. The specific obligations that the Declaration imposes on Canada depend in part on other international obligations relevant to the rights and violations at issue.

In 2005, a Special Rapporteur of the U.N. Commission on Human Rights concluded that “the effects of global warming and environmental pollution are particularly pertinent to the life chances of Aboriginal people in Canada’s North, a human rights issue that requires urgent attention at the national and international levels.” The rapid warming and melting in Athabaskan lands, caused in significant part by Canada’s failure to reduce black carbon emissions, violates a number of the Arctic Athabaskan peoples’ fundamental rights. These include the right to culture, property, means of subsistence and health.

1. Right to culture

Arctic warming and melting adversely affect Athabaskan peoples’ ability to transmit cultural knowledge to future generations. Knowledge, developed over millennia, about Arctic lands, weather, ecology, and the use of natural resources, is central to Arctic Athabaskan culture and mythological heritage because it provides a basis for the elders to educate the younger generation in traditional ways of life, kinship and bonding. The ability to pass this knowledge from one generation to the next is vital to Arctic Athabaskan peoples’ cultural survival. Arctic warming and melting has made the weather, the hunt, and the behaviors and occurrence of fish and wildlife so erratic that elders no longer feel confident in teaching younger people traditional ways.

The American Declaration guarantees Arctic Athabaskan peoples’ right to the benefits of their culture. As the Inter-American Court has noted, failing to prevent environmental damage to indigenous lands can cause “catastrophic damage” to indigenous peoples because “the possibility of maintaining social unity, of cultural preservation and reproduction, and of surviving physically and culturally, depends on the collective, communitarian existence and maintenance of the land.” For indigenous peoples, “the land is closely linked to their oral expressions and traditions, their customs and languages, their arts and rituals, their knowledge and practices in connection with nature, culinary art, customary law, dress, philosophy, and values.” The Court has repeatedly recognized that the relationship of indigenous groups with their territory is

“crucial for their cultural structures,” and “require[s] special measures under international human rights law in order to guarantee their physical and cultural survival.”

2. *Right to property*

Arctic warming and melting is compromising the integrity of the land itself. Severe floods, forest fires, melting permafrost, erosion, and landslides are destroying waterways, riverbanks, airstrips, roads and houses. Changes in ice and snow cover have made it harder to reach hunting, fishing, and gathering areas, impeding access to resources on the land. Cultural and historic sites and traditional travel routes are threatened by flooding, land slumping, erosion, landslides, and forest fires.

The American Declaration guarantees Arctic Athabaskan peoples’ right to “own such private property as meets the essential needs of decent living and helps to maintain the dignity of the individual and of the home.” Indigenous peoples’ right to property includes the right to natural resources “found on and within [their] territory [which] are essential for the survival of their way of life.” The Commission has recognized that “the right to use and enjoy property may be impeded when the State itself, or third parties acting with the acquiescence or tolerance of the State, affect the existence, value, use or enjoyment of that property.”

In the northern Yukon, freezing rains in November have meant that animals cannot eat. In some areas, thawing permafrost has caused the ground to drop and in some cases has made the area smell foul. ... There are increased sightings of new types of insect.... Lakes and streams are drying up, or are becoming choked with weeds, making the water undrinkable. Many animals are changing their distribution and behavior. Bears used to go into their dens in October and November, but are now out until December.

– Elders Climate Change Workshop and the Yukon First Nations Climate Change Forum (2009)

3. *Right to means of subsistence*

Warming and melting have reduced Arctic Athabaskans’ access to important traditional food sources. Harvesting has become more difficult due to adverse effects on the populations and habitats of species that comprise a key part of Arctic Athabaskans’ subsistence diet. Rising temperatures are disturbing salmon spawning habitat. Forest fires are destroying caribou habitat. Warming has altered vegetation, and, in turn, caribou migration patterns, resulting in fewer births and more deaths of calves. Freezing rain atop snow make grazing difficult and can cause caribou

We have people going through the ice like we never had before, good hunters going through the ice.

– Chief Bill Erasmus of Dene First Nation, Yellowknife, Northwest Territories

weakening, starvation and mortality. Dangerous ice, unpredictable and extreme storms and winds, landslides, and avalanches have made travel on land and waterways more dangerous, and have caused injuries. These conditions prevent Arctic Athabaskan peoples from accessing hunting grounds and gathering areas, and reduce their capacity to maintain traditional knowledge of hunting and associated traditions.

Our elders are saying that there are more fires than there used to be. It affects people because access to the food becomes difficult. Fires affect the land and the animals and affects harvesting.

– Chief Bill Erasmus of Dene First Nation Yellowknife, Northwest Territories

I notice the depletion of animals more and more. I also notice we have more trees dying off.

– Grand Chief Ruth Massie of Lake Laberge, Yukon

For people who depend on natural resources for their livelihood, the right to their own means of subsistence is inherent in, and a necessary component of, the American Declaration's rights to property, health, life, and culture. The 2007 United Nations Declaration on the Rights of Indigenous Peoples, which Canada endorsed in 2010, provides that indigenous peoples have the right "to be secure in the enjoyment of their own means of subsistence and development." The Inter-American Court has recognized that "the culture of indigenous communities is part of a unique way of living, of being, seeing, and acting in the world, formed due [to] their close relationship with their traditional lands and natural resources," in part "because it is their main means of subsistence." International law recognizes that hunting, fishing, and gathering are important factors in the maintenance of indigenous culture and economic self-reliance. The Canadian government has provided explicit protection for rights to harvest fish and wildlife, including for subsistence, in the modern treaties between Athabaskan Nations and the Canadian crown.

4. Right to health

Arctic warming has led to a loss of traditional foods that adversely affects the health of Arctic Athabaskan peoples. When Athabaskan peoples are less able to obtain food through traditional hunting, fishing and gathering, they must supplement their diet with purchased food, which is markedly less healthy and is associated with an increased prevalence of chronic diseases such as cancer, obesity, cardiovascular disease and diabetes. Arctic warming and melting also worsens water quality in areas of permafrost melt, increases the likelihood of disease and injury due to dangerous conditions, and causes psychological stress.

The American Declaration provides that "[e]very person has the right to the preservation of his health..." The Inter-American Commission has long recognized the adverse effects of environmental degradation on health. The Commission has observed that "damage to [traditional] lands invariably leads to serious loss of life and health...of indigenous peoples." As a result, the Commission has found that a State's failure "to take timely and effective measures" to protect an indigenous people from degradation of their land can result in the violation of the "right to the preservation of health and to well-being."

I think more and more people are getting away from traditional foods because it's harder to harvest.

– Grand Chief Ruth Massie of Lake Laberge, Yukon

Canada Has an International Human Rights Obligation to Take Steps to Reduce Black Carbon Pollution

Protecting human rights is the most fundamental responsibility of civilized nations. Because the rapid warming and melting that is the cause of the violations described above are due in part to Canada's failure to adequately regulate black carbon emissions, Canada has an international obligation to take steps to reduce these emissions.

Fortunately, the Canadian government can substantially slow Arctic warming and melting through actions to reduce black carbon emissions. A 2012 assessment by the United Nations Environment Program and the World Meteorological Organization detailed methods of reducing emissions of black carbon that, if widely implemented, could reduce future Arctic warming by two-thirds by 2040. Canada should do everything within its power to implement such methods nationally.

Black carbon is considered a "short-lived" climate pollutant because it stays in the atmosphere for only about one week (versus 100 years or more for carbon dioxide). Although deep cuts in carbon dioxide remain the backbone of efforts to limit long-term adverse consequences of climate change in the Arctic and globally, rapid reductions of emissions of the short-lived climate pollutants black carbon, tropospheric ozone and methane have been identified by scientists as the best, and perhaps only, strategy to reduce near-term warming and melting in the Arctic and other sensitive, glaciated, snow-covered regions.

Of the short-lived climate pollutants, black carbon has been identified as a particularly potent climate forcer in regions of ice and snow, and thus is a priority for mitigation to protect the Arctic from warming and melting. Because it stays in the atmosphere for such a short time, reducing black carbon emissions will provide very rapid climate benefits.

Similarly, because black carbon emissions from Arctic and near-Arctic sources are more likely to deposit on Arctic snow and ice, reducing emissions from these sources, which includes any sources in Canadian territory, will have the greatest beneficial impact.

Moreover, there are many steps Canada could take to significantly reduce its black carbon emissions. For example, Canada could strengthen regulations to reduce direct emissions of the air pollutant category known as fine particulate matter, or PM_{2.5} (particles smaller than 2.5 microns) by adopting regulations for stationary diesel engines and for more on- and off-road diesel engines.

Many measures are available to Canada to reduce its black carbon emissions. Canada could: require retrofitting the existing fleet of on-road diesel vehicles with particle traps, which reduce black carbon emissions by over 90 percent; eliminate high-emitting vehicles; require improved efficiency for residential heating with wood and coal; eliminate most gas flaring; and ban agricultural biomass burning. These measures, based on readily available emissions reduction technology and practices, would significantly reduce black carbon emissions.

Request for Relief

Because this petition raises violations of the American Declaration of the Rights and Duties of Man by Canada, the Inter-American Commission on Human Rights has jurisdiction to receive and consider it. The petition is timely because the acts and omissions of Canada that form the basis for the petition are ongoing, and the human rights violations they are causing are continuing. Moreover, there are no domestic remedies suitable to address the violations. To the contrary, the Arctic Athabaskan Council has expressed its concern over Canada's failure to adequately regulate black carbon emissions in letters and presentations to, and meetings with, personnel in various Canadian federal agencies, to no avail.

Canadian government action to reduce black carbon emissions can substantially remedy the rapid Arctic warming and melting that are causing the violations detailed in this petition. For that reason, and in light of the violations described above, Petitioners respectfully request that the Commission:

- Investigate and confirm the harms suffered by Arctic Athabaskans affected by Arctic warming and melting;
- Prepare a report setting forth all the facts and applicable law, declaring that Canada's failure to implement adequate measures to substantially reduce its black carbon emissions violates rights affirmed in the American Declaration of the Rights and Duties of Man; and
- Recommend that Canada take steps to limit black carbon emissions and protect Arctic Athabaskan culture and resources from the effects of accelerated Arctic warming and melting.

II. JURISDICTION OF THE COMMISSION

The Inter-American Commission on Human Rights has competence to receive and act on this petition in accordance with articles 1.2.b, 18, 20.b, and 24 of the Commission's Statute.

III. PETITIONERS AND INDIVIDUALS WHOSE RIGHTS HAVE BEEN VIOLATED

This petition is submitted by the Arctic Athabaskan Council and Grand Chief Ruth Massie, Chief Michael Stickman, Chief Bill Erasmus, and Chief Gary Harrison.

Arctic Athabaskan Council, 300 Range Rd, PO Box 39, Whitehorse STN C S C, Whitehorse, Yukon Y1A 5X9, Canada, Phone: +1.867.335.6030.

The Arctic Athabaskan Council (AAC) is an international treaty organization established to defend the rights and further the interests internationally of American and Canadian Athabaskan member First Nation governments in the eight-nation Arctic Council and other international fora. AAC is an authorized "Permanent Participant" in the Arctic Council. In addition, AAC seeks to foster a greater understanding of the shared heritage of Athabaskan peoples of Arctic North America. AAC members in Yukon (the Council of Yukon First Nations and the Kaska Tribal Council), Northwest Territories (Dene Nation) and Alaska (including fifteen traditional villages) span across 76 communities and represent approximately 45,000 people.

AAC has a long history of addressing the impacts of climate change in the north on the ecosystems and biodiversity that are the foundation of the Athabaskan traditional way of life and culture. In Canada, AAC has participated avidly and consistently in meetings with Canadian government representatives, including meeting with Canada's chief negotiator on climate change and representatives of Environment Canada whose portfolio includes short-lived climate pollutants. AAC has engaged with the Prime Minister and the Ministers of Environment, Foreign Affairs and Indian Affairs and Northern Development urging Canada to take an assertive approach to mitigating climate change, bringing to their attention the severe impacts of climate change on Athabaskan peoples, and urging the Government of Canada to take aggressive mitigation measures to reduce emissions of black carbon and other short-lived climate pollutants. AAC letters have expressed grave concerns about Canada's inadequate regulation of black carbon and the effect it has on Arctic Athabaskan peoples' lives and livelihoods, and, since 2005, has been attending the United Nations Conferences of the Parties to the Framework Convention on Climate Change. AAC representatives also regularly attend the meetings of the Arctic Council's Task Force on Short-lived Climate Forcers to brief Canadian and circumpolar government representatives on this issue.

AAC conducts research with the aim of helping Athabaskan communities become more resilient to climate change. AAC participated in the Arctic Council's landmark initiative to prepare the Arctic Climate Impact Assessment (ACIA). In light of the enormous cultural and economic importance of both barren-ground and woodland caribou to the

Athabaskan people, and the uncertain future projected for the caribou by the ACIA, AAC undertook a three-year project, *Arctic Peoples, Culture, Resilience and Caribou* (ACRC), which was approved as an International Polar Year project in 2008, to promote community resilience and adaptability in the face of climate change. Drawing upon the ACRC and additional research conducted by AAC on the human ecology of barren-ground caribou supported by the North American Commission for Environmental Cooperation, AAC contributed text to the circumpolar Arctic Biodiversity Assessment to be considered by Ministers to the Arctic Council in May 2013. This contributed text addressed the impact of climate change on harvested wildlife and wildlife habitat.

Ruth Massie, 2216 2nd Ave., Whitehorse, Yukon Y1A 4P1, Canada, Phone: +1.867.668.6577.

Grand Chief Ruth Massie is a Wolf Clan member of the Ta'an Kwäch'an Council from the traditional Jenny LeBarge family. Ms. Massie was born and raised in Whitehorse, Yukon and her educational path and breadth of professional experience includes almost 20 years as a small business owner and over 10 years as the Economic Development Officer and General Manager of Mundessa Development Corporation. She began her political career in 1987 as a founding member of the Ta'an Kwäch'an traditional government; served as a Ta'an Kwäch'an Council member from 1989 to 1992 and was elected its first female Chief in 2004 serving until 2009. Ms. Massie is the former Chair of the Alaska Highway Aboriginal Pipeline Coalition and currently sits on numerous committees representing the Council of Yukon First Nations' member nations.

Ms. Massie was elected Grand Chief of Council of Yukon First Nations in July 2010 and is a member of the board of the Arctic Athabaskan Council. She is the mother of three and proud grandmother of nine.

Michael Stickman, P.O. Box 65049, Nulato, Alaska 99765, United States, Phone: +1.907.898.2339.

Chief Michael Stickman lives in Nulato on the Yukon River in west central Alaska. He received an Associate of Applied Science degree in Petroleum Technology in 1981 and currently is Chair of the Board of Directors of Gana-A'Yoo Corporation. Mr. Stickman is President of Nulato Traditional Council and International Chair of the Arctic Athabaskan Council.

Bill Erasmus, 5125-50th Street, 1st Floor, P.O. Box 2338, Yellowknife, NWT X1A 2P2, Phone: +1.867.873.4081.

Chief Bill Erasmus was born in Yellowknife, the capital of the Northwest Territories, and has spent much of his career in his homeland, Denedeh. He has a Bachelor of Arts in Political Science from the University of Alberta. In 1987 he was elected National Chief

of the Dene Nation, a position he still holds, and in the same year he became a member of the Assembly of First Nations Executive Committee. Mr. Erasmus is International Vice-Chair of the Arctic Athabaskan Council.

Gary Harrison, c/o Chickaloon Village Traditional Council, PO Box 1105, Chickaloon, Alaska 99674, Phone: +1.907.745-0707.

Chief Gary Harrison is Traditional Chief and Chairman of the Athabaskan Nation Chickaloon Native Village Traditional Council. First elected to the Traditional Council in 1984, he was named Traditional Chief in 1994. He has served on the Cook Inlet Tribal Council, the Tribal Justice Advisory Group and numerous organizations to promote the health of Athabaskan peoples. He is the Alaska Chair of Arctic Athabaskan Council.

The rights of the Arctic Athabaskan peoples of Canada and the United States have been violated. Their property, culture, physical health and well-being, and means of subsistence rights are being violated by Canada's acts and omissions. These people include the individuals listed below, all of whom have experienced one or more of the human rights violations described in this petition. Annex I provides descriptions of each of these individuals. These Arctic Athabaskan individuals have been interviewed for the petition and provided testimony on their experiences of the impacts of rapid Arctic warming and melting on their lives, environment, health, culture and livelihoods:

Emma Alfred, Selkirk First Nation, Pelly Crossing, Yukon
Roger Alfred, Pelly Crossing, Yukon
James Allen, Haines Junction, Yukon
Mae Andre, Fort McPherson, Northwest Territories
Bill Barrett, Jr., Carcross, Yukon
Paul Birckel, Whitehorse, Yukon
Doug Broeren, Beaver Creek, Yukon
Lenny Charlie, Carmacks, Yukon
Cindy Dickson, Old Crow, Yukon
Dennis Dickson, Burwash Landing, Yukon
Gerald Dickson, Burwash Landing, Yukon
Janice Dickson Dubois, Burwash Landing, Yukon
David Dubuis, Burwash Landing, Yukon
Bill Erasmus, Yellowknife, Northwest Territories
Gary Harrison, Chickaloon, Alaska
Charlie James Carcross, Yukon
Stanley James, Carcross, Yukon
Peter Johnson, Teslin, Yukon
Roy Johnson, Dawson City, Yukon
Roberta Joseph, Dawson City, Yukon
Isaac Juneby, Eagle, Alaska

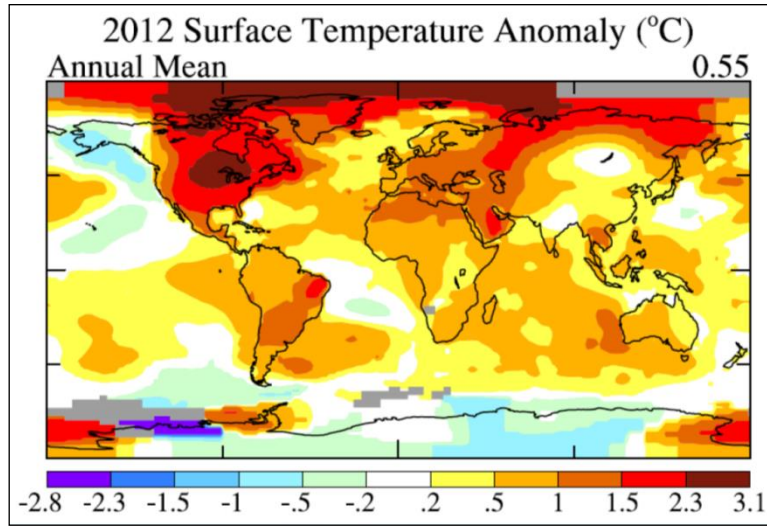
Styd Klugie, Pelly Crossing, Yukon
Rose Kushniruk, Haines Junction, Yukon
Shirley Lord, Tagish, Yukon
Ruth Massie, Lake Laberge, Yukon
Katherine McConkey, Copper Centre, Alaska
Joe Migwans, Whitehorse, Yukon
Eric Morris, Teslin, Yukon
Belinda Northway Thomas, Northway, Alaska
Louis Renigler, Beaver Creek, Yukon
Freda Roberts, Dawson City, Yukon
Joyce Roberts, Eagle, Alaska
Eddie Skookum, Carmacks, Yukon
Norman Snowshoe, Fort McPherson, NWT
Glen Stevens, Beaver Creek, Yukon
Michael Stickman, Nulato, Alaska
Eddy Taylor, Dawson City, Yukon
Joe Tetlich, Whitehorse, Yukon
Randall Tetlich, Old Crow, Yukon
Lorraine Titus, Northway, Alaska
Don Trudeau, Pelly Crossing, Yukon
Rose Marie van der Meer, Beaver Creek, Yukon
Robert van Lieshout, Burwash Landing, Yukon
Ruth Welsh, Whitehorse, Yukon
Agnes Winzer, Beaver Creek, Yukon
Harry Winzer, Beaver Creek, Yukon

IV. FACTS: RAPID ARCTIC WARMING CAUSED IN PART BY EMISSIONS OF BLACK CARBON, A SHORT-LIVED CLIMATE POLLUTANT, HARMS THE ARCTIC AND ARCTIC ATHABASKAN PEOPLES

A. BLACK CARBON ACCELERATES WARMING AND MELTING IN THE ARCTIC

The Arctic¹ is warming more than twice as fast as the rest of the planet, rapidly increasing glacier, permafrost and sea ice melt.² Arctic surface temperature has risen rapidly since the late 1970s and has not dropped below the long-term mean since 1992 – more than 20 years. According to NASA’s Goddard Institute for Space Studies (GISS), the annual mean surface temperature (land and air) for the Arctic (defined as the region north of 64°N) in 2011 was 2.28°C above that of the period between 1951-1980.³

Arctic warming and melting is altering the ecology of the region, affecting the range and survival of species, adversely affecting Arctic Athabaskan peoples' homelands and culture. Arctic regional warming also dramatically affects the climate globally, changing the thermohaline circulation (large-scale ocean currents due to gradients of temperature and salinity), thereby contributing to increased severity of storms in the mid-latitudes. Melting of Arctic land glaciers is a primary cause of sea-level rise that threatens millions of people in low-lying and coastal areas around the world.⁴



2012 annual mean global surface temperature anomaly (deviation from base period 1950-1980). The area of greatest surface temperature increase, indicated in red, is the Arctic. *Image courtesy of NASA/NOAA Press Materials website.*

Reductions in emissions of the short-lived climate pollutants black carbon, tropospheric ozone and methane have been identified by scientists as the best, and perhaps only, strategy to reduce near-term warming and melting in the Arctic.⁵ Of these, black carbon has been identified as a particularly potent climate forcer over ice and snow regions, and hence a priority for mitigation to protect the “Arctic and glaciated mountainous regions, in particular from accelerated rates of melting of ice, snow and permafrost.”⁶ It is emitted as a component of fine particulate pollution, also known as PM_{2.5} (particulate matter smaller than 2.5 microns) or soot – a conventional air pollutant category long regulated to varying degrees under national air quality regimes to protect public health.⁷

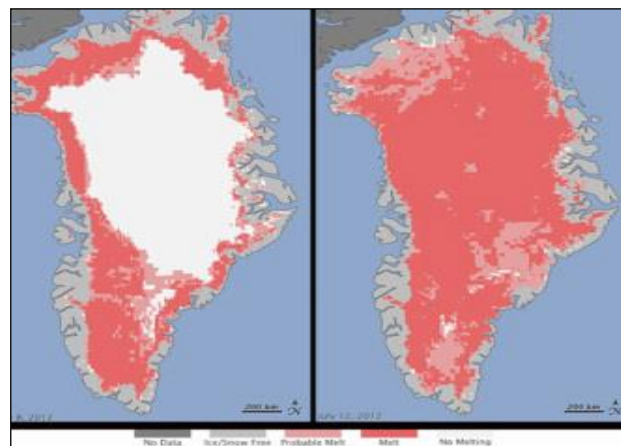
Black carbon warms twice in the Arctic. First, it exerts a strong warming effect in the atmosphere by absorbing incoming sunlight and radiating that energy as heat. Then it warms again when it settles on snow and ice, darkening surfaces, increasing absorption of sunlight and accelerating melting.⁸

However, its short atmospheric “residence time”—meaning that it stays aloft for about a week, versus 100 years and more for CO₂—means that emissions *reductions* provide very rapid climate benefits.⁹ The combination of its short duration and strong warming potential, especially

over ice and snow, means that the Arctic climate will respond quickly to black carbon emissions reductions, slowing the rate of warming and melting in the near term.¹⁰ Hence, black carbon reductions provide rapid climate benefits soon after implementation.¹¹

Ambitious and immediate global action on carbon dioxide (CO₂) remains the backbone of efforts to limit the long-term (2100) adverse consequences of climate change in the Arctic and globally. But the long atmospheric lifespan of CO₂ means its reduction alone will not avert further dramatic changes to the Arctic in the near term.¹²

The impacts of Arctic warming are keenly felt by Arctic Athabaskan and other indigenous peoples of the North. As the region warms and melts, and the tundra and boreal ecology recede and change, Arctic Athabaskan peoples find the land and environment they have known so well, and relied upon for millennia, transformed and unpredictable. Their steady compass of traditional knowledge that sustained their culture for generations is no longer a reliable guide. Action to reduce black carbon emissions is fundamental if the region is to remain anything like what Arctic Athabaskan peoples know today.



Over 90 percent of the Greenland Ice Sheet experienced melting in July 2012. (Left: July 8, 2012; Right: July 12, 2012.) *Image courtesy of Dorothy Hall (NASA/GSFC), Son Nghiem (JPL), T. Mote (Univ. of Georgia) and Marco Tedesco (CUNY).*

1. BLACK CARBON IS A COMPONENT OF FINE PARTICLE POLLUTION (PM_{2.5})—A CONVENTIONAL AIR POLLUTANT

Black carbon is emitted into the atmosphere as a component of fine particle pollution from the incomplete combustion of fossil fuels, biofuels and biomass.¹³ It is the sooty pollution emitted from diesel engines, residential heating stoves, agricultural and forest fires, and some industrial facilities.¹⁴ As a component of particle pollution, it “has been linked to adverse health and environmental impacts through decades of scientific research.”¹⁵

Fine particle pollution is a known health hazard and a conventional air pollutant regulated to maintain air quality and protect public health in Canada, Europe, the United States and other countries. Short and long-term exposure to PM_{2.5} is associated with a broad range of human health impacts, including respiratory and cardiovascular effects as well as premature death.¹⁶ The United States Environmental Protection Agency (EPA) has concluded that although uncertainties remain, diesel soot, which is about 75% black carbon, is “likely to be carcinogenic to humans by inhalation.”¹⁷ Studies in the Netherlands and the United States suggest that black carbon’s extremely small particle size (1 micron or less) reaches deeper into the lungs and may present greater acute effects than other components of PM_{2.5}.¹⁸

2. REDUCTIONS IN LONG-LIVED CO₂ ARE NECESSARY BUT NOT SUFFICIENT FOR THE
ARCTIC: REDUCTION OF SHORT-LIVED CLIMATE POLLUTANT EMISSIONS LIKE BLACK
CARBON ARE ESSENTIAL

[E]ven if we manage to turn the rising curve of global greenhouse gas emissions in the coming years, the reduction will not occur quickly enough to preserve the polar and alpine environments as we know them today.... That leads us to a second way to respond: take action that will make a real impact in the near future, and most especially, address short-lived climate pollutants such as black carbon, methane and tropospheric ozone.¹⁹

– *Jonas Gahr Støre, Norwegian Minister of Foreign Affairs, and Al Gore, Nobel Peace Prize laureate, Melting Ice Conference, Tromsø, 2009*

The rate of warming and melting in the Arctic between now and 2050 will forever shape the future of the region and the world.²⁰ While deep cuts in CO₂ emissions remain the backbone of efforts to limit the long-term consequences of climate change, rapid reductions in emissions of short-lived climate forcers such as black carbon have been identified as the most effective, and perhaps only, strategy to slow warming and melting in the Arctic over the next few decades.²¹

The *Integrated Assessment of Black Carbon and Tropospheric Ozone*, published by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO) in 2011, stated:

“Both near-term and long-term strategies are essential to protect climate. Reductions in near-term warming can be achieved by control of the short-lived climate forcers whereas carbon dioxide emission reductions are required to limit long-term climate change.”²²

A report by the Black Carbon Expert Group of the Convention on Long-Range Transboundary Air Pollution (to which Canada is a party) stated that international action to reduce long-lived greenhouse gas emissions cannot prevent “dramatic changes to the Arctic in the near term; therefore additional complementary near-term strategies should be devised.” The report added that “The Arctic continues to warm more rapidly than almost all other parts of the globe. This rate of Arctic warming is significant [hence] action [to reduce black carbon emissions] must be taken in the very near term to reduce the rate of warming in comparison to other areas of the globe.”²³

3. REDUCING BLACK CARBON CAN SLOW ARCTIC WARMING IN THE NEAR TERM

The Arctic is particularly vulnerable to the warming and melting effects of black carbon²⁴ and there is a broad consensus that we must reduce emissions now, particularly emissions in or near the Arctic (with “near” defined as north of 40 degrees latitude).²⁵

The UNEP/WMO *Integrated Assessment of Black Carbon and Tropospheric Ozone* states that “[b]lack carbon’s darkening of snow and ice surfaces increases their absorption of sunlight, which, along with atmospheric heating, exacerbates melting of snow and ice around the world, including in the Arctic.”²⁶ In 2009, the Arctic Council, the intergovernmental forum for Arctic governments and peoples, formally “recognize[d] that reductions of emissions [of short-lived

climate forcers] have the potential to slow the rate of Arctic snow, sea ice and ice sheet melting in the near-term.”²⁷ A US EPA report to the US Congress states that: “[s]ensitive regions such as the Arctic and the Himalayas are particularly vulnerable to the warming and melting effects of [black carbon].”²⁸

A seminal 2013 paper in *The Journal of Geophysical Research: Atmospheres*, entitled “Bounding the role of black carbon in the climate system: A Scientific Assessment” was the product of a four-year effort by over 30 leading atmospheric scientists from around the world. They recognize that “the speed of Arctic climate change and glacial melt has increased the demand for mitigation options which can slow near-term warming.” The authors conclude that reducing black carbon along with other short-lived climate pollutants, “could quickly decrease positive climate forcing and hence climate warming.”²⁹



Photo courtesy of Ag-Info Centre, Government of Alberta, Canada.

The paper affirms the conclusion that virtually all particle pollution mixtures reaching the Arctic are warming, because even emission mixtures from biomass burning, for example, that contain more reflective, and thus cooling aerosols, can lead to warming if they are darker than the underlying ice or snow.³⁰ The authors state: “Black carbon has an even more powerful effect in some regions, including the Arctic, where deposition on snow and ice causes positive climate forcing.”³¹

4. BLACK CARBON EMISSIONS FROM WITHIN AND NEAR THE ARCTIC ARE MORE POTENT CLIMATE FORCERS

Studies indicate that even relatively small sources of black carbon emitted from within or near the Arctic can have a large regional climate impact because they have a greater likelihood of depositing on Arctic ice and snow.³² According to the UNEP/WMO Integrated Assessment report:

“Studies in the Arctic indicate that it is highly sensitive both to local pollutant emissions and those transported from sources close to the Arctic, as well as to the climate impact of pollutants in the mid-latitudes of the northern hemisphere. Much of the need for implementation [of the emissions reduction measures] lies within Europe and North America.”³³

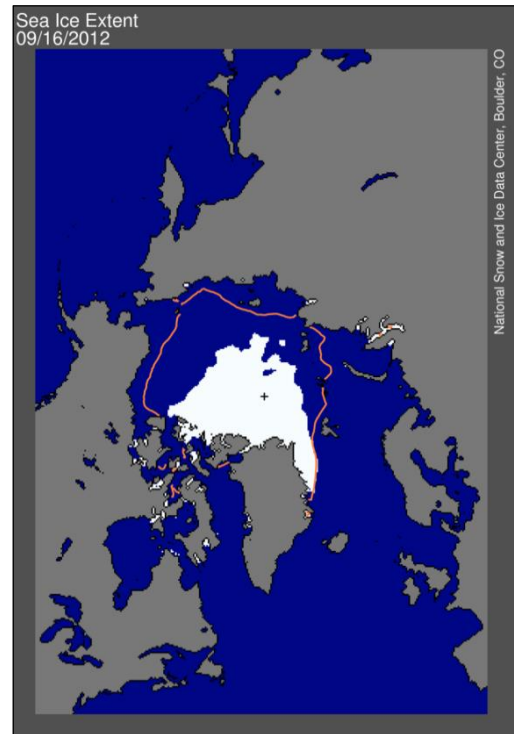
Analyses by the Arctic Council’s Arctic Monitoring and Assessment Program (AMAP), and others, indicate that mitigating in- or near-Arctic sources will have a greater Arctic climate impact than the size of these sources alone would indicate.³⁴

Emissions near or within the Arctic have a greater chance of depositing on Arctic ice and snow than emissions from south of 40°N.³⁵ Thus, in-Arctic and near-Arctic emissions, such as those in Canada, have a larger impact on low-altitude black carbon concentrations and deposition and forcing in the Arctic *per unit of emission*.³⁶

5. BLACK CARBON EMISSIONS REDUCTIONS CAN BE IMPLEMENTED NOW

A report by the Ad Hoc Black Carbon Expert Group of the Convention on Long-Range Transboundary Air Pollution (CLRTAP) indicated that black carbon emissions in CLRTAP countries, which include Canada, could be reduced by an additional 40 percent by 2020 using currently available technology and measures.³⁷ These measures have also been identified by the Arctic Council Task Force on Short-Lived Climate Forcers as key abatement opportunities for Member States.³⁸ Primary mitigation opportunities include: improving combustion efficiency of residential heating and off-road diesel machinery, retrofits of the legacy (existing) fleet of on-road diesel vehicles with exhaust particle traps, and eliminating of high-emitting vehicles, gas flaring, and forest and agricultural waste burning.³⁹

The UNEP/WMO Integrated Assessment projected warming in the Himalayas and in the Arctic could be reduced approximately two thirds by 2040 through the widespread implementation of a package of sixteen measures to reduce aggregate emissions of both black carbon and methane. (The projection is based on modeling conducted by NASA and the International Institute for Applied Systems Analysis.) The report adds that the climate benefits are typically greatest in and near areas where emissions are reduced.⁴⁰



Arctic Sea Ice Extent, Sept. 2012 in white, compared with the 1979 to 2000 average (pink line). Image courtesy of National Snow and Ice Data Center, http://nsidc.org/data/seaiice_index/.

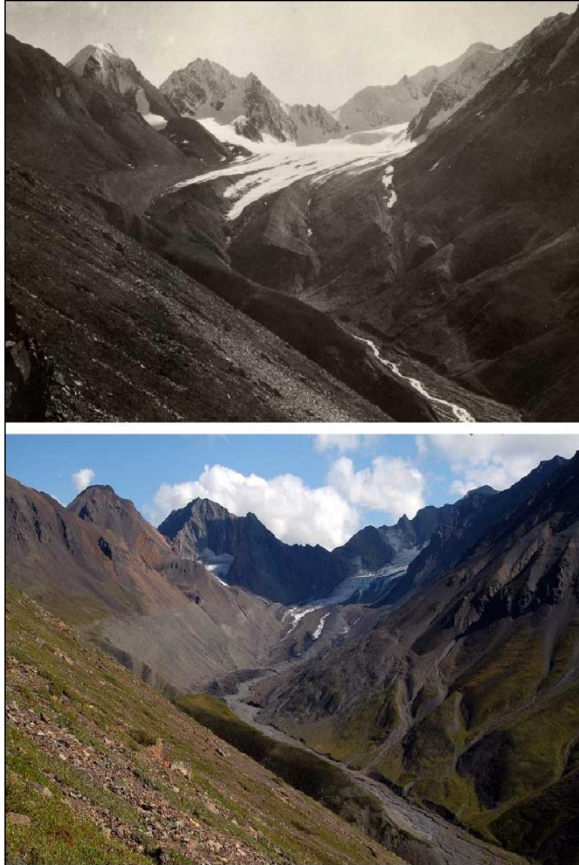
6. ARCTIC WARMING ADVERSELY AFFECTS THE REGION AND THE WORLD

Rapid Arctic warming led the Arctic Climate Impact Assessment⁴¹ in 2004 to project significant and accelerating changes to the cultures, ecosystems, and biodiversity of the circumpolar Arctic.⁴² The profound changes caused by Arctic warming and the impacts on Arctic Athabaskan peoples are detailed in Section IV.D of this petition.

Arctic warming and melting set off feedback loops that further accelerate warming in the region and across the planet.⁴³ The highly reflective white surfaces of the Arctic cool the planet by reflecting incoming sunlight back into space. Once melted, darker sea or land below is revealed, which absorbs more incoming sunlight, further accelerating warming. This is known

as Arctic “amplification.” Both sea and continental ice loss reduce the Earth’s albedo, or reflectivity.

Summer Arctic sea ice extent has diminished by almost 40 percent since 1979 and reached a record low in August 2012.⁴⁴ Arctic sea ice melt strongly affects weather in the Northern hemisphere and is thought to be largely responsible for the extremes of winter weather in the mid-latitudes that the world is now experiencing.⁴⁵



Glacier retreat at the East Fork of the Teklanika River, Denali National Park, Alaska, comparing June 1919 to August 2004. *Image courtesy of USGS, Repeate Photography of Alaska Glaciers, http://www.usgs.gov/climate_landuse/glaciers/repeat_photography.asp.*

Melting of Arctic glaciers and the Greenland Ice Sheet are thought to be the largest single factor contributing to sea-level rise.⁴⁶ The Greenland Ice Sheet—an ‘awakening giant’—is losing mass three times faster than a decade ago, and the loss is accelerating.⁴⁷ According to satellite data, in summer 2012, 97 percent of the ice cover deposited on the Greenland ice sheet in winter was found to have melted by mid-July; a singular event since satellite records began 33 years ago.⁴⁸ Sea-level rise estimates now range from a conservative 1.2 meters by 2100, to estimates as high as 1.9 meters; whichever the figure, millions of people would be displaced in coastal and low lying areas.⁴⁹

As the Arctic warms, new feedback loops are set in motion. Warmer Arctic temperatures are melting the permafrost, releasing potentially massive amounts of CO₂ and methane (a greenhouse gas 21 times more potent than CO₂) in vast areas of Canada, Alaska and Siberian Russia.

Reducing Canada’s black carbon emissions will slow the rapid warming and melting in the Arctic in the near-term, giving local biodiversity and cultures more time to adapt, and lessening the environmental harm in the Arctic that is undermining the Arctic Athabaskan peoples’ enjoyment of their human rights.

B. CANADA’S POOR AND FRAGMENTED REGULATION OF BLACK CARBON

In Canada, the federal, provincial, and territorial governments have shared responsibility over air quality management. In no Canadian jurisdiction are there explicit statutory requirements for addressing black carbon as a distinct pollutant.

Black carbon is a component of fine particle pollution (also known as PM_{2.5}) with particles smaller than 2.5 microns. PM_{2.5} emissions from some sources, such as diesel engines, contain up to 75% black carbon. Regulation to reduce PM_{2.5} emissions will also reduce black carbon issues, although without a comprehensive black carbon strategy they will not be as effective.

Canada regulates PM_{2.5} through a piecemeal approach that relies on regulations focusing on other air quality and health concerns and often uses voluntary guidelines and targets rather than stringent enforcement tools. These regulations and guidelines do not address the climate impacts of black carbon emissions, nor the concerns of Canada's aboriginal peoples about the rapid warming and melting experienced in Canada's Arctic north.

According to a report by the Arctic Council Task Force on Short-Lived Climate Forcers, Canadian black carbon emissions (excluding open and natural sources) are expected to increase by 26 percent above 2005 levels by 2030.⁵⁰ Most of these emissions are projected to be from transportation and the fossil fuel, and mining industries.⁵¹

Federal regulations that impact black carbon emissions focus principally on transportation. Provincial regulations focus mostly on general air quality, some transportation issues, domestic heating, biomass burning, and various industrial activities.

1. CANADA'S FEDERAL PM_{2.5} REGULATIONS ARE INSUFFICIENT TO REDUCE BLACK CARBON EMISSIONS

For transportation, the federal government has authority over new vehicles and engines, while the provinces and territories generally have jurisdiction over existing on-road cars and trucks. On the federal level, the government has regulations under the *Canadian Environmental Protection Act, 1999 (CEPA)*⁵² that establish emissions standards designed to achieve, among other things, a reduction of particulate matter emissions. The goal of these standards is to generally harmonize Canadian requirements with those of the US EPA.⁵³

In the Arctic region, mobile and stationary diesel engines are ranked as two of the most significant sources of black carbon emissions.⁵⁴ There are no Canadian regulations governing black carbon emissions from stationary diesel engines.⁵⁵ Nor are there regulations applying to the large fleet of older, or "legacy," vehicles and engines (older than the 2004 model year); diesel engines typically have a 30-plus year lifetime.

Canada does have standards that apply to newer mobile diesel engines. The *On-Road Vehicle and Engine Emission Regulations* made under *CEPA* have specific requirements on particulate matter for "diesel heavy-duty vehicles." The regulations apply to 2004 vehicle and engine models onwards and aim to reduce particulate matter emissions from new vehicles and engines by up to 95 percent by 2030 but assume a fleet turnover rate that is unlikely in current recessionary times,⁵⁶ leaving a significant fleet of older legacy vehicles and engines that are not subject to the standards. In April 2012, the federal government amended the federal *Heavy-Duty Vehicle and Greenhouse Gas Emission Regulations*, applying requirements reducing GHG emissions for heavy-duty vehicles after 2014 in line with US standards. However, the

government projects that particulate matter emissions will in fact rise slightly due to the regulations because of the “expected increased use of diesel-powered auxiliary power units as a fuel saving measure for extended idling in tractors.”⁵⁷

*CEPA’s Off-Road Compression-Ignition Engine Emission Regulations*⁵⁸ and *Off-Road Small Spark-Ignition Engine Emissions Regulations*⁵⁹ provide emissions standards for diesel engines used in off-road applications such as construction, mining, farming and forestry machines. The standards in these regulations align Canadian emission standards with those of the US EPA and apply to engines built in 2006 or later and 2005 or later, respectively. Unfortunately, a considerable number of these vehicles, including many large-scale earth-movers and trucks used in the Alberta Oil Sands, pre-date these regulations and are not fully governed by them.⁶⁰



Photo courtesy of US EPA.

According to the Arctic Council Task Force on Short-Lived Climate Forcers, additional measures to achieve black carbon reductions could include stronger ultra-low sulfur diesel requirements for diesel fuels, further emissions controls to reduce diesel particulate matter, particulate emission standards requiring the use of particulate traps for new engines, better enforcement of standards, introduction of ‘green zones’ banning use of high emission vehicles, and vehicle idling restrictions.⁶¹

The federal government also has jurisdiction over rail emissions. Transport Canada initiated a process in 2010 to develop new rules to reduce railway emissions under the *Railway Safety Act*,⁶² but draft regulations have not been published. The proposed *Locomotive Emissions Regulations* would again align Canadian standards with those used in the United States.

The Arctic Council Task Force on Short-Lived Climate Forcers points out that Arctic countries emit 90% of shipping emissions in the region.⁶³ In Canada, the federal government has jurisdiction over marine emissions. The *Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations* regulate some of the types of vehicles and engines exempted from the other emissions regulations under *CEPA*.⁶⁴ However, these regulations do not have the reduction of particulate matter emissions as a listed objective.⁶⁵

2. PROVINCIAL PM_{2.5} REGULATIONS ARE INSUFFICIENT AND FRAGMENTED

Several provinces have programs that impact black carbon emissions such as annual motor vehicle inspections for exhaust systems of older vehicles, vehicle anti-idling requirements, and disposal and retrofitting programs for older, higher-polluting vehicles. These vary by the province.

General provincial regulations on air quality are found in jurisdictions across Canada.⁶⁶ However, few of these specifically prohibit the emission of particulate matter that cumulatively with other facilities will exceed a prescribed standard.⁶⁷ Sector specific emissions regulations on asphalt,⁶⁸ potash refining,⁶⁹ and wood residue burners,⁷⁰ among others,⁷¹ are in place. Facility-specific regulations on mining and smelting,⁷² coal-fired power plants,⁷³ and other facilities are used in some jurisdictions, and some provinces have regulations addressing specific pollutants,⁷⁴ leaving a fragmented patchwork of rules and standards and little recognition of the cumulative effects of emissions from multiple sources.

Black carbon emissions from residential heating are another major source of emissions in Canada, especially in the north. Regulation of wood stoves and boilers is generally an area of provincial and municipal jurisdiction. Regulatory activity in this area is inconsistent across the provinces. Domestic burning and heating operations are governed by distinct regulations in British Columbia,⁷⁵ Newfoundland,⁷⁶ Ontario,⁷⁷ and Quebec,⁷⁸ while some other provinces have no distinct regulations. Some provinces have regulations requiring conformity with particulate matter emissions standards for new woodstoves.⁷⁹ Others, such as British Columbia, have voluntary change-out programs for new, more efficient stoves.⁸⁰ The Arctic Council Task Force on Short-Lived Climate Forcers suggests that further measures that could be taken in this area include stricter black carbon and particulate matter standards, regulations, and inspection regimes for stoves and boilers, creation of wood stove and boiler certification programs guaranteeing emissions and performance standards, incentives for retiring old high emitting woodstoves and boilers, better combustion efficiency requirements, and better education on fuels and burning techniques.⁸¹

Many provinces have regulations on agricultural burning and most have educational and incentive programs to reduce the need for burning. For example, Quebec provides incentives for managing organic matter through biomethanization and composting.⁸² Provincial regulations related to land and agricultural burning include regulations in Alberta,⁸³ British Columbia,⁸⁴ Manitoba,⁸⁵ New Brunswick,⁸⁶ and the Northwest Territories.⁸⁷ However, some jurisdictions have no regulation, such as Nova Scotia. Others provide exemptions for certain uses such as Ontario, which exempts certain agricultural operations from emissions standards where emission does not cause health effects,⁸⁸ and Prince Edward Island⁸⁹ and the Yukon⁹⁰ which allow exemptions for various types of biomass burning. Most provinces and territories also have some form of forest protection and fire management legislation and regulations under their air quality regulations, although the effectiveness and comprehensiveness of these programs varies widely.

The Arctic Council Task Force on Short-Lived Climate Forcers suggests that options for reducing black carbon emissions biomass burning and forest fires include provision of technical and micro-financing assistance to foresters and farmers to encourage the use of no-burn methods, education, fire management and prevention efforts, use of more efficient burning techniques for controlled burns, and expansion of resources for fire monitoring, management and response.⁹¹

With the planned expansion of oil and gas activities in the Arctic region, concerns over black carbon emissions from gas flaring have been raised. Alberta, British Columbia and Saskatchewan have rules addressing this issue. The Alberta Energy and Utilities Board's

Directive 060 on Upstream Petroleum Industry Flaring, Incinerating, and Venting, for instance, sets out rules governing flaring, incinerating, and venting, flare permit requests, dispersion modeling, and the measuring and reporting of flared, incinerated, and vented gas.⁹² Nevertheless flaring, and hence black carbon emissions from the sector, continues to be significant.

To facilitate coordination on air pollution policies, the Canadian Council of Ministers of the Environment has agreed to standards on emissions that contribute to particulate matter pollution. The new Canadian Ambient Air Quality Standards (CAAQS) provide a basis for provincial governments to work together on these issues, but they are non-binding and participation is not mandatory.⁹³ Such standards in the past have been implemented “to varying degrees, with mixed results,” as they are neither binding nor enforceable.⁹⁴

The trends outlined above point to a highly fragmented and insufficient regime for addressing PM_{2.5} and black carbon emissions across the country, with many gaps where important black carbon source sectors are not regulated at all. Inconsistency and fragmentation of regulatory standards amongst the provinces increases the complexity of the regime and opens up significant gaps in, and uneven application of, emissions standards.

The primary mitigation opportunities that are missing in Canada for addressing black carbon emissions include development of regulations governing black carbon emissions from stationary diesel engines, improving the efficiency of residential heating and off-road diesel machinery, retrofitting older diesel vehicles with exhaust particle traps, providing incentives for scrapping high-emitting vehicles, comprehensive regulations gas flaring, and improved requirements addressing biomass burning. There is no Canadian effort to specifically reduce overall emissions of black carbon. PM_{2.5} regulations are insufficient and fragmented and do not adequately control Canada’s black carbon missions. The existing piecemeal initiatives do not provide a sufficient, targeted strategy to reduce black carbon emissions to slow Arctic warming and melting and protect the rights of the peoples affected by this climate pollutant.

C. ARCTIC ATHABASKAN PEOPLES

For over 10,000 years, Arctic Athabaskan peoples of Canada and the United States have occupied over three million square kilometers of boreal forests and Arctic tundra of interior Yukon, and Northwest Territories (NWT), the northern regions of British Columbia, Alberta, Saskatchewan and Manitoba, and Alaska. Indigenous Athabaskan people include Gwich’in, Dene, Dogrib, Sahtu, Den Cho, Tanana, Kaska and many other communities.⁹⁵ In total, these groups speak 23 distinct languages (also called Athabaskan or Athapaskan).⁹⁶

Prior to the post-industrial age warming in the Arctic, the vegetation of Arctic Athabaskan territories had not undergone significant changes for 6,000 years.⁹⁷ Arctic Athabaskan territories include three of North America’s largest river systems (the Mackenzie, Yukon and Churchill Rivers), the world’s largest ice field outside of the polar ice caps (the St. Elias Mountains), and North America’s highest mountains (Mount McKinley and Mount Logan).⁹⁸



Arctic Athabaskan peoples' contact with non-indigenous cultures, especially in the 20th Century led to significant changes in Athabaskan societies, including culture, food, health, and livelihoods.⁹⁹ They have suffered cultural disruption and loss of access to traditional lands and rights due to gold mining, timber exploitation, construction of towns and highways, and other development.¹⁰⁰ Nevertheless, Arctic Athabaskan oral histories of distant time through to the present demonstrate very strong cultural continuity and deep cultural and spiritual connection to their lands and the natural world.¹⁰¹

Arctic Athabaskan peoples are organized politically within their own governments through tribal councils, bands, or First Nations. They are also organized through the Arctic Athabaskan Council (AAC), whose 18 member organizations represent approximately 45,000 Athabaskan peoples in 76 communities.¹⁰² The AAC is an international treaty organization established to foster a greater understanding of the shared heritage of Athabaskan peoples of Arctic North America, and to defend the rights and interests of Athabaskan member governments in international fora.¹⁰³ The AAC also has Permanent Participant observer status in the eight-nation Arctic Council.¹⁰⁴

In 2011, the Arctic Athabaskan Council interviewed over 60 of its members from Alaska, Yukon and NWT for this petition.¹⁰⁵ Interviewees were asked to reflect on their personal observations of Arctic regional warming and melting in their communities and on their traditional lands, and its impacts on their lives. Excerpts of these interviews are interspersed throughout this petition to give examples of how individual Athabaskans are experiencing accelerated Arctic warming. Their comments illustrate the deep-rootedness of Arctic Athabaskan peoples to their natural environment, spanning many generations.

1. ARCTIC ATHABASKAN TRADITIONAL CULTURAL AND SUBSISTENCE PRACTICES

The ancestors of today's Arctic Athabaskan peoples were semi-nomadic hunter-gatherers covering great distances in their search for food.¹⁰⁶ Arctic Athabaskan peoples relied primarily on mammals (caribou, moose, muskox, snowshoe hare, porcupine, woodchuck, beaver, rabbits, bear, Dall sheep, ground squirrel, muskrat), birds (ptarmigan, grouse, spruce hen, ducks, geese) and their eggs, as well as medicinal and nutritive plants, including cranberries, blueberries, strawberries, raspberries, mossberries, dewberries, soapberries, wild rhubarb, chamomile, mushrooms, and rosehips.¹⁰⁷ Other plant products used include firewood, birch bark, spruce root, and birch sap.¹⁰⁸ At river camps during spring and summer, Arctic Athabaskan peoples traditionally fished for salmon, char, grayling, ling cod, blackfish, whitefish and pike.¹⁰⁹ Fish were cleaned, split, dried, smoked and stored in caches to be eaten through the winter.¹¹⁰ During winter, when river and lake ice was solid but not too thick, people also caught fish through the ice.¹¹¹

Modern Arctic Athabaskan people generally live in small settlements; much of the population still “lives off the land,” gathering traditional wild “country” foods and other resources for some or all of the year.¹¹² They spend parts of the year at fishing camps along rivers, and spend other seasons following and hunting animals and waterfowl.¹¹³

Roger Alfred of Pelly, Yukon reflected on the importance of wildlife to Athabaskan cultures:

*I go out on the land all the time, every chance I get. ... It's either to do with hunting or harvesting medicinal plants or trapping, fishing, hunting. ... Our traditional values, our cultural values, our connection to the land and the wildlife and the fish and the environment: those are the most important things in an Indian world.*¹¹⁴



Photo courtesy of iStockphoto.

Ruth Welsh of Tagish, Yukon, remarked on her relationship with the land:

*As often as I can, I'm out on the land. I'm hiking, walking through the woods, gathering my medicines. I am so land bound—I love the land.*¹¹⁵

Arctic Athabaskans continue to eat large quantities of traditional wild foods today; the species harvested and the methods used to procure them form the basis of Athabaskan community health, livelihoods, and cultural, social and spiritual identity.¹¹⁶ Even where store-bought foods are common, subsistence foods make up a significant proportion of daily nutrition.¹¹⁷ In one study, Athabaskans in the NWT ate some traditional food on 65 percent of days.¹¹⁸ In interior Alaska, Athabaskans eat 39 kg of moose per person per year.¹¹⁹ Dene communities in the NWT are self-sufficient in their protein requirements, based on data from per

capita subsistence harvest studies.¹²⁰ Of northern indigenous adults in Canada (including Arctic Athabaskan peoples), more than 70 percent reported hunting and fishing, with more than 96 percent doing so for subsistence purposes.¹²¹ Similarly, Yukon indigenous communities rely heavily on subsistence activities, with about one-third living on the land within the surveyed year, and the same percentage supporting their families with non-cash activities.¹²²

For Arctic Athabaskan peoples, cultural identity—the sense of attachment that comes from belonging to a social group—is inextricably tied to the land, water, snow and ice, and has an emotional significance that makes subsistence traditions key components of Arctic Athabaskan peoples’ quality of life and well-being.¹²³

James Allen of Haines Junction, Yukon, commented on Arctic Athabaskan peoples’ cultural ties to their traditional territories:

*The land has sustained our people for so long. Myself, I may have worked all over BC and Alberta, but I was always drawn back to where I was raised. A lot of our First Nations [people] do not even leave our traditional territory.... The land is home.*¹²⁴

In every Arctic Athabaskan community there are many people deeply committed to cultural survival and revival, despite the forces of cultural disruption over the past several generations.¹²⁵ They are teaching the youth about traditional hunting, fishing, trapping, gathering, and living off the land, as well as traditional stories, songs, and dances.¹²⁶ They are also keeping alive their indigenous languages, and traditions of clans, kinship practices, and potlatch celebrations, in which feasts are held to re-distribute wealth and strengthen reciprocity within the community.¹²⁷

2. ARCTIC ATHABASKAN OBSERVATIONS OF CLIMATE CHANGE

Arctic Athabaskan peoples are concerned about how accelerated climate change in the Arctic is affecting their traditions, livelihoods and subsistence.¹²⁸ For example, in 13 primarily Athabaskan communities in the Yukon, over 90 percent of surveyed residents believe the climate is changing.¹²⁹ In the relatively traditional communities of Teslin and Old Crow, 96 percent of surveyed residents believe climate change has had a direct impact on their lives.¹³⁰ Joe Tetlich of Whitehorse, Yukon, reflected on how Arctic Athabaskan peoples are affected by accelerated Arctic warming:

*In regards to climate change, I think [it] is a concern to all aboriginal people because they’re the nation that [is] connected to the land and climate change [affects] the water, the land, the animals, the air and that is their connection and if anything happens to one of these four, aboriginal people will be most affected. We need to deal with how to combat climate change so our people can still practice our traditional way of life and their culture.*¹³¹

The Arctic Athabaskan Council itself is greatly concerned that rapid climate change in the North threatens the welfare and way of life of Athabaskan peoples that are guaranteed under human rights regimes.¹³² Over the past several years, the leadership of the AAC has repeatedly

raised concerns to the Government of Canada and other governments of the Arctic Council regarding the warming effects of black carbon emissions in the Arctic and worldwide, within and near the Arctic, *i.e.*, emissions north of 40°, that have a greater likelihood of depositing on Arctic snow and ice.¹³³ The AAC believes that federal, provincial, and state governments have a duty to put in place effective climate change mitigation and adaptation policies and programs to protect the collective human rights of Arctic Athabaskan peoples.¹³⁴ The AAC seeks to:

... draw upon and summarize the traditional knowledge, testimony and wisdom of Athabaskan peoples and to use this information to persuade decision-makers to abandon their essentially non-committal, wait and see, approach to this global scourge [of climate change].¹³⁵

Scientific studies of climate change impacts in the Arctic often arrive at many of the same conclusions as Arctic Athabaskan peoples themselves, who are actively documenting their observations of the impacts of climate change through individual interviews and group workshops.¹³⁶ (Many Arctic Athabaskan communities are participating in the Arctic Borderlands Ecological Knowledge Cooperative, monitoring and collecting over 100 indicators of climate change.¹³⁷)

Cindy Dickson, Executive Director of the Arctic Athabaskan Council, grew up in Old Crow, a remote Vuntut Gwitchin First Nation village in far northern Yukon. She observed that Athabaskans, particularly elders, report changes later confirmed by scientists:

*A few years ago we convened an Elders Roundtable on climate change and almost every single one noticed a change in the air. They were saying it wasn't as bright as it used to be. I asked a well-known scientist if he knew of any studies about the sky not being as bright. He said he didn't. A couple of years later I was reading the New York Times and in their science section there was an article about how it's not as bright as it used to be due to pollution. Last year at a Health Canada results workshop on climate change, there was a study that said how the pollution particles in the air can change the way the sun appears in the sky... like a mirage... because of the particles. The elders notice more changes than we do because they live closer to the land. Part of their teachings from their parents and grandparents was to observe. When the elders say something about the environment, I really try to listen.*¹³⁸



Photo courtesy of Alaska Region U.S. Fish & Wildlife Service.

At the Elders Climate Change Workshop and the Yukon First Nations Climate Change Forum (2009), community members described the physical and ecological changes they have seen:

*In the northern Yukon, freezing rains in November have meant that animals cannot eat. Birds that usually migrate south in August and September are now being seen in October and November. In some areas, thawing permafrost has caused the ground to drop and in some cases has made the area smell foul. ... There are increased sightings of new types of insects.... Lakes and streams are drying up, or are becoming choked with weeds, making the water undrinkable. Many animals are changing their distribution and behavior. Bears used to go into their dens in October and November, but are now out until December.*¹³⁹

Alaskan Athabaskan communities' documented observations of climate change have included: warmer temperatures; increasing numbers of fires; difficulty traveling on the land in burned areas; drying of rivers and lakes; difficulty of river travel due to low water levels and risks to outboard motors; increasing beetle infestations of trees; fewer moose; fewer porcupine; changes in caribou migration due to fires and changing vegetation; and a worsening condition of caribou with animals having less fat and more abnormalities and parasites.¹⁴⁰ A 2009 Canadian government report noted that indigenous communities across the Canadian Arctic are convinced that the weather has become more variable and less predictable, and that storm events descend more quickly than in the past.¹⁴¹

Chief Bill Erasmus of Yellowknife, NWT noted that Athabaskan elders have been noticing climate changes for decades:

*I remember our people talking about changes in weather patterns and voicing their concerns in the early 70's. People were not convinced looking at the old timers, [but] they understood what they were talking about. They know what they see out on the land.*¹⁴²



Photo copyright Paul Vecsei.

Cindy Dickson, Executive Director of the AAC, commented:

*I think changes have been coming quicker in the last 10 years. When I go home [to Old Crow] I notice more changes in the landscape, more permafrost melt. Last summer we were walking on the mountain and you could see that a whole area had slid, exposing permafrost melt...*¹⁴³

The Denendeh Environmental Working Group (2002) on climate change compiled Dene Athabaskan observations of how climate change affects culture:

*Traditional knowledge teaches Dene about relationships, to know how things are related to each other. So for example, when asking how trees are affected by changes in climate, it may be appropriate to consider what is happening with drinking water. The relationship may be that there are different trees now, the willows having replaced spruce and other trees dying off, while the water tastes bad because of warming. Seen in this way, the entire world relates to all other parts, including the Dene.*¹⁴⁴

D. IMPACTS OF ARCTIC WARMING AND MELTING IN ARCTIC ATHABASKAN TERRITORIES

According to the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC AR4), the Arctic Climate Impact Assessment, and a wealth of other scientific literature, the Arctic climate is changing more severely and more rapidly than most other regions of the world.¹⁴⁵

Impacts of Arctic warming include warmer temperatures, increased precipitation as well as summer drought, changes in snow cover, thawing permafrost, glacier melt, more severe storms and winds, damaged ecosystems, and altered distribution and abundance of flora and fauna.¹⁴⁶ In 2004, the Arctic Climate Impact Assessment projected significant and accelerating changes to the cultures, ecosystems, and biodiversity of the circumpolar Arctic:¹⁴⁷

The warming has been significant over the past few decades (1966 to 2003), particularly in the NWT—continuing the band of substantial warming across northwest North America that also covers Alaska and the Yukon—reaching an increase of 2°C per decade. This warming is most evident in winter and spring.¹⁴⁸

...The changes ... include thinner sea ice, early breakup and later freeze-up of sea ice and lake ice, sudden changes in wind direction and intensity, earlier and faster spring melt periods, decreasing water levels in mainland lakes and rivers, and the introduction of non-native animal and bird species. These changes affect lifestyles through changes in the timing of animal migrations as well as in the numbers and health of some animal populations, and in the quality of animal skins and pelts. The distribution and quality of animals and other resources will affect the livelihoods, and ultimately the health of northern communities in Region 4.¹⁴⁹

In 2007, the IPCC AR4 reiterated such projections.¹⁵⁰ The conclusions of both assessments are now seen to be conservative, as warming and its associated changes are taking place far faster than projected.¹⁵¹

A 2011 Environment Canada report concluded that Canada has not done enough to avoid dangerous climate change, and that greenhouse gas emissions “must ramp down to zero immediately” to avoid more than 2°C rise in global temperatures and the subsequent extinction of thousands of species.¹⁵²

A 2011 review of the biophysical changes in Arctic Canada that affect the cultural activities of First Nations, including Arctic Athabaskan peoples, noted that such changes include precipitation, freeze/thaw dynamics of snow and ice, wind, snow cover, ice thickness, permafrost, spring runoff and soil erosion.¹⁵³

1. RISING TEMPERATURES

The Arctic is warming at least twice as fast as the rest of the planet, with some regions at 90° North latitude experiencing a 2.5° C increase, compared to the global average of 0.7° C.¹⁵⁴ The entire circumpolar Arctic annual air temperature during the 20th Century increased 0.9° C.¹⁵⁵ The past six years were the warmest on record for the Arctic region.¹⁵⁶ According to Environment Canada, in 2010 the Canadian Arctic tundra region was on average 4.3° C above normal.¹⁵⁷

In 2012, Arctic sea ice retreat broke all records and greatly outpaced all modeled predictions, retreating to the smallest extent as well as the smallest volume of ice on record—18 percent below the previous recorded minimum in 2007, and 50 percent below the average of the 1980s and 1990s.¹⁵⁸ By 2050, scientists predict that trans-Arctic shipping will be able to steer directly over parts of the North Pole during summer.¹⁵⁹ Half of Canada's ice shelves have disappeared since 2005.¹⁶⁰ During summer 2011, most of the Serson Ice Shelf broke away, the Ward Hunt Ice Shelf split in two, and icebergs one and a half times the size of Manhattan Island broke off.¹⁶¹ As one researcher noted, "The ice shelves were formed and sustained in a different climate than what we have now. As they disappear, it implies we are returning to conditions unseen in the Arctic for thousands of years."¹⁶²

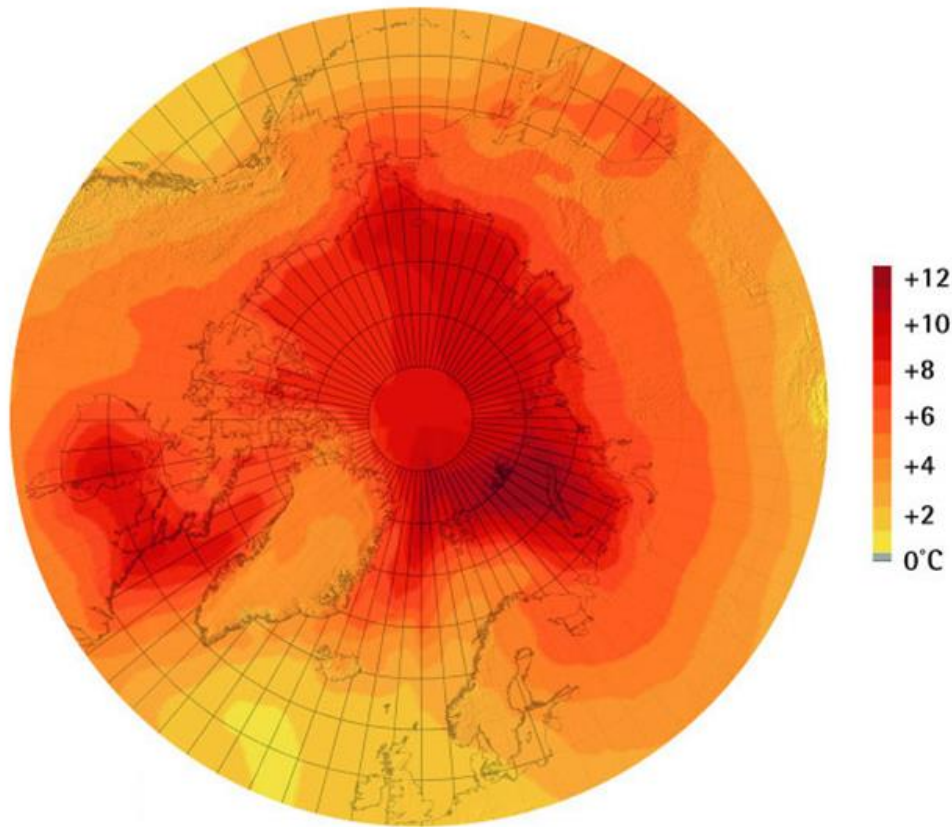
The IPCC AR4 predicts that the Arctic will warm 2° C to 9° C by 2100.¹⁶³ The current rate of warming is very likely unprecedented in the last 10,000 years.¹⁶⁴ A 2010 study predicted that by 2070, boreal forests will see an average monthly temperature increase of 5.4° C, while tundra will see an average monthly temperature increase of 6.5° C.¹⁶⁵ In all modeled scenarios of that study, parts of Arctic Athabaskan peoples' territories are predicted to experience at least two months per year of temperatures above the threshold considered to be a "climate extreme."¹⁶⁶ Additional studies agree that the greatest temperature changes are projected to occur in the higher latitudes, particularly in the northwest of Canada.¹⁶⁷ Median temperature increases for the western Canadian Arctic are projected to range from 6° C to 12° C by the 2080s.¹⁶⁸

The Government of Yukon *Climate Change Strategy* (2011) describes local impacts of climate change:

Yukon is experiencing impacts such as thawing permafrost, increased glacial melting, rising sea levels on the north coast, beetle infestations across southern spruce forests and more extreme weather events. These climate change impacts are threatening the structural integrity of buildings, highway infrastructure, are impacting traditional ways of life, damaging heritage sites and increasing the risks, costs and impacts of forest fires.

...Climate models project that over the next century, temperatures could rise by three to five degrees Celsius over land and up to seven degrees Celsius over the oceans. Levels of precipitation are also expected to increase in the Yukon due to climate change, with more precipitation expected in the winter versus the summer.

...The impacts from climate change on Yukon are potentially very expensive: spruce beetle infestation into merchantable timber; increasing fire suppression costs; potential for increasing incidents of invasive species; highway maintenance, infrastructure damage due to melting permafrost; winter road construction; reduced exploration season; changes to agricultural productivity and compromised subsistence hunting and fishing are all examples of costly climate change impacts.



Projected Surface Air Temperature Change 1990s-2090s in °C (Winter: Dec-Feb). Image courtesy of Arctic Climate Impacts Assessment (2004), Graphics Set 1, <http://amap.no/acia/>.

Michael Stickman of Nulato, Alaska commented:

*The weather changes so fast... in the wintertime it can be 50° F below one week and 50° F above the next. I was in total shock when I came back [from a recent trip abroad], I couldn't believe how hot it was. When I was in grade school it used to be 40-60° F below for 2 months straight, no breaks... and now we have super mild winter weather.*¹⁶⁹

Chief Eddy Taylor of Dawson, Yukon commented on how rising temperatures are changing ice and thaws:

*During my childhood in the 60's and 70's, the Yukon River used to have an ice bridge in November. [It] was thick, and we use to get 40 below temperatures in November and you don't see that anymore. The thaws are definitely earlier, the winters aren't nearly as cold as it used to be.*¹⁷⁰

Eric Morris, Regional Chief of First Nations, from Teslin, Yukon also observed dramatically warmer winter temperatures:

*I have seen where the temperature is so mild on Christmas Day that I was actually washing my truck on December 25. That is extreme.*¹⁷¹

Mae Andre of Fort McPherson, NWT elaborated:

*Well, everyone notices it.... They notice the weather changes – every summer it's getting hotter. Our winters are not as cold as they used to be. We used to have 65 below long ago, and now it's very rarely we get 30, 40 below. Sometimes even in December we get a little rain or Chinook or something like that.*¹⁷²

2. INCREASED PRECIPITATION, BUT DECREASED SNOW AND ICE

Many of the impacts of Arctic regional warming are chronic, including warming, increased rain, and permafrost thaw. Other impacts like flooding and severe storms, are acute, and can create grave challenges for Arctic Athabaskan peoples, including destruction of homes and other property.

Increased precipitation creates both chronic and acute impacts. Specifically, Arctic warming increases evaporation, leading to a 20 to 30 percent increase in regional precipitation by the end of this century.¹⁷³ Much of this increased precipitation will fall during the winter as rain and freezing rain, resulting in faster snowmelt, flash flooding, and ice storms.¹⁷⁴ Since 1948, annual precipitation totals have increased throughout all of northern Canada, with the Arctic mountains increasing 16 percent, and the northerly Arctic tundra increasing 25 percent.¹⁷⁵



Photo courtesy of Arctic Athabaskan Council.

Grand Chief Ruth Massie of Lake Laberge, Yukon observed that the textures of snow are changing:

*I notice different textures of snow when you are out on the land. I notice the texture because it's crystallized when you are walking ... the snow doesn't pack anymore, it's like walking [on] marbles.*¹⁷⁶

In 2009, a flash flood in Eagle Village, Alaska, home to Han and Gwich'in Athabaskan peoples, completely destroyed the village.¹⁷⁷ The flood was due to a long winter of heavy snowfalls, thick river ice, and record high temperatures in the eastern interior of Alaska, which caused ice jams that acted as a dam to flood riverside communities.¹⁷⁸ River water rose to the second story of houses overnight, forcing residents to flee in canoes, losing their homes and vehicles.¹⁷⁹ All homes, as well as a local clinic and public safety office were destroyed.¹⁸⁰ Then in 2011, Crooked Creek, Alaska, a village of primarily Arctic Athabaskans, was partially

destroyed when water and ice chunks flooded 70 percent of the houses, knocking some off their foundations.¹⁸¹

Roberta Joseph of Dawson, Yukon reflected on severe damage from floods in the region:

*There was a flood just across the border from Eagle; pretty much wiped out their whole town.... And this is the first time there has been ever that extensive amount of damage. The whole village of Eagle is no longer there. The buildings were so badly damaged they had to plow everything with a Cat—now there is absolutely nothing.*¹⁸²

In the Arctic, snow historically contributed roughly 80 percent of annual precipitation, but the fraction of precipitation falling as snow is decreasing.¹⁸³ Snow cover insulates the ground, affects permafrost distribution, and water budgets.¹⁸⁴ Warmer temperatures decrease the length of time available for accumulation of a winter snowpack and accelerate and increase the volume of the spring snowmelt.¹⁸⁵ Snow cover is also an essential condition of good habitat for terrestrial and aquatic species, especially caribou.¹⁸⁶ In 2012, Environment Canada reported that spring snow pack in the Arctic is disappearing at a much faster rate than anticipated even by climate change models, and over the past 40 years, snow cover has declined at a rate even faster than sea ice retreat.¹⁸⁷

Chief Eddy Taylor of Dawson, Yukon, observed an increase in rain in winter, rather than snow:

*What's changed is now we are getting rains throughout the winters.*¹⁸⁸

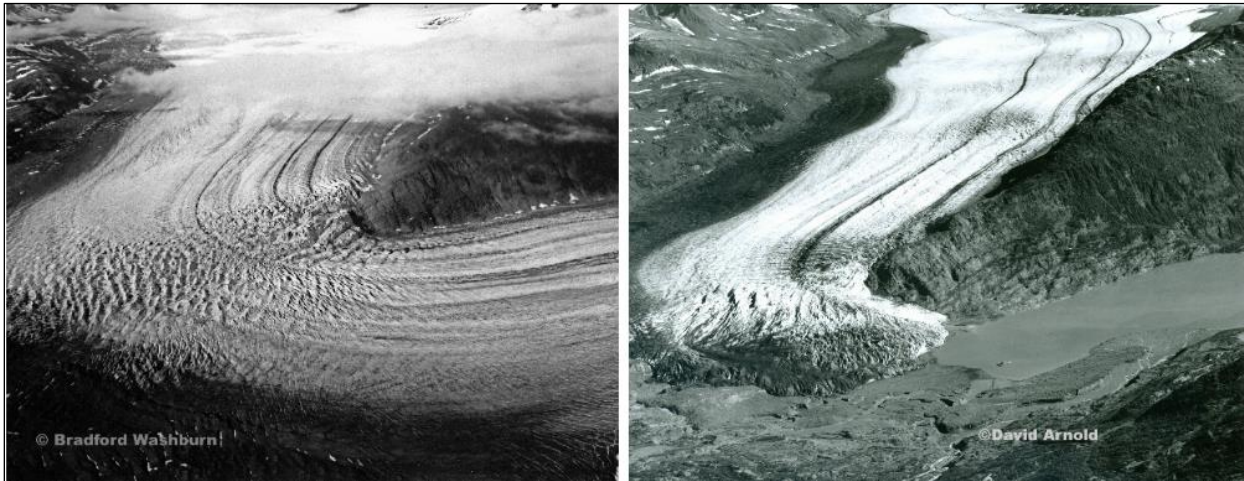
Chief Bill Erasmus of Yellowknife, NWT commented on changes in ice freeze thaw cycles, and rain in winter:

*It doesn't freeze as early as it used to. What normally happened here is it will get cold in October and then the end of October around Halloween the ice is freezing in the bay, the small lakes will have the ice coverage, the bigger lakes will start to freeze around the shore, and we will have 3-4 inches of snow. But what is happening we will still have snow at Halloween but ice is not freezing. But we also find going into early November there is rain, which is very unusual. We had rain a number of years—now we even had rain in January.*¹⁸⁹

Though scientists have documented a marked increase in heavy snowfall events (snowstorms or blizzards), 2010 hit a new record low for spring snow cover duration in the circumpolar Arctic since satellite observations began in 1966.¹⁹⁰ By 2090, snow cover is predicted to drop 9 percent to 18 percent in the circumpolar Arctic.¹⁹¹ In the Canadian Arctic, the rate of mass loss for glaciers and ice caps has been increasing since 1987.¹⁹² In the late 1990s, the rate of thinning of Yukon-Alaska glaciers was nearly double that of the Greenland Ice Sheet.¹⁹³ A 2011 study found that melt rates of Canadian Arctic ice caps are the highest in four millennia.¹⁹⁴ Indigenous elders across northern Canada have noticed decreasing snow accumulation due in part to warmer temperatures, stronger winds, or decreased snowfall in others.¹⁹⁵

Charley James of Carcross, Yukon Territory, noted less snow in the mountains:

*Snow cover on these mountains, most of them by the middle of July they're all gone. This mountain up here, Canada ski teams... used to come here and train in the early 80s because there was snow here all year round, but that's not so anymore.*¹⁹⁶



Shoup Glacier, Alaska, in 1938 and 2006. Image courtesy of Bradford Washburn and David Arnold, *Radio Boston, A Photographic Diary of the Climate Crisis*, <http://radioboston.wbur.org/2012/11/15/climate-change-photography>.

3. THAWING PERMAFROST: GROUND SLUMPING, RIVERBANK EROSION, WETLAND DRAINAGE, AND IMPACTS ON FRESHWATER ECOSYSTEMS AND FISH

Permafrost, defined as ground or soil frozen for over two years, underlies roughly half of Canada.¹⁹⁷ Permafrost melt causes soil instability, often leading to collapse of land surfaces, rockslides, landslides, and avalanches.¹⁹⁸ It also leads to differential settlement of soils, increases in ponded water in some places, and drainage of wetlands in other areas when surface and groundwater meet.¹⁹⁹ Permafrost degradation also leads to increased infiltration, greater groundwater storage, lower spring runoff, and increases in base flows of rivers, with implications for the quality of surface water.²⁰⁰ Permafrost temperatures are now increasing around the Arctic rim and contributing to increased river discharges to the Arctic Ocean.²⁰¹ In the circumpolar Arctic, temperatures at the top of the permafrost layer have increased by up to 3° C since the 1980s, while the area covered by seasonally frozen ground has decreased by 7 percent in the past century, with a decrease of up to 15 percent in the springtime.²⁰² Alaska and Northwestern Canada have some of the largest increases in permafrost temperatures.²⁰³ Over the next century, permafrost degradation is predicted to occur over 10 to 20 percent of the current permafrost area of the circumpolar Arctic, and the southern limit of permafrost will likely shift northward by several hundred kilometers.²⁰⁴

Canadian Arctic soils with the greatest sensitivity to permafrost thaw include those of the Arctic Athabaskan peoples in the Mackenzie River basin.²⁰⁵ In the northern Mackenzie Valley,

permafrost temperatures increased about 1°C in the 1990s.²⁰⁶ A global temperature increase of 3°C would mean a 6°C increase in the Arctic, resulting in an irreversible loss of 30 to 85 percent of near-surface permafrost.²⁰⁷ As the upper layers of permafrost that thaw each summer become thicker with rising regional temperatures, huge quantities of organic matter stored in frozen soil could begin to decay and release carbon dioxide and methane.²⁰⁸ This would create a “permafrost carbon feedback” that would further increase surface temperatures.²⁰⁹ Warming permafrost could emit 43 to 135 gigatons of carbon dioxide equivalent by 2100, or up to 39 percent of global emissions by 2100.²¹⁰

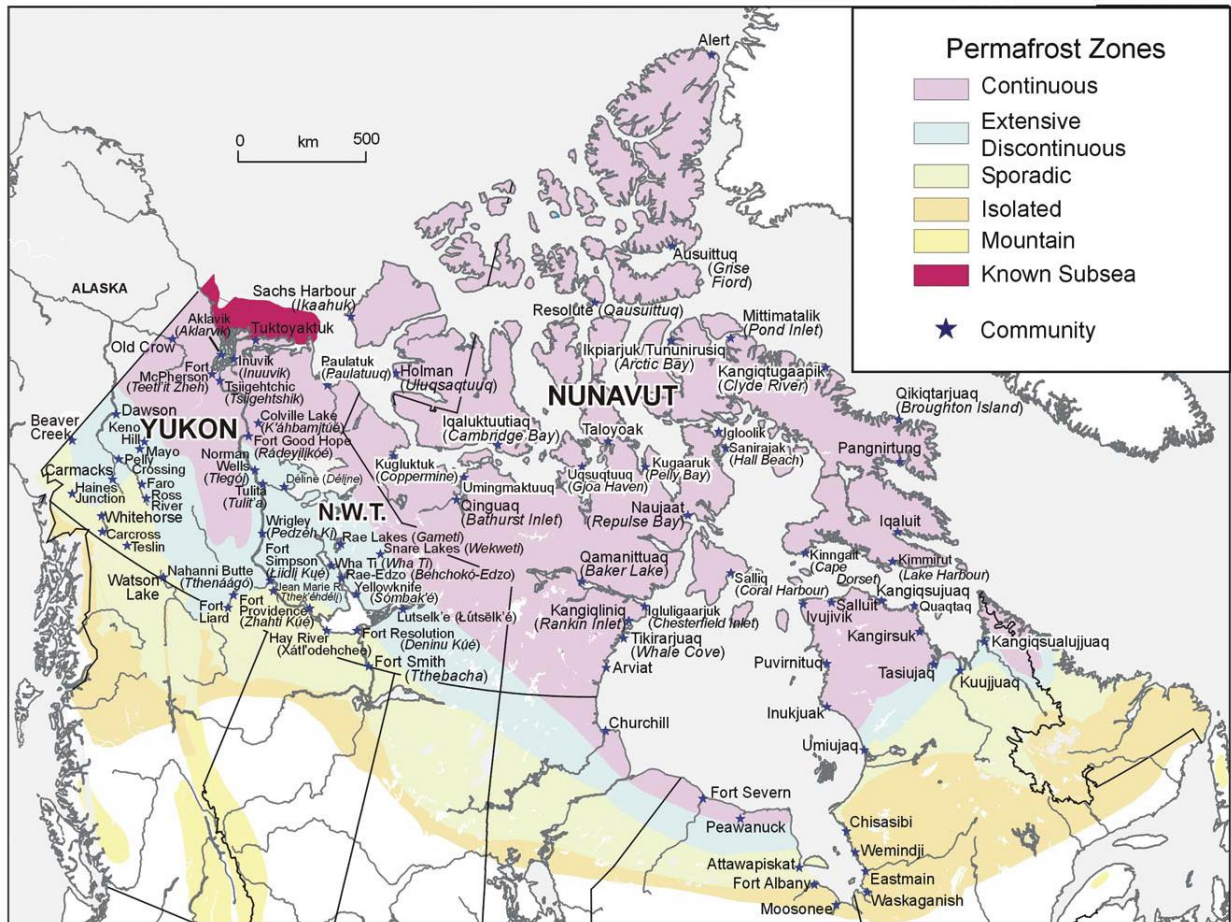


Image courtesy of Arctic Climate Impact Assessment.

Ruth Welsh of Tagish, Yukon commented on how permafrost melt has caused dry land to become swampy, old lakes to dry up, slumping and landslides:

Landslides and different places where you find slumping, that's where the ice lenses have melted and the land just sinks. There's a lot of that here. All the places I used to go with Mom when she was teaching me, we'd be walking on dry land and now that's all swampy. There's thousands of lakes up there. You can go anywhere in the Delta and you can find a lot of lakes that have gone dry. There are also a lot of slides and slumping. There are so many changes.²¹¹

Warmer temperatures will cause greater summer evaporation, further lowering tundra pond levels and exacerbating loss of wetlands.²¹² Wetlands in Athabaskan territories in Alaska have already shrunk by 31 percent from the 1950s to 2002 due to warmer temperatures and greater evapotranspiration, but no increase in precipitation.²¹³

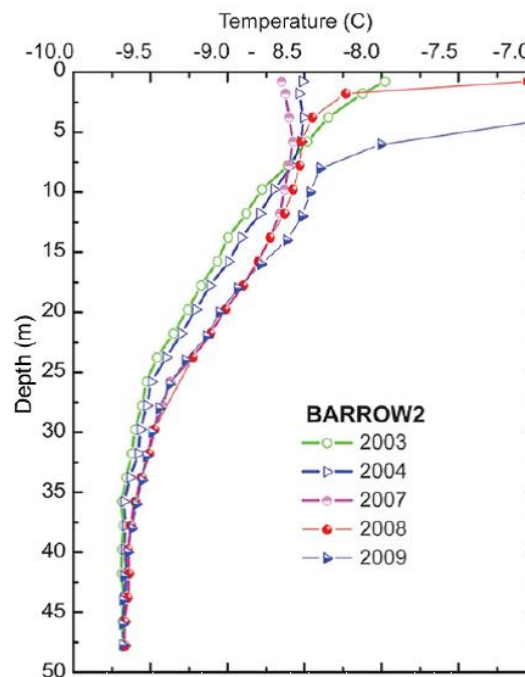
Roberta Joseph of Dawson, Yukon Territory observed that erosion and permafrost melt are damaging riverbanks and will impact salmon:

I noticed some of our settlement lands have eroded about seven feet ... throughout the past 10 years ... some areas where I used to pick berries along the river.... Now during breakup, the land is eroded away and permafrost melting away during breakup, there is only a trail along there now.... When I was young I use to recall whenever I went on the river I use to recall a lot of overhanging of trees and now I don't see that anymore. The overhanging of trees is really important for the salmon smelts when they are returning to the ocean, provide the salmon smelts protection [and] keeps them cool.²¹⁴

Arctic rivers are currently increasing their discharge to the ocean, due in part to permafrost thaw and increased glacier melt in the mountains. From 2000-2008, the four largest Arctic North American rivers discharged six percent more water than the mean of the previous three decades.²¹⁵ Annual river discharges are predicted to increase 12 to 20 percent for the Mackenzie River, and 20 to 30 percent for the Yukon River by 2050.²¹⁶

Water quality is also affected by permafrost melt and erosion. Aboriginal and Northern Affairs Canada has acknowledged that rising temperatures are causing higher risk of contamination of freshwater sources in the NWT, and that erosion is a primary concern, with entire riverbanks crumbling into rivers.²¹⁷ Environment Canada has warned that Arctic warming and permafrost melt will deepen the active soil layer, increase geochemical weathering of soils, and increase release of sediments, contaminants, and nutrients into springs, streams and rivers, with major implications for biological processes, including food web structure.²¹⁸

Mae Andre of Fort McPherson, NWT, observed erosion causing trees to fall into lakes and rivers:



Changes in permafrost temperature between 2002-2009 at Barrow, Alaska Permafrost Observatory. Image courtesy of NOAA Arctic Report Card 2010.

*Erosion, there's lots of erosion. The Elders say that they've never seen trees and willows falling into lakes like this before. The ground will just fall right into the lakes with trees and willows.*²¹⁹

Chief Eddie Skookum of Little Salmon Carmacks First Nation, Carmacks, Yukon, commented on the large landslides that occur with permafrost melt:

*I seen all of that, melting permafrost, land slumping and landslide. We have a big landslide at Little Salmon Lake and if you go on the other side you will see it—how many miles long and how many miles wide. There is an indent in the side there into the Big Salmon Lake and you notice all the land slumping, permafrost when you go along the roads.*²²⁰

4. INCREASING FOREST FIRES AND INSECT INFESTATIONS IN BOREAL FORESTS

Arctic warming is projected to continue to increase the frequency, extent and severity of forest fires in Athabaskan territories.²²¹ Wildfires in North American boreal forests were generally on a 100-year return interval, but now forest fires have become more frequent.²²² This is confirmed by satellite monitoring data.²²³ This threatens Athabaskan natural resources, homes, and travel infrastructure, including hunting trails.²²⁴ Fires also shift the age class of forests toward younger ones.²²⁵ Deciduous trees will out-compete conifers in fire recovery areas, changing the composition of forest stands and succession trajectories.²²⁶ With rising temperatures, forest pest infestations become more severe, further exacerbating the fire cycle.²²⁷ Warming summer temperatures will also increase tundra fires.²²⁸

Isaac Juneby of Eagle, Alaska, noted the increase in forest fires in his lifetime:

*The summertime is much more drier and we have more frequency of forest fires.*²²⁹

Over the past decade, spruce bark beetle infestations in Arctic Athabaskan territories, particularly southwestern Yukon, have led to high mortality of mature white spruce. This has included the most severe infestation outbreak ever recorded in Canadian forests.²³⁰ Abnormally warm summers have allowed the beetle to complete its life cycle in one year rather than two, leading to dramatic population growth.²³¹ Drought stress during warmer summers further reduces the ability of trees to resist beetle attacks, leading to more extensive areas affected, and greater frequency and intensity of outbreaks, resulting in higher tree mortality rates.²³² As with fires, insect infestations lead to changes in forest succession, allowing deciduous trees to out-compete conifers. This has particularly negative impacts on woodland caribou, which rely on older coniferous forests.²³³



Photo by Lynn D. Rosentrater.

Joe Migwans of Whitehorse, Yukon noted increases in spruce beetles and forest death:

*All the trees were green before and now they are kind of grayish because the spruce beetle killed them and I heard the spruce beetles survive because it's not cold enough here in the Yukon anymore.*²³⁴

Grand Chief Ruth Massie of Lake Laberge, Yukon agreed:

*I also notice we have more trees dying off; we now have beetle killed trees in our areas but not as extensive as other areas in the Yukon. We also notice tree diseases that are attacking some of the younger trees.*²³⁵

Lenny Charlie of Carmacks, Yukon agreed:

I've noticed there's a lot more bugs in the trees with the warmer climate.

5. RANGE SHIFTS OF SPECIES USED FOR ATHABASKAN FOOD AND HEALTH

Arctic warming is causing significant changes in populations and distributions of species as habitats change and ecosystems move northward or shrink in size.²³⁶ Species that thrive in the Arctic today are well-equipped to handle extreme cold, but will be increasingly out-competed by sub-Arctic and temperate species as the climate warms: boreal forests will shift into Arctic tundra, while influxes of southern species will dramatically change boreal forests.²³⁷ A 2011 study noted that range shifts increase with the level of warming and are occurring globally at roughly 17 kilometers per decade, two to three times faster than previously reported.²³⁸

Boreal forests are predicted to replace 11 to 50 percent of all Arctic tundra by 2100,²³⁹ with canopy-forming shrubs, including alder, willow, dwarf birch and creeping juniper increasing in the Canadian Arctic and the circumpolar Arctic.²⁴⁰ Dendrochronology studies indicate that Arctic trees have had greater radial growth for the past two decades and that shrubs are greatly expanding their distribution.²⁴¹

Shading from shrubs and trees may reduce berries (food for people) and lichens (food for caribou).²⁴² Lichens and mosses create soil organic matter, retain nutrients, and insulate permafrost by reflecting light.²⁴³ Northward expansion of forests will cause additional Arctic warming as the vegetation decreases regional albedo further.²⁴⁴ Soils under shrubs can be up to 30° C warmer than soils not insulated by shrubs, altering soil temperatures, nutrient cycling, and permafrost thaw.²⁴⁵ Shrubs and trees growing over snow also decrease albedo (reflectivity), causing further warming and melting.²⁴⁶

Roy Johnson of Dawson, Yukon, noted that trees are growing in what was once tundra:

*I notice that we are getting more trees now growing up there ... before we use to get them 30 feet high... now you see them sprouted up 50 feet. They get longer and taller and you get a lot of willows.*²⁴⁷

Circumpolar wildlife monitoring by the Arctic Species Trend Index (ASTI) documented changes in Arctic vertebrate abundance from 1970 to 2004: the High Arctic has experienced population declines in 26 percent of vertebrate species; sub-Arctic populations generally remained stable; and 46 percent of low Arctic vertebrates had population increases, as the area warms and species move northward.²⁴⁸



Photo courtesy of Arctic Athabaskan Council.

Chief Bill Erasmus of Yellowknife, NWT observed that magpies have recently moved in to the region:

*We notice in this area there are new birds; there are magpies which we never had before. Very unusual, it never used to come here and they come here all year round and they are moving in. A lot of people are concerned about those birds because they say they bother other birds' nests.... It's a new one.*²⁴⁹

Stanley James of Carcross, Yukon, has also observed new birds:

*There's different birds coming because I sit here and watch them when they're drinking water.... you see different birds and I've never seen them before and then I thought wow, something is changing all right.*²⁵⁰

Population changes in a single species can have cascading effects on ecosystem structure and function, and Arctic ecosystems are at heightened risk of experiencing such dramatic changes because of their low species diversity.²⁵¹ Declines in lemmings in Canada, for example, are thought to be due in large part to climate change.²⁵² Northward movements of southern species like red fox, along with severe weather events, may be contributing to negative impacts on herbivores in the Arctic.²⁵³ As Arctic habitats shrink, major species shifts and possible extinction of endangered species will result.²⁵⁴

Climate warming in the Arctic also brings an increase in vegetative growth. Longer growing seasons and deeper summer soil thawing also contribute to the increase in biomass.²⁵⁵ Some of the greatest changes in vegetation have been observed in the High Arctic of Canada and Northern Alaska, with greening increases up to 15 percent from 1982 to 2008.²⁵⁶ Satellite monitoring over the last several decades has documented increased Arctic vegetation “greening” and growth for all types of tundra vegetation, as well as boreal forests “browning” with increased tree death, particularly in dense, coniferous forests.²⁵⁷

The distribution of medicinal plants is also affected by Arctic climate change.²⁵⁸ Gathering for subsistence by Arctic Athabaskan peoples may become more difficult in a warming Arctic as traditional food plants (especially berries) are shaded by willows and other shrubs, or their ideal climate moves north or to a higher altitude.²⁵⁹

Charley James of Carcross, Yukon, observed changes in birds and plants:

*The thing about climate change you're seeing different types of birds you've never seen before. ... Native tree species, they're under a lot of stress with the hot weather, the spruce and the pine. They produce more cones, you see the brown on the top, that's because it's a really dry, hot summer and they're stressed so they'll go to seed.*²⁶⁰

Roberta Joseph of Dawson, Yukon, noted that climate changes are affecting berries:

*At the Top of the World Highway last year the land was so dry that there [were] practically no berries.*²⁶¹

Arctic warming can increase mortality rates in some species, reduce reproductive capacity, and increase competition for resources due to northward extension of southern species.²⁶² Some wildlife populations are taking different migration routes, migrating to entirely new territories, moving poleward, or to higher elevations.²⁶³ Species found in the High Arctic or high altitudes may experience a narrowing of range, as their ecological niche shrinks.²⁶⁴ Such changes decrease hunting efficiency for Athabaskan peoples, as hunters must search out new migration routes or populations.²⁶⁵ Hunters are also becoming more selective about which animals to kill, as many are unhealthy looking.²⁶⁶

Charley James of Carcross, Yukon, noted that moose no longer follow predictable patterns:

*The hunting part has changed because you can't predict from year to year when the moose are going to rut. One year they rut earlier, next year will be different. And it's hard to predict where the animals will be...years ago you used to be able to say you go to this area and the moose would be there in that area.*²⁶⁷

Aboriginal and Northern Affairs Canada has acknowledged “new populations of insects and pests impacting the ecology and forestry; shifting patterns of species breeding and migration; [and] decreasing availability of certain species depended upon as a food source.”²⁶⁸

a. Impacts on Caribou

Of all the wildlife in Arctic Athabaskan territories, caribou are the most vital to the culture, nutrition, economy, and mythological heritage of Arctic Athabaskan peoples.²⁶⁹ Two subspecies of caribou live in Arctic Athabaskan territories: migratory barren-ground caribou (including Porcupine caribou) and non-migratory woodland caribou.²⁷⁰ Caribou meat has been an essential food source for Arctic Athabaskan peoples for thousands of years.²⁷¹ Skins and



Photo by Florian Schulz, courtesy of Earthjustice.

sinews were made into rugs, tents, cords, clothing, moccasins, and countless other items.²⁷² Bones and horns were carved into tools.²⁷³ Caribou fat was burned for light and heat.²⁷⁴ Modern Athabaskan cultures continue to rely on caribou for food, clothing, and crafts as they have for millennia, despite modern participation in the cash economy.²⁷⁵ Cultural values dependent on the existence of caribou to pass on to future generations include education in traditional ways of life, kinship and bonding, and recreational enjoyment of hunting.²⁷⁶

According to the Beverly and Qamanirjuaq Caribou Board:

*Encouraging young people to hunt caribou responsibly ties them to the traditions of their past. This strengthens and enriches life in native communities. Retracing the footsteps of their elders will help anchor young people, who are barraged by a constantly changing world.*²⁷⁷

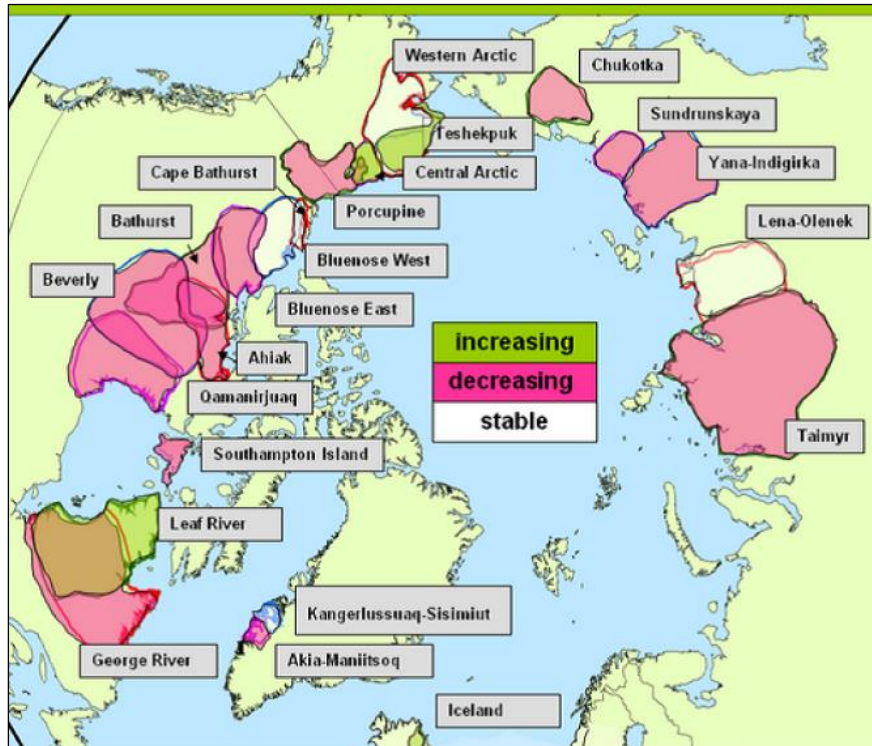
Caribou are hunted in the fall during migration.²⁷⁸ Networks of meat sharing and exchange, generally kinship-based, are important features of Athabaskan communities and extend to residents of neighboring communities and regional centers.²⁷⁹

Caribou herds depend on good foraging conditions and abundant tundra vegetation, or late seral coniferous forests.²⁸⁰ Although caribou have always been affected by natural cycles, harvesting, and climate events, accelerating Arctic regional warming is predicted to cause warmer and longer summers, greater variety in snow conditions, and snow cover changes that will affect the growth and distribution of plants eaten by caribou.²⁸¹

Caribou population dynamics are closely tied to plant growth cycles.²⁸² With rising temperatures, Arctic plants start their growing season earlier in the spring.²⁸³ However, as caribou time their migration by changes in day length rather than temperature, they are now arriving at their calving grounds well after the spring “green-up,” resulting in lower calf production and higher calf mortality.²⁸⁴ Arctic warming and greater precipitation may cause an altitudinal upward shift in the production of lichens in alpine and sub-Arctic regions, along with increased competition from vascular plants. As the tree line moves northward, lichen will be out-competed by grasses and shrubs.²⁸⁵ From 1981 to 2005, scientists documented declines in lichens and increases in grasses and shrubs on the winter range of the Western Arctic caribou herd.²⁸⁶ Continued declines in lichen cover may lead to caribou population decline or range shifts.²⁸⁷

Changes in insect emergence, abundance, and activity are also correlated with air temperature, so climate warming reduces the amount of time caribou can forage undisturbed.²⁸⁸ Mosquito and fly harassment cause significant energy expenditures, weakening both adult caribou and calves.²⁸⁹ Up to 2,000 warble flies (similar to bot flies, burrowing in and out of caribou skin as maggots and larvae) have been found on a single caribou.²⁹⁰

Woodland caribou are already experiencing pressure from northward-expanding ungulate competitors, including moose, deer and elk.²⁹¹ With these ungulates come parasites lethal to caribou.²⁹² The range expansion of white-tail deer, which carry brain worm, threatens to push caribou out of vast areas of forest habitat.²⁹³



Current status of the main migratory caribou herds across the circumpolar north. Map courtesy of D. Russell, *State of Wild Reindeer Herds*, Scientist Emeritus, Canadian Wildlife Service, Environment Canada, Yukon, Canada/NOAA Arctic Report Card Update for 2010, http://www.arctic.noaa.gov/report10/essay_russell.html.

Extreme weather events, including unusually deep snow and freezing rain on top of snow (ice crusts) can create difficult grazing conditions for caribou and result in starvation and mortality.²⁹⁴ Increased forest fire frequency, logging, and other industrial development within woodland caribou habitat are replacing conifer forests with mixed and deciduous early seral stage forests, further decreasing lichen abundance and increasing vulnerability to predators.²⁹⁵ The cumulative effects of all of these climate change pressures are significant threats to the long-term survival of caribou.²⁹⁶

As of 2009, caribou populations are declining in four-fifths of the major herds of the circumpolar Arctic that have been monitored over the past decade.²⁹⁷ While hunting and habitat loss due to industrial development are major factors in these population reductions, climate change impacts on lichen, as well as increasing insect infestations and forest fires in boreal forests, are causing significant changes to caribou habitat.²⁹⁸ As caribou herds decline, this threatens traditional culture, subsistence and nutrition for thousands of Athabaskan households and communities.²⁹⁹ As caribou populations decline, experts predict caribou harvest shortfalls for traditional users.³⁰⁰ A 2004 study predicted that in forty years, less than half of the studied Athabaskan and Inuit households in western Yukon and much of Alaska currently using Porcupine Caribou will be able to meet even half of their caribou needs.³⁰¹

Katherine McConkey of Copper Centre, Alaska, noted that caribou populations are dramatically smaller:

*We see a lot less caribou than we used too. ... Now you barely ever see any. We used to see them by the thousands.*³⁰²

Regional Chief Eric Morris of Teslin, Yukon, commented on how temperatures and snow melt and freeze cycles affect caribou and other animals:

*Changes in the weather patterns, it affects not only us human beings but it affects the animals If we have early snowfall and then it melts and freezes it's literally like putting a plastic bag over the land. So if you have caribou that depend on food underneath the snow and if there is ice that they have to get through that is a problem for them...*³⁰³

Joe Tetlichy reflected on the impacts of warming on caribou:

*The weather is getting warmer in the spring time, the plants get greener faster, meaning the animals get their nutrients faster. This could also be a burden on them because if the springs are hotter ... then the feed grows faster, the sun could dry the food before the young can get it. If it's greener faster, by like, say, the first part of June, later when calves and cows—the mother—needs that nutrients; it could be dried up. That is a big concern that we as [caribou] managers feel.*³⁰⁴

Chief Bill Erasmus of Yellowknife, NWT commented on how Athabaskan peoples observe animals struggling to find food under ice crusts:

*Our people know the animals, ...there [T]there is one year, it got cold, then it got warm up, then it rain, the ... layer of ice, it was hard for animals to get under that to eat and to keep up with this, and then the young ones didn't survive.*³⁰⁵

b. Impacts on other species used as traditional foods

Other species used by Arctic Athabaskan peoples for traditional foods are also threatened by a warming Arctic. In some communities, hunters have started to go after more readily available game (such as muskox) when caribou populations have decreased.³⁰⁶ However, muskox are also sensitive to impacts of a warming Arctic, including heavy snow events, increased icing, and parasitic infections.³⁰⁷ Geese migrations are affected by the rapid break up of ice in spring, causing them to migrate more quickly.³⁰⁸ Salmon declines since 1997 are also likely due, in part, to Arctic warming: higher water temperatures may have increased salmon metabolism beyond what they can maintain with existing food sources.³⁰⁹ Researchers and fishers are also noticing that spawning salmon are smaller than normal in some regions.³¹⁰

Chief Bill Erasmus of Yellowknife, NWT observed that warming is accelerating in Arctic Athabaskan peoples' territories and bringing changes to wildlife:

Climate change is more evident now in the last 10 years. We see it all the time. We have new animals and birds in our area. We have coyotes and deer that we never had before. Deer were unheard of in our area, and now they're in the North. Crows never used to come this far north, now they're here; we [now] have magpies here in the North year round. ... I was just talking to an elder who said that down the Mackenzie River in Fort Wrigley near the 60th parallel, the fish are now very soft... the North is well known for its good fish because the waters are cold and deep and the fish is hard...now they're soft ... they're not the same.³¹¹

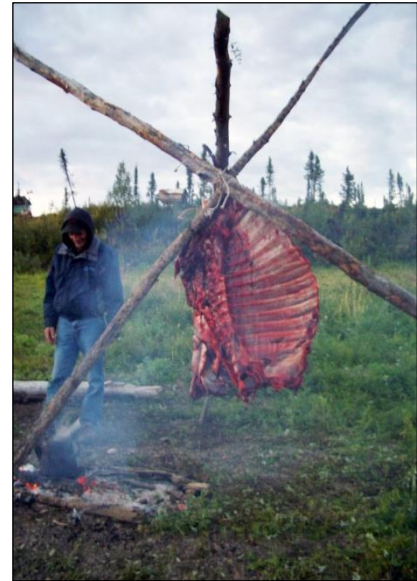


Photo courtesy of Arctic Athabaskan Council.

Grand Chief Ruth Massie of Lake Laberge, Yukon, observed:

I notice the depletion of animals more and more.³¹²

6. IMPACTS ON TRADITIONAL KNOWLEDGE AND CULTURE

The Government of Canada has recognized that indigenous peoples and others living off the land are particularly vulnerable to the effects of climate change.³¹³ According to Aboriginal and Northern Affairs Canada, “[a]s the ecological systems change, Aboriginal and northern communities may experience impacts on hunting, fishing and gathering. Their culture and traditions are closely tied to the natural environment. Climate change poses some serious implications to their way-of-life.”³¹⁴

Traditional knowledge can be defined as “a cumulative body of knowledge, practice and belief evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.”³¹⁵ Traditional knowledge of hunting and associated cultural traditions includes an understanding of the distribution and movement of animals in response to different weather conditions.³¹⁶ Arctic Athabaskan peoples have extensive traditional knowledge regarding climate, often expressed in oral histories as well as in contemporary observations.³¹⁷

The loss of traditional knowledge related to reading the weather, understanding land conditions and survival skills also makes travel on the land more dangerous, resulting in injuries and loss of life during storms or equipment failures.³¹⁸

Access to traditional foods has become more difficult, dangerous, and time consuming with climate change, including: changes in populations or distribution of Athabaskan peoples’

food species and their habitats; reduced snow cover; changes to snowdrifts and snow density; avalanches; reduced ice thickness; increased floods or water levels too low for navigation; changes in wind patterns; sudden break up of ice; freezing rain and more intense rainstorms; and permafrost thaw leading to muddy conditions, ground slumping, and rockslides.³¹⁹ Such changes render traditional travel routes impassable and cause Athabaskan peoples to spend less time out on the land engaged in harvesting activities.³²⁰ Hunters may have to wait until later in the winter to travel for hunting and stop traveling earlier in the spring.³²¹ They may have to travel farther because ice or snow routes no longer exist, increasing the risk of becoming stranded.³²² Navigation becomes more difficult as the landscape changes, with permafrost melting causing erosion, slumping, and ponded water in areas that were previously hard.³²³

In a warming Arctic, hunting and gathering becomes more dangerous.³²⁴ For example, Janice Dickson Dubois of Burwash Landing, Yukon described the increased dangers of hunting and gathering when bears are no longer hibernating:

*We have to be more cautious where you go, even the bears don't hibernate late ... you see bear tracks in November—they should be hibernating. Maybe it's too warm and they don't know when they should be hibernating. It's just too warm for them.*³²⁵

In addition, lack of shelter and unexpected storms have caused major injuries and death among hunters.³²⁶ Avalanches become more frequent and have made travel more dangerous.³²⁷ There is less soft, deep snow available for temporary and emergency shelters.³²⁸ A decrease in ice thickness and predictability has made travel over river and lake ice much more dangerous.³²⁹ Accidental death and injury during ice-related activities, such as moose hunting along frozen rivers, have increased in recent years.³³⁰ There is an increased risk of exposure for hunters attempting to intercept caribou at river crossings during late-freeze-up conditions when rivers have moving ice.³³¹

Warming is also increasing populations of mosquitoes and other biting insects in the Canadian Arctic, creating significant new deterrents to accessing traditional foods and practicing traditional activities on the land.³³² Warming temperatures also cause the meat from hunting to spoil more quickly, causing less traditional food to be stored and consumed.³³³

A lack of access to the land means that there are fewer locations accessible for hunting, resulting in an increase in hunting in closer proximity to settlements.³³⁴ Such local over-harvesting affects targeted wildlife and plant populations, with implications for long-term food security for subsistence-dependent communities.³³⁵



Photo copyright Paul Vecsei.

Weather prediction is a significant tool of traditional knowledge used by Arctic Athabaskan peoples.³³⁶ Aboriginal and Northern Affairs Canada has acknowledged that changes in seasonal shifts make it increasingly difficult to predict weather.³³⁷ Cultural traditions are threatened when elders can no longer teach young people how to predict the weather in order to hunt or travel safely.³³⁸ The weather has become too erratic for even knowledgeable elders to feel confident with the prediction techniques handed down over generations.³³⁹ The consequences of poor predictions are increasingly dangerous due to more frequent and severe storms.³⁴⁰ Modern weather prediction cannot fill the void, as it is also increasingly inaccurate and never site specific.³⁴¹ As a result of erratic weather patterns, Arctic Athabaskan hunting success and ability to rely on traditional foods declines. This results in increasing food insecurity from greater dependency on expensive non-traditional foods, which brings loss of income and changing diets with concomitant health impacts.³⁴²



Photo courtesy of Arctic Athabaskan Council.

The Denendeh Environmental Working Group (2002) on climate change compiled Dene Athabaskan observations of predicting the weather:

*In the past, Dene elders could predict the weather, but this is no longer the case. Warmer temperatures and changing precipitation patterns, although seasonal and spatially variable, cause concern for animal migrations, in particular the lack of snow causing caribou to wander all over the place whereas in the past they would break trail for each other and stay together. There is a Dene legend about people in the past who were able to control the weather. These people would predict the weather. They could tell what was going to come before it happened by watching the color of the sky and connecting this to cloud patterns. Not many people can predict weather anymore.*³⁴³

Chief Peter Johnson of Teslin Tlingit Council, Haines Junction, Yukon, observed that weather is more difficult to predict:

*Very hard to predict the weather and you don't really know what is happening before you could see the pattern but the pattern is changing so rapidly now.*³⁴⁴

Louis Renigler of Beaver Creek, Yukon, commented on how the traditional knowledge of weather prediction he acquired from his grandfather no longer serves him:

My grandpa taught me a lot of things when I was a kid, growing up in the bush on how to read things and what to look for, how to tell when weather's coming, how to feel the weather, everything. He taught me all these things and I've taken that into consideration and put it to the test and it really works. ...But now the

*weather's changed so much that it kind of makes me look funny.... Back then he's talking from 1950 to 1990 and between those years it's that much change. When he predicted the weather it was always right because at that time it was still stable.*³⁴⁵

7. IMPACTS ON TRADITIONAL FOODS AND DIET/HEALTH

The decline and loss of traditional subsistence foods (meats, fish, berries, and medicinal plants) due to climate change has a significant effect on Arctic Athabaskan peoples' health.³⁴⁶ Shifting to greater consumption of processed, packaged foods available in the Canadian north is not only more expensive but also less healthy, decreasing the quality of Arctic Athabaskan peoples' diets and increasing their risks of obesity, cardiovascular disease and diabetes.³⁴⁷ In 2011, the prices for standard groceries in northern Canada were up to eight times higher than in southern Canada.³⁴⁸ The Arctic Climate Impact Assessment (2004) noted that climate changes impact indigenous peoples' health through diet changes due to decreased subsistence or cultural food species abundance, availability, and accessibility.³⁴⁹ The study noted:

A reduction or disappearance of traditional food species may result in indigenous populations switching from a traditional diet to less healthy diets; such dietary shifts are associated with an increased prevalence of chronic diseases such as diabetes, heart disease, and cancer among northern populations.... Health effects related to extreme economic hardship could also follow a decline in traditional food species.³⁵⁰

A 2004 study found that Athabaskan peoples in the Yukon and NWT possessed knowledge of over 50 species of animals and over 40 species of wild plants for consumption.³⁵¹ Such traditional foods have been proven to be more nutritious and rich in micronutrients than market foods.³⁵² Willows, fireweed and other traditional food plants, for example, had more vitamin C than a refrigerated lemon.³⁵³ On days when traditional food were consumed, people's diets contained less sodium and more vitamin D, vitamin E, vitamin B-6, iron, zinc, copper, riboflavin, magnesium, manganese, phosphorus, potassium and selenium.³⁵⁴

Grand Chief Ruth Massie of Lake Laberge, Yukon, noted that it is becoming more difficult to harvest traditional foods:

*I think more and more people are getting away from traditional foods because it's harder to harvest....*³⁵⁵

Roberta Joseph of Dawson, Yukon, noted that increasing dependence on store bought foods are increasing health problems for Arctic Athabaskan peoples:

*Because some of the food sources are not available anymore there will be an increase in health issues for some of our people because they have to resort more towards store bought foods, store bought meats, and that's going to lead to health issues when there is not that ability to maintain the regular lean diet.*³⁵⁶

A 2004 study of food choices by Athabaskan peoples of the Canadian Arctic (Yukon First Nations and Dene/Metis of the NWT) found that on the days when traditional food was

consumed, there was significantly less fat, carbohydrate and sugar in the diet, and more protein, vitamins and minerals.³⁵⁷ The study concluded that if market food of sufficient quality is not available to replace the missing micro-nutrients from traditional meats, fish and organs, the nutrition of the entire community is at risk.³⁵⁸ Indeed, research shows that high-quality market foods are not used regularly by Arctic Athabaskan peoples.³⁵⁹

Athabaskan traditional foods provide the components of a high quality diet at relatively low cost.³⁶⁰ As market foods are much more expensive in the region than in more southern locations, traditional foods provide affordable, healthy protein and essential nutrients as well as the basis for spiritual, mental, social and cultural well-being.³⁶¹ A 2006 study of Arctic Athabaskan women of the Yukon First Nations and Dene/Metis found that 26 to 42 percent of respondents could not afford enough food from the store.³⁶²

Chronic problems from dietary shifts to market food include changes in the ratio of fatty acids, leading to cardiovascular problems as well as nutritional deficiencies, obesity, circulatory diseases and allergies.³⁶³

Ruth Welsh of Tagish, Yukon, commented on the health values of traditional foods:

*What we get off the land—the animals, berries, plants—is more pure. It's nothing like what we buy in the store.*³⁶⁴



Photo courtesy of Arctic Athabaskan Council.

Shirley Lord of Tagish, Yukon, observed that store-bought foods contribute to many of the health problems of Arctic Athabaskan peoples today:

*Because people don't get out on the land and they eat a lot of processed foods and I think that is the reason for a lot of the sicknesses, you see a lot of people with diabetes, high blood pressure and the list goes on and on and I am sure it is because of the food. People eat processed food and they eat store meat which is pumped full of chemicals and they are not getting the nourishment in wild fish and meat.*³⁶⁵

8. OTHER IMPACTS ON ARCTIC ATHABASKAN PEOPLES' HEALTH

Arctic warming affects the health of Arctic Athabaskan peoples through immediate problems caused by accidents, natural disasters, exposure to extreme elements, and food poisoning.³⁶⁶ The Government of Canada acknowledges that climate change can cause a variety of other impacts on health and well-being. For instance, it can exacerbate water and food-borne contamination causing intestinal disorders and illnesses chemical and biological contaminants, and increase vector-borne and zoonotic diseases from bacteria, viruses and other pathogens carried by mosquitoes, ticks, and animals.³⁶⁷ The Government also recognizes that the warming climate can increase the frequency, intensity or duration of extreme weather conditions, which increases risks for vulnerable communities in areas exposed to natural hazards.³⁶⁸ These

weather-related natural hazards can cause injuries and illnesses, social and mental stress; damage health infrastructure; and cause mental anguish or trauma for those who must relocate.³⁶⁹

Animal-transmitted diseases are poised to spread northward with climate warming, affecting public health.³⁷⁰ Diseases such as tularemia (*Francisella tularensis*, or “beaver fever”) are increasing with climate warming.³⁷¹ Tularemia is a debilitating bacterial infection that can be transmitted by biting flies, ticks, contaminated water, or handling infected dead animals, particularly beavers, hares, rabbits, muskrats, and squirrels.³⁷² Athabaskan hunters regularly come into contact with all of these species, and are increasingly at risk. In another example, *Giardia* is now being spread by beavers that moved into western Alaska only 20 years ago.³⁷³

As Chief James Allen of Haines Junction, Yukon, observed, new diseases in the water mean Arctic Athabaskans can no longer drink from streams:

*We can't drink the water out on the land anymore. People are afraid they'll get beaver fever. Our waters are not as safe as they used to be. You'd walk along and if you're walking along a trail you'd come across a creek you would grab a cup and drink it, drink a few cups and then keep going. But now you have to pack your own water.*³⁷⁴

As Arctic Athabaskan peoples experience climate changes, they also suffer concern and anxiety.³⁷⁵ Cultural and psychological stresses include the inability to predict weather, the loss of cemeteries and wildlife habitat, and an unknown future for culture, language, and identity tied to the land.³⁷⁶ Aboriginal and Northern Affairs Canada has recognized that there are “increasing healthcare costs related to a loss of traditional values, lifestyle, [and] diminished quality of life.”³⁷⁷

9. INFRASTRUCTURE DAMAGE

Good infrastructure promotes safe and healthy community environments.³⁷⁸ Arctic warming causes permafrost thaw, ground slumping, slope instability, landslides, spring flooding, wildfires, heavy snows, and ice storms that threaten the infrastructure that Arctic Athabaskan peoples rely upon for mobility, shelter, connectivity, power, and protection from toxic industrial waste.³⁷⁹ Cultural sites, including cemeteries and traditional camping sites, are also threatened.³⁸⁰ Accelerated climate change in the Arctic will affect many aspects of infrastructure in Arctic Athabaskan territories: housing, which provides protection from harsh environmental conditions; sanitation, which prevents the spread of pollution and disease; and transportation, which is needed to gain access to health care or emergency services.³⁸¹

Janice Dickson Dubois of Burwash, Yukon, noted that even relatively new houses are becoming uninhabitable due to permafrost melt:

*Houses around here have more of a problem because of permafrost melting. Especially in the new subdivision they had basement flooding and beams are falling down.... They had to move and refit it to hold the roof up. You can see the nails. The trimming and the top of the roof, where it shifted to the basement, it's shifted so much the trimming was hanging.... This subdivision is three years old.*³⁸²

Michael Stickman of Nulato, Alaska, also observed homes damaged from permafrost melt:

*Actually as far as permafrost is melting you can see a lot of places like the older log cabins where they are sinking into the ground because the permafrost is actually melting underneath them.*³⁸³

Warmer winter weather causes melt-water to flow over roads and rivers, freezing on the surface and causing dangerous travel conditions.³⁸⁴ Low water supplies in rivers, seasonal flooding, ice jamming, and unusual breakup patterns of river ice will cause infrastructure damage along riverbanks and reduce access to river transport, including ferries and private boats used for hunting, fishing, recreation, and travel.³⁸⁵

Communications infrastructure (microwave radio towers and fiber optic cables) and energy infrastructure (hydro-electric dams, diesel facilities, energy transmission lines, natural gas pipelines, and underground fuel storage tanks) are threatened by permafrost melt, ground subsidence, landslides, heavy snows, and forest fires that are exacerbated by Arctic regional warming.³⁸⁶

Impacts on buildings and residences include damage to foundations, roof collapse, and destruction by fire.³⁸⁷ Transportation infrastructure including all-weather roads, winter roads built on frozen lakes and rivers, airport runways, bridges, buildings, industrial facilities, railroads, and pipelines are threatened by permafrost thaw and ground slumping.³⁸⁸ Such infrastructure will have to be constantly upgraded to avoid structural failures, as they were not engineered to withstand the effects of Arctic warming.³⁸⁹

Mining waste containment structures are at risk of sudden failure due to permafrost melt and ground subsidence.³⁹⁰ In Yukon and the NWT, there are 51 mines, all but five of which are closed, at risk for sudden failure of their containment structures for toxic mine tailings.³⁹¹

Belinda Northway Thomas of Northway, Alaska, also noted that permafrost melt is causing drinking water contamination from an old military waste site:



Photo courtesy of Arctic Athabaskan Council.

*There is old military contamination around here.... with the thawing out there are thaw bulbs^[1] underground through the water process; the point of contamination becomes diluted but the thaw bulbs have the ability to flow water underneath the ground which spread out the area of contamination, which impacts more of our people.*³⁹²

¹ Thaw bulbs are areas in permafrost that melt with local sources of heat such as buildings, pipelines, or rivers.

Aboriginal and Northern Affairs Canada acknowledges that in the NWT, infrastructure is threatened by rising temperatures, as it contributes to higher spring water levels, thawing permafrost is leading to rupturing and buckling of water and sewage pipelines, destabilization of industrial buildings, and additional road maintenance.³⁹³

V. VIOLATIONS: CANADA IS RESPONSIBLE FOR VIOLATIONS OF ARCTIC ATHABASKAN PEOPLES' HUMAN RIGHTS CAUSED BY ACCELERATED ARCTIC WARMING DUE TO POORLY REGULATED EMISSIONS OF BLACK CARBON IN CANADA

This section explains how Canada's failure to sufficiently regulate black carbon emissions is violating Arctic Athabaskan peoples' human rights. First, it describes Canada's duty to uphold the rights of the American Declaration of the Rights and Duties of Man (American Declaration), and how those rights should be interpreted as they apply to Canada in this case. Second, it explains that, due to the Arctic Athabaskan peoples' close ties to their land, protection of their human rights requires protection of the environment. Third, it shows how the effects of warming and melting in the Arctic violate Arctic Athabaskan peoples' human rights guaranteed under the American Declaration.

A. THE AMERICAN DECLARATION SHOULD BE APPLIED IN THE CONTEXT OF RELEVANT INTERNATIONAL NORMS AND PRINCIPLES

The Inter-American Court of Human Rights (Inter-American Court or Court) and the Inter-American Commission on Human Rights (Inter-American Commission or Commission) have recognized that "the American Declaration is a source of international obligations for the OAS member states."³⁹⁴ In interpreting the American Declaration, both Court and the Commission have consistently recognized the relevance of broader developments in international law. These developments should inform the Commission's interpretation of the rights at issue in this case, *i.e.*, the rights to the benefits of culture; property; preservation of health and well-being; and means of subsistence, as well as special protection for the rights of indigenous peoples. Additionally, these developments direct the Commission to give particular recognition to violations that result from threats to the environment upon which the Arctic Athabaskan peoples' lives and culture depend.

1. THE AMERICAN CONVENTION ON HUMAN RIGHTS BEARS ON INTERPRETATION OF THE AMERICAN DECLARATION

The Commission has acknowledged that the American Convention "may be considered to represent an authoritative expression" of the rights contained in the American Declaration, and is therefore properly considered in interpreting the Declaration's provisions.³⁹⁵ The jurisprudence of the Commission and the Court in interpreting the Convention's provisions is thus also relevant in interpreting the Declaration. At the same time, the Convention should not restrict the Court's reading of the American Declaration or other sources of human rights. As the Convention itself states, the Convention must not be interpreted as "restricting the enjoyment or exercise of any right or freedom recognized by virtue of the laws of any State Party or by virtue

of another convention ... or excluding or limiting the effect that the American Declaration of the Rights and Duties of Man and other international acts of the same nature may have.”³⁹⁶

2. DEVELOPMENTS IN OTHER INTERNATIONAL HUMAN RIGHTS SYSTEMS SHOULD BE TAKEN INTO ACCOUNT WHEN INTERPRETING AND APPLYING THE AMERICAN DECLARATION

The Commission has recognized that “the provisions of ... the American Declaration [] should be interpreted and applied in the context of developments in the field of international human rights law.”³⁹⁷ The Commission has considered other international and regional human rights documents often in interpreting the scope and meaning of the rights contained in the American Declaration, as well as the Charter of the Organization of American States. Other human rights instruments that are relevant to the understanding of the rights at issue in this case include, as noted above, the American Convention, the International Covenant on Civil and Political Rights (ICCPR), the International Covenant on Economic, Social and Cultural Rights (ICESCR), other regional human rights conventions, ILO Convention 169, and the official interpretations of these instruments by human rights bodies.

Notably, in the 2006 Report of the Special Rapporteur on the human rights and fundamental freedoms of indigenous peoples, then-Special Rapporteur Rodolfo Stavenhagen, described several cases from the Inter-American Court and Commission and noted the following as a basis for concluding that regional human rights bodies’ contributions “form part ... of emerging international human rights law and can therefore be also relevant in other regions”:

As these cases show, the Inter-American regional human rights system has become progressively involved in the field of indigenous human rights in recent years and, with its decisions and judgments, has built up a substantial body of case law for the protection of those rights pursuant to the pertinent international legislation.... [A]n important example is the petition by the Inuit Circumpolar Conference to the Inter-American Commission on Human Rights (December 2005) seeking remedy for the persistent violation of the human rights of the Inuit in the Arctic region through increasing global warming....³⁹⁸

In recent years, international human rights bodies have advanced their understanding of the links between climate change and human rights, as well as indigenous peoples’ heightened vulnerability to the effects of climate change on their human rights. In 2009 and 2011, the U.N. Human Rights Council adopted resolutions on human rights and climate change.³⁹⁹ Each resolution “[e]mphasiz[es] that climate change-related impacts have a range of implications, both direct and indirect, for the effective enjoyment of human rights.”⁴⁰⁰ Each resolution draws



Photo courtesy of Arctic Athabaskan Council.

attention to the right to health and “recall[s] that in no case may a people be deprived of its own means of subsistence.”⁴⁰¹ The resolutions in 2009 “[r]ecogniz[e]” and in 2011 “[e]xpress[] concern” that “the effects of climate change will be felt most acutely by those segments of the population who are already in vulnerable situations,” specifying “indigenous or minority status” as an indicator of vulnerability.⁴⁰² As for States’ commitments, both resolutions “[a]ffirm[] that human rights obligations and commitments have the potential to inform and strengthen international and national policymaking in the area of climate change, promoting policy coherence, legitimacy and sustainable outcomes.”⁴⁰³ The 2009 resolution took note of a report by the Office of the High Commissioner for Human Rights (OHCHR) on climate change and human rights based on the IPCC AR4 report, as well as submissions from States, international agencies, and non-governmental organizations.⁴⁰⁴ Finding that “human rights obligations provide important protection to the individuals whose rights are affected by climate change,” the OHCHR report concludes that States have legal obligations to those whose rights are affected by climate change, and that those obligations extend extraterritorially.⁴⁰⁵

These developments in the field of international human rights law should inform the Commission’s interpretation and application of the relevant human rights norms at issue in the present case.

3. INTERNATIONAL ENVIRONMENTAL NORMS AND PRINCIPLES ARE RELEVANT TO THE INTERPRETATION AND APPLICATION OF THE AMERICAN DECLARATION

In the *Awás Tingni* case, the Court reaffirmed that “human rights treaties are live instruments whose interpretation must adapt to the evolution of the times.”⁴⁰⁶ The Commission has recognized that “it would be inconsistent with general principles of law for the Commission to construe and exercise its Charter-based mandate without taking into account other international obligations of member states which may be relevant.”⁴⁰⁷ As the Court has noted, “a treaty can *concern* the protection of human rights, regardless of what the principal purpose of the treaty might be.”⁴⁰⁸ In interpreting the term “other treaties” in Article 64 of the American Convention, the Court affirmed its competence to interpret the provisions of the American Declaration using international developments as well as the provisions of the American Convention.⁴⁰⁹ The American Declaration should thus be applied “with due regard to other relevant rules of international law applicable to member states against which complaints of human rights violations are properly lodged.”⁴¹⁰

In considering Canada’s acts and omissions relating to black carbon emissions, the Commission should take into account not only the specific rights provisions in the American Declaration and the American Convention, but also other relevant obligations Canada has assumed under international treaties and customary international law. Canada’s breach of these obligations reinforces the conclusion that Canada is violating rights protected by the American Declaration. Notably, “the Commission [has] consider[ed] that the absence of regulation, inappropriate regulation, or a lack of supervision in the application of extant norms may create serious problems with respect to the environment which translate into violations of human rights.”⁴¹¹ Two norms particularly relevant to this petition are the duty to avoid transboundary harm and the duty to adhere to the precautionary principle.

a. Canada is violating its obligation to avoid transboundary harm

The duty to avoid transboundary harm obliges Canada to prevent its territory from being used in a manner that causes harm outside of its jurisdiction. This obligation is one of the most fundamental and widely recognized customary international law norms.⁴¹² For example, numerous widely accepted treaties and declarations over the past several decades, including the 1972 Declaration of the United Nations Convention on the Human Environment, the 1992 Rio Declaration on Environment and Development (Rio Declaration), and the United Nations Framework Convention on Climate Change (UNFCCC) acknowledge that sovereignty over natural resources is conditioned on the responsibility of States “to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.”⁴¹³ Canada agreed to such language in those and several other international treaties, including the 1993 North American Agreement on Environmental Cooperation (the environmental side agreement to NAFTA), as well as the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (also known as the London Convention).⁴¹⁴

Canada’s black carbon emissions cross international boundaries and cause environmental harm outside Canada’s jurisdiction, including to the Alaskan Athabaskan petitioners in this case. In addition, the regional warming and melting that Canada’s emissions cause, both in Canada and beyond its boundaries, contributes significantly to numerous other transboundary environmental impacts. In the Arctic, these impacts include increasing temperatures, earlier melting of snow and ice, melting permafrost, shrinking glaciers, longer dry seasons, increased forest fires, and more severe climate extremes.⁴¹⁵ By failing to regulate black carbon emissions sufficiently, Canada has violated its international responsibility to prevent activities within its jurisdiction from damaging the environment outside its borders. These violations in turn have contributed to the human rights violations at issue in this petition.

b. Canada is violating its obligation to apply the precautionary principle

The precautionary principle obliges Canada to act cautiously in the face of scientific uncertainty. The Rio Declaration provides the most widely accepted articulation of this well-established principle of international law: “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. When there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”⁴¹⁶ Canada reiterated its acceptance of the precautionary principle by incorporating it into the purpose of the *Canadian Environmental Protection Act, 1999*: “the Government of Canada is committed to implementing the precautionary principle”⁴¹⁷ and affirming it in Canadian caselaw.⁴¹⁸ Moreover, among the Government’s duties in administering the Act is to “exercise its powers in a manner that protects the environment and human health, [and] applies the precautionary principle.”⁴¹⁹

Canada’s lack of sufficient regulation of black carbon emissions—despite the threat of serious or irreversible damage posed by those emissions’ contribution to accelerated Arctic

warming and melting—demonstrates a failure to abide by the precautionary principle. The alterations in temperatures, seasonal snowfall and melting cycles, permafrost and glaciers, and forest and species composition are progressing rapidly and accelerating due to black carbon emissions. These emissions are contributing to long-term, serious, and irreversible changes to the environment. These emissions also contribute to the loss of Arctic communities’ traditional way of life, which cannot be easily corrected at a later date. Canada’s failure to adequately regulate black carbon emissions violates the precautionary principle and is contributing to the human rights violations at issue in this petition.

4. CANADA HAS A DUTY TO REMEDY BREACHES OF ITS INTERNATIONAL OBLIGATIONS

States’ responsibility to prevent breaches of international law and remedy them when they occur is a foundational principle of international law and codified in the American Convention on Human Rights.⁴²⁰ Significantly, the Inter-American Court has held reparations to include non-monetary measures, including environmental protection measures. For instance, in *Xákmok v. Paraguay*, in which the petitioners had been displaced from their land, the Court included “protection of land claimed” among the reparation measures it issued.⁴²¹ The Court found not only that the State had a duty to return the land to the petitioners, but also that until the State returned the land to them, the State had a duty not to allow deforestation or other exploitation that would cause irreparable damage to the land or the natural resources on it.⁴²² The Court recognized that monetary compensation for loss of or damage to the petitioners’ land was not “capable of repairing the damage caused by the violations declared” in that judgment,⁴²³ and accordingly, identified environmental protection measures as a form of reparations.⁴²⁴ In a



Photo courtesy of Arctic Athabaskan Council.

similar vein, Canadian law acknowledges that “the Government of Canada must be able to fulfill its international obligations in respect of the environment”⁴²⁵ and includes among the government’s administrative duties the duty to “take preventive and remedial measures to protect, enhance and restore the environment.”⁴²⁶

Indigenous peoples’ right to redress for human rights violations has garnered specific protection in the Inter-American human rights system, as well as in other sources of international law. For instance, in its 2009 report on the norms and jurisprudence of the Inter-American human rights system on indigenous and tribal peoples’ rights over their ancestral lands and natural resources, the Inter-American Commission highlighted the right to “effective remedies for all infringements of their individual and collective rights” in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).⁴²⁷ The UNDRIP specifically recognizes indigenous peoples’ right to redress for each of the rights at issue in this petition,⁴²⁸ and obligates States to “take effective measures to recognize and protect the exercise of” those rights.⁴²⁹ The Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people has also recognized States’ obligations to take measures to address effects of climate change on Arctic indigenous peoples. In his 2011 report on the situation of the Sami

people, an Arctic indigenous people, the Special Rapporteur called upon Nordic states and tribal governments to work together in taking “measures to address the adverse effects of climate change on the Sami people.”⁴³⁰

By failing to act to reduce black carbon emissions, Canada has allowed domestic polluters under its jurisdiction to impose the environmental costs of their pollution on the indigenous peoples of the North, both within and outside Canadian borders. Canada has failed thus far to take responsibility for the breaches of international law resulting from its contribution to Arctic regional warming and melting, including from black carbon emissions from sources on Canadian territory. Canada therefore has a duty to provide appropriate remedy and redress, which may include environmental protection measures, to Arctic Athabaskan peoples.

B. PROTECTION OF ARCTIC ATHABASKAN PEOPLES’ HUMAN RIGHTS REQUIRES PROTECTION OF THE ENVIRONMENT

Rapid warming and melting in the Arctic causes severe environmental damage that particularly threatens the human rights of Arctic indigenous peoples, including Arctic Athabaskan peoples. Like other indigenous communities, Arctic Athabaskan peoples’ cultural identity and spiritual beliefs are founded upon their relationship with the land and are tied to their traditional means of subsistence. Arctic Athabaskan peoples thus rely on the natural environment for their physical and cultural survival. Black carbon pollution directly degrades the land, snow, ice, waters and biodiversity on which Arctic Athabaskan peoples rely for culture, property, health, and subsistence.

As the Inter-American Court and Inter-American Commission have recognized in several cases brought by indigenous peoples, the State has an obligation to protect indigenous peoples against environmental harm that threatens their human rights. Indeed, for indigenous peoples, “the possibility of maintaining social unity, of cultural preservation and reproduction, and of surviving physically and culturally, depends on the collective, communitarian existence and maintenance of the land.”⁴³¹ Given the inextricable link between Arctic Athabaskan communities’ livelihood and culture and their land and resources, destruction of those resources is interfering with Arctic Athabaskan peoples’ ability to achieve full realization of the rights guaranteed by the American Declaration. Canada is obligated to protect Arctic Athabaskan peoples from harm to their human rights resulting from rapid Arctic warming and melting, particularly where Canada has contributed to that harm by failing to adequately regulate black carbon emissions.

1. ENVIRONMENTAL HARM CAN VIOLATE HUMAN RIGHTS AND PLACE A POSITIVE OBLIGATION ON STATES TO PROTECT AGAINST SUCH HARM

States have an international obligation not to degrade the environment to an extent that threatens indigenous, peoples’ culture, property, health, or means of subsistence. Echoing numerous international instruments’ recognition of the duty to protect the environment,⁴³² the Inter-American Commission has identified infringements on the rights to life and health “where environmental contamination and degradation pose a persistent threat to human life and health.”⁴³³ Additionally, the OAS General Assembly called attention to Member States’

commitments to sustainable development, climate change, environmental protection, and protection of human rights in the region in its 2008 resolution entitled “Human Rights and Climate Change in the Americas.”⁴³⁴ These commitments include “[s]trengthen[ing] national environmental protection frameworks and mechanisms for implementation and enforcement.”⁴³⁵

Recognition of the impact of environmental harm on human rights extends beyond the Inter-American system. As the Special Rapporteur of the U.N. Commission on Human Rights observed in 1994, violations of indigenous peoples’ human rights “almost always arise as a consequence of land rights violations and environmental degradation and indeed are inseparable from these factors.”⁴³⁶ Drawing attention to the “particular adverse effects” of climate change on indigenous peoples in the Arctic, the current U.N. Special Rapporteur on the human rights and fundamental freedoms of indigenous peoples has noted the connection between Arctic indigenous peoples’ rights to their land, territories, and resources and their economic, social, and cultural development.⁴³⁷ Consequently, he called upon Nordic states to take steps to “redouble” their efforts to advance those rights.⁴³⁸

Furthermore, while some international law instruments have established the right to a healthy environment,⁴³⁹ the recognition of the relationship between environmental harm and human rights does not depend on the recognition of a “right to a healthy environment.” As the Report of the U.N. Office of the High Commissioner for Human Rights on the Relationship between Climate Change and Human Rights noted:

While the universal human rights treaties do not refer to a specific right to a safe and healthy environment, the United Nations human rights treaty bodies all recognize the intrinsic link between the environment and the realization of a range of human rights, such as the right to life, to health, to food, to water, and to housing.⁴⁴⁰

Customary international law also recognizes that protection of human rights often requires environmental protection. In the words of Judge Weeramantry of the International Court of Justice:

The protection of the environment is ... a vital part of contemporary human rights doctrine, for it is a *sine qua non* for numerous human rights such as the right to health and the right to life itself. It is scarcely necessary to elaborate on this as damage to the environment can impair and undermine all the human rights spoken of in the Universal Declaration and other human rights instruments.⁴⁴¹



Photo by Wayne Lynch, courtesy of Arctic Athabaskan Council.

Calling attention to States’ duties, the Inter-American Commission has explained that

“[s]evere environmental pollution may ... give rise to an obligation on the part of a state to take reasonable measures to prevent” the associated risks to health and life.⁴⁴² In a similar vein, the OHCHR has noted that “cases in which an environmental harm is linked to climate change could also be considered by courts and quasi-judicial human rights treaty bodies,” and that those cases would probably evaluate “whether the State through its acts or omissions had failed to protect an individual against a harm affecting the enjoyment of human rights.”⁴⁴³ As the OHCHR explained, the extent of a State’s obligation may in some cases include “an obligation to protect individuals against foreseeable threats to human rights related to climate change.”⁴⁴⁴

2. THE HUMAN RIGHTS THAT ARE IMPLICATED BY ENVIRONMENTAL HARM ARE OFTEN LINKED AND INTERDEPENDENT

Damage to the environment often violates multiple rights concurrently. A singular instance of environmental harm can violate, for instance, the rights to property, culture, and health at the same time.

For Arctic Athabaskan peoples, the relationship among land, subsistence, health, and culture links multiple human rights. For instance, given that many Arctic Athabaskan peoples rely on the land for their livelihood, environmental degradation that violates their right to land in many instances also violates their right to their own means of subsistence. Because the foundation of Arctic Athabaskan peoples’ diets stems from subsistence hunting and gathering, impacts on their right to their own means of subsistence often also affect their right to health. In addition, for Arctic Athabaskan peoples, the land is sacred and holds significant cultural value. Thus, adverse impacts to land that violate their property rights also violate their right to culture. Furthermore, cultural value attaches to certain animals, for instance, the caribou, such that adverse impacts to the caribou not only affect Arctic Athabaskan peoples’ subsistence rights and right to health, but also their right to culture. Damage to the environment resulting from black carbon emissions concurrently affects multiple human rights of Arctic Athabaskan peoples.

The Inter-American Court has repeatedly recognized an interdependence of rights in cases brought by indigenous peoples, including violations of the right to property based on harm to culture, life, and means of subsistence.⁴⁴⁵ For instance, emphasizing that “the close relationship of indigenous peoples with the land must be acknowledged and understood as the fundamental basis for their culture, spiritual life, wholeness, economic survival, and preservation and transmission to future generations,” the Court has held in numerous cases that a State had violated indigenous communities’ rights to property by denying them effective use and enjoyment of their traditional land.⁴⁴⁶ Similarly, the Inter-American Commission in its 1997 report on the human rights situation in Ecuador acknowledged that “indigenous peoples maintain special ties with their traditional lands, and a close dependence upon the natural resources provided therein—respect for which is essential to their physical and cultural survival.”⁴⁴⁷ The Commission observed that “damage to these lands ‘invariably leads to serious loss of life and health and damage to the cultural integrity of indigenous peoples.’”⁴⁴⁸

3. THE HUMAN RIGHTS OF ARCTIC ATHABASKAN PEOPLES SHOULD BE INTERPRETED IN THE CONTEXT OF INDIGENOUS CULTURE AND HISTORY, WHICH REQUIRES PROTECTION OF THEIR LAND AND ENVIRONMENT

Both the Inter-American system and international law generally protect the special ties that many indigenous people have to their environment.⁴⁴⁹ This protection has become a norm of customary international law.⁴⁵⁰ As the Inter-American Court has recognized in numerous cases, “the culture of the members of the indigenous communities directly relates to a specific way of being, seeing, and acting in the world, developed on the basis of their close relationship with their traditional territories and the resources therein, not only because they are their main means of subsistence, but also because they are part of their worldview, their religiosity, and therefore, of their cultural identity.”⁴⁵¹ As a result, “members of indigenous and tribal communities require special measures that guarantee the full exercise of their rights, particularly with regards to their enjoyment of property rights, in order to safeguard their physical and cultural survival.”⁴⁵²

In applying the rights contained in the American Declaration⁴⁵³ to indigenous peoples, both the Inter-American Court and Commission have repeatedly,⁴⁵⁴ and for decades,⁴⁵⁵ emphasized the need to take into account the unique context of indigenous culture and history.⁴⁵⁶ For example, in its analysis of the content and scope of the right to property, the Court has considered “the special meaning of ... land[] for the indigenous peoples, including the preservation of their cultural identity and its transmission to future generations.”⁴⁵⁷ In *Dann v. the United States*, the Commission recognized that “ensuring the full and effective enjoyment of human rights by indigenous peoples requires consideration of their particular historical, cultural, social and economic situation and experience.”⁴⁵⁸ In addition, the Draft American Declaration of the Rights of Indigenous Peoples, Article XVIII(1), on which the negotiating parties have reached consensus, explicitly guarantees indigenous peoples the right to environmental protection: “Indigenous peoples have the right to live in harmony with nature and to a healthy, safe, and sustainable environment, essential conditions for the full enjoyment of the right to life, to their spirituality, world view and to collective well-being.”⁴⁵⁹

Due to the close ties between indigenous peoples’ environment and human rights and indigenous peoples’ special status under international law, Canada has an obligation to protect Arctic Athabaskan peoples from environmental degradation that threatens to violate their human rights. Canada thus has a duty to protect Arctic Athabaskan peoples from violations of their rights to culture, property, health, and own means of subsistence, including those resulting from inadequate regulation of black carbon.

C. THE EFFECTS OF BLACK CARBON IN THE ARCTIC VIOLATE ARCTIC ATHABASKAN PEOPLES’ HUMAN RIGHTS

The American Declaration guarantees many rights that Canada is violating through its failure to sufficiently regulate black carbon emissions. These include violations of Arctic Athabaskan peoples’ rights to the benefits of their culture, to property, to preservation of health and well-being, and to their own means of subsistence.

1. THE EFFECTS OF BLACK CARBON IN THE ARCTIC VIOLATE ARCTIC ATHABASKAN PEOPLES' RIGHT TO ENJOY THE BENEFITS OF THEIR CULTURE

Arctic Athabaskan peoples' human right to the benefits of their culture is guaranteed under the American Declaration and recognized under international law. Given the close ties between indigenous peoples' right to culture and the condition of their lands and environment, Canada has a duty under international law not to degrade the Arctic environment such that it infringes upon Athabaskan peoples' human right to culture.

- a. The American Declaration guarantees Arctic Athabaskan peoples' right to the benefits of culture

The American Declaration guarantees Arctic Athabaskan peoples' right to the benefits of their culture.⁴⁶⁰ The Charter of the Organization of American States places cultural development and respect for culture in a position of supreme importance.⁴⁶¹ The American Convention recognizes the importance of cultural freedom to human dignity in its protection of freedom of



Photo courtesy of Arctic Athabaskan Council.

association⁴⁶² and provision for progressive development.⁴⁶³ Other major human rights instruments, including the Universal Declaration of Human Rights,⁴⁶⁴ the ICCPR,⁴⁶⁵ and the ICESCR,⁴⁶⁶ protect cultural rights.

The Inter-American Court has long recognized that degradation of land or natural resources can violate the human right to the benefits of culture, especially in the context of indigenous or tribal cultures.⁴⁶⁷ For example, in *Awás Tingni v. Nicaragua*, the Court noted that

failing to prevent environmental damage to indigenous lands “causes catastrophic damage” to indigenous peoples because “the possibility of maintaining social unity, of cultural preservation and reproduction, and of surviving physically and culturally, depends on the collective, communitarian existence and maintenance of the land.”⁴⁶⁸

The Court has further recognized that interference with indigenous lands necessarily implicates the right to culture. In *Moiwana v. Suriname*, the Court recognized that the “community’s connection to its traditional land is of vital spiritual, cultural and material importance” and that “for the culture to preserve its very identity and integrity, the Moiwana community members must maintain a fluid and multidimensional relationship with their ancestral lands.”⁴⁶⁹ More specifically, the Court in *Yakye Axa v. Paraguay* explained that for indigenous peoples, “the land is closely linked to their oral expressions and traditions, their customs and languages, their arts and rituals, their knowledge and practices in connection with nature, culinary art, customary law, dress, philosophy, and values.”⁴⁷⁰ In *Sawhoyamaxa v. Paraguay*, the Court added that the special relationship between indigenous or tribal peoples and their lands can be seen in “traditional spiritual or ceremonial use or presence; settlements or sporadic cultivation; seasonal or nomadic hunting, fishing or gathering; the use of natural

resources connected to their customs; and any other factor characteristic of their culture.”⁴⁷¹ In *Saramaka v. Suriname*,⁴⁷² the Court followed its growing number of decisions recognizing the “special relationship that members of indigenous and tribal peoples have with their territory,” which “require[s] special measures under international human rights law in order to guarantee their physical and cultural survival.”⁴⁷³ Similarly, in 2010 in *Chitay Nech v. Guatemala*, the Inter-American Court “conform[ed] to [its] constant jurisprudence on indigenous matters” recognizing the relationship of indigenous groups with their territory as “crucial for their cultural structures and their ethnic and material survival.”⁴⁷⁴

Like the Court, the Commission has acknowledged that indigenous peoples’ lands are essential to their culture.⁴⁷⁵ For instance, in *Maya Indigenous Communities of the Toledo District v. Belize (Belize Maya)*, the Commission recognized that the concept of family and religion within the context of indigenous communities, including the Maya people, is intimately connected with their traditional land, where ancestral burial grounds, places of religious significance and kinship patterns are linked with the occupation and use of their physical territories.⁴⁷⁶ Recounting the Inter-American human rights system’s jurisprudence on indigenous peoples’ land-related rights, the Commission stated that the “special relationship [between indigenous and tribal peoples and their territories] is fundamental ... for the cultural integrity of indigenous and tribal peoples.”⁴⁷⁷ The Commission further described this “internationally protected special relationship ... [as] a cultural bond of collective memory and awareness of their rights of access or ownership, in accordance with their own cultural and spiritual rules.”⁴⁷⁸ Specifically, the Commission stated that “[t]he right to culture includes distinctive forms and modalities of using territories such as traditional fishing, hunting and gathering as essential elements of indigenous culture.”⁴⁷⁹ In its country reports, the Commission has further recognized the close connection between the environment and the right to culture.⁴⁸⁰

Other international human rights bodies have recognized the special relationship that indigenous peoples have with their land and its connection to their right to culture.⁴⁸¹ For instance, the U.N. Human Rights Committee acknowledged the importance of natural resources to the right to the benefits of culture in *Bernard Ominayak and the Lubicon Lake Band v. Canada*. In that case, which the Commission cited with approval in the *Belize Maya* decision,⁴⁸² the petitioners alleged that the government of the province of Alberta had deprived the Band of their means of subsistence and their right to self-determination by selling oil and gas concessions on their lands.⁴⁸³ The Human Rights Committee characterized the claim as being based on the right to enjoy culture under Article 27 of the ICCPR.⁴⁸⁴ It found that oil and gas exploitation, in conjunction with historic inequities, threatened the way of life and culture of the Band and that Canada had thus violated Article 27.⁴⁸⁵

The U.N. Human Rights Committee further described in General Comment No. 23 that degradation of natural resources may violate the ICCPR’s right to enjoy culture:

[C]ulture manifests itself in many forms, including a particular way of life associated with the use of land resources, especially in the case of indigenous peoples. That right may include such traditional activities as fishing or hunting and the right to live in reserves protected by law. The enjoyment of those rights may require positive legal

measures of protection and measures to ensure the effective participation of members of minority communities in decisions which affect them.... The protection of these rights is directed towards ensuring the survival and continued development of the cultural, religious and social identity of the minorities concerned, thus enriching the fabric of society as a whole.⁴⁸⁶

In a subsequent case, *Länsman v. Finland*, which involved the effects of a stone quarry on an Arctic indigenous group's reindeer-herding activities, the Human Rights Committee confirmed that the right to culture encompasses modern-day adaptations:



Photo courtesy of Arctic Athabaskan Council.

The right to enjoy one's culture cannot be determined *in abstracto* but has to be placed in context. In this connection, the Committee observes that article 27 does not only protect *traditional* means of livelihood of national minorities, as indicated in the State party's submission. Therefore, that the authors may have adapted their methods of reindeer herding over the years and practice it with the help of modern technology does not prevent them from invoking article 27 of the Covenant.⁴⁸⁷

In addition, the U.N. Committee on Economic and Social Rights in 2009 recognized in General Comment No. 21 that "[i]ndigenous peoples' cultural values and rights associated with their ancestral lands and their relationship with nature should be regarded with respect and protected, in order to prevent the degradation of their particular way of life, including their means of subsistence, the loss of their natural resources and, ultimately, their cultural identity."⁴⁸⁸

Finally, the UNDRIP specifically assures the cultural rights of indigenous groups and links them to the natural environment. The Declaration asserts that "[i]ndigenous peoples have the collective and individual right to ... prevention of and redress for ... [a]ny action which has the aim or effect of depriving them of their integrity as distinct peoples, or of their cultural values or ethnic identities; ... [and] [a]ny action which has the aim or effect of dispossessing them of their lands, territories or resources."⁴⁸⁹ As part of the right to the benefits of culture, the Declaration also includes the right to "revitalize, use, develop and transmit to future generations [indigenous peoples'] histories, languages, oral traditions, philosophies, writing systems and literatures, and to designate and retain their own names for communities, places and persons."⁴⁹⁰

- b. The effects of black carbon in the Arctic violate Arctic Athabaskan peoples' right to enjoy the benefits of their culture

Through its failure to take effective action to reduce black carbon emissions, Canada is violating Arctic Athabaskan peoples' right to the benefits of culture. The effects of black carbon

on Athabaskan peoples' (i) subsistence-based living, (ii) traditional knowledge, and (iii) cultural sites violate their right to culture.

First, rapid Arctic warming is damaging, and in some places possibly threatening the existence of, the subsistence way of life central to Arctic Athabaskan cultural identities. At the heart of Arctic Athabaskan peoples' culture is hunting, trapping, fishing, and gathering. This includes the experience of participating in those activities and the community's sharing of the foods obtained from these activities.⁴⁹¹ These activities are central to Arctic Athabaskan culture and mythological heritage because they provide a basis for the elders to educate the younger members of society in traditional ways of life, kinship and bonding, and recreational enjoyment of hunting.⁴⁹²

Impacts of warming and melting infringe on Arctic Athabaskan peoples' right to culture by interfering with hunting and associated cultural activities, including by making hunting conditions more dangerous. Accelerated warming hinders Arctic Athabaskan peoples' ability to continue to practice the traditional subsistence harvest and related cultural activities because it changes the characteristics of the snow, land, and weather of the Arctic. Travel over ice and snow, an essential component of the harvest, has declined because of warmer and less predictable conditions for winter travel. Winter hunting has diminished because the later freeze and earlier, more sudden thaws allow less time each year for hunting, affects the behavior and health of game, and increases the risk of falling through the ice. As a number of Arctic Athabaskans have observed, travel on ice is more dangerous:

Chief Bill Erasmus of Yellowknife, NWT:

What happens [is the weather] becomes very unpredictable, especially in the fall and in the winter. We have people going through the ice like we never had before, good hunters going through the ice, a lot of times you don't hear about it, some of guys won't talk about it they are embarrassed they are proud people, they won't talk about it. Trappers don't want to talk about it and they don't want to talk about it because that means they don't know the land and environment. It discourages ... you to go out on the land, and it ... [be]comes a norm and you just don't go out. It affects people from not going out on the land.... People have gone through the ice.... Five vehicles went through the ice when they were trying to fix the road ... a caterpillar grader and other vehicles.⁴⁹³

Grand Chief Ruth Massie of Lake Laberge, Yukon:

Traveling is getting more difficult. One day you have snow and next day you have rain, affects traveling all a way around, especially for trappers who have to be around [or] cross lakes or creeks, who travels on the ice. You're always testing the ice to see the safeness to be on it or near it.⁴⁹⁴

Harm to salmon, caribou, and other species that are significant culturally and to Arctic Athabaskan peoples' subsistence-based lifestyle also violate Arctic Athabaskan peoples' right to culture. Warming and melting is shifting species populations and destroying their habitat by



Photo copyright Paul Vecsei.

causing fluctuations in water levels, rising temperatures in streams, erosion that disturbs salmon spawning habitat, and forest fires that destroy caribou habitat.⁴⁹⁵ Current projections of continued warming in the Arctic and in the characteristics of the ice, snow, land, and weather, along with shifts in wildlife habitat, mean that these difficulties will only worsen in the future.⁴⁹⁶ Thus, the ongoing and accelerating impacts of Arctic warming will continue to affect Arctic Athabaskan cultural practices in the future as well.

The second effect of black carbon pollution on the Arctic Athabaskan peoples' right to culture arises out of the fact that traditional knowledge—an integral part of Arctic Athabaskan culture, and one that is protected under international law⁴⁹⁷—is becoming less reliable and less useful due to the rapidly

changing environment. The unprecedented warming in the Arctic has rendered inaccurate much of Arctic Athabaskan elders' traditional knowledge about weather, ice, snow, navigation, and land conditions, thereby compromising the elders' roles as educators.⁴⁹⁸ The Arctic Athabaskan educational system, which passes on and builds upon knowledge from one generation to the next, is critical to Athabaskan cultural survival. Weather forecasting is a crucial part of planning safe and convenient travel for harvesting, hunting, and associated cultural activities. Because much Arctic Athabaskan traditional knowledge relates to the "relationship of living beings (including human beings) with one another and with their environment," the effects of accelerated warming on the Arctic Athabaskan elders' ability to maintain traditional knowledge are far-reaching.⁴⁹⁹ Don Trudeau of Pelly, Yukon, commented on the loss of traditional knowledge and culture in the younger generations:

*I'm afraid there's not many of the youth in our family today who will take this knowledge on into the next generations. In me there's a big tear in my heart that I die with this.*⁵⁰⁰

Changing weather patterns also have resulted in changes to animal movement, decreasing Athabaskan peoples' capacity to maintain and pass down traditional knowledge of hunting and cultural traditions associated with it.⁵⁰¹ Arctic Athabaskan Council's Executive Director, Cindy Dickson, of the traditional community Old Crow, observed:

*Bears used to go into their dens in October and November, but are now out until December.*⁵⁰²

Shorter, fewer, less fruitful, and more dangerous hunting trips not only mean less food harvested, but less time spent engaging in important cultural practices and teaching younger

generations the intricacies of those practices. Loss of this traditional knowledge threatens to permanently erase aspects of Arctic Athabaskan history and culture.

Black carbon pollution's third effect on cultural rights is the threat of Arctic warming and melting to the preservation of cultural and historic sites. Land slumping, erosion, and landslides threaten the structural integrity of such sites. Flash floods and other flooding resulting from accelerated warming in the Arctic can result in washing away of cemeteries and other culturally significant sites. As Roberta Joseph of Dawson City, Yukon, observed, flooding in one village took everything: "*a church, a community hall, water facilities, everything ... their whole legacy was just taken.*"⁵⁰³ In addition, melting permafrost and changing weather patterns are interfering with the use of traditional underground methods of storing food and preparing hides. These impacts threaten Arctic Athabaskan peoples' right to culture by threatening the integrity of culturally significant sites and practices.

The cumulative effects of the impacts described above are permanently undermining the Arctic Athabaskan peoples' ability to engage in their culture. Like the indigenous petitioners in numerous cases before the Inter-American Court, Arctic Athabaskan peoples' culture "directly relates to a specific way of being, seeing, and acting in the world, developed on the basis of their close relationship with their traditional territories and the resources therein, not only because they are their main means of subsistence, but also because they are part of their worldview, their religiosity, and therefore, of their cultural identity."⁵⁰⁴ For Arctic Athabaskan peoples, like the tribal petitioners in *Moiwana*, the "community's connection to its traditional land is of vital spiritual, cultural and material importance."⁵⁰⁵ Given the widely acknowledged and extensive connection between the natural environment and Arctic Athabaskan culture, the changes in Arctic snow, weather patterns, and land are threatening Athabaskan culture. These changes interfere with the Arctic Athabaskan peoples' ability to practice the subsistence way of life central to their culture and to retain traditional knowledge. These changes also threaten the physical destruction of culturally significant sites. As Arctic regional climate change continues on its accelerated track, these impacts will only get worse.

By virtue of the "special relationship that members of indigenous and tribal peoples have with their territory," Arctic Athabaskan peoples merit "special measures under international human rights law in order to guarantee their physical and cultural survival."⁵⁰⁶ Canada has a duty not to degrade or allow the degradation of the Arctic environment to an extent that infringes upon the Arctic Athabaskan peoples' human right to enjoy the benefits of their culture. Canada's failure to sufficiently regulate black carbon emissions is depriving the Arctic Athabaskan peoples of their human right to enjoy the benefits of their culture.

2. THE EFFECTS OF BLACK CARBON IN THE ARCTIC VIOLATE ARCTIC ATHABASKAN PEOPLES' RIGHT TO PROPERTY

Arctic Athabaskan peoples' right to property is guaranteed under both the American Declaration and the American Convention, and recognized under international law. Canada is thus obligated not to degrade the Arctic environment in a way that violates Arctic Athabaskan peoples' right to property.

a. The American Declaration guarantees Arctic Athabaskan peoples' right to property

The American Declaration guarantees Arctic Athabaskan peoples' right to "own such private property as meets the essential needs of decent living and helps to maintain the dignity of the individual and of the home."⁵⁰⁷ Similarly, the American Convention declares that "[e]veryone has the right to the use and enjoyment of his property."⁵⁰⁸ The Commission acknowledged the fundamental nature of the right to property when it stated that "[v]arious international human rights instruments, both universal and regional in nature, have recognized the right to property as featuring among the fundamental rights of man."⁵⁰⁹ Such instruments include the Universal Declaration of Human Rights,⁵¹⁰ the European Convention on Human Rights,⁵¹¹ and the African Charter on Human and Peoples' Rights.⁵¹²

The Inter-American Court and Commission have long recognized that indigenous peoples have a fundamental human right to use and enjoy the lands they have traditionally occupied, independent of domestic title.⁵¹³ As the Court explained, "the close ties of indigenous people with the land must be recognized and understood as the fundamental basis of their cultures, spiritual life, their integrity, and their economic survival."⁵¹⁴ By the fact of their very existence, indigenous communities have the right to live freely on their own territories."⁵¹⁵ In the *Dann* case, the Commission stated that "[i]ndigenous peoples have the right to the recognition of their property and ownership rights with respect to lands, territories and resources they have historically occupied, as well as to the use of those to which they have historically had access for their traditional activities and livelihood."⁵¹⁶

Specifically, the Court has repeatedly held "that the close link that indigenous peoples have to their traditional lands, to the natural resources found that are part of their culture, and to the lands' other intangible elements, should be safeguarded by [the right to property]."⁵¹⁷ For instance, in the *Saramaka* case, the Court found that the Saramaka's right to property included the rights to natural resources "found on and within the Saramaka people's territory [which] are essential for the survival of their way of life."⁵¹⁸ The court also recognized the Saramaka's right to resources "not...traditionally used by members of the Saramaka community" to the extent those resources were "vital to their way of life" and would be affected by extraction.⁵¹⁹

The Court has expressly recognized access to land and resources as part of indigenous peoples' property rights. For instance, in *Xákmok v. Paraguay*, the Court cited lack of access to traditional lands and greater difficulty in subsistence hunting, fishing, and gathering practices among the "effects to [the Community's] cultural identity that [we]re fundamentally results of the Community's lack of territory and the natural resources that come with it."⁵²⁰ As the Court noted, "when restrictions to the indigenous population's access to its traditional lands were increased, [it resulted in] significant changes to the indigenous population's subsistence practices."⁵²¹

Environmental degradation—whether caused by a State’s actions or inactions—can violate the human right to property and give rise to an obligation on States to take positive measures to ensure that third parties do not infringe upon property rights, especially those of indigenous people.⁵²² For instance, in *Saramaka*, the Court “consider[ed] that the logging concessions issued by the State...ha[d] damaged the environment and the deterioration ha[d] had a negative impact on lands and natural resources traditionally used by members of the Saramaka people that [we]re, in whole or in part, within the limits of the territory to which they ha[d] a communal property right.”⁵²³ The Court held that Suriname violated the Saramaka peoples’ right to property in part because Suriname “failed to put in place adequate safeguards and mechanisms in order to ensure that [State-issued] logging concessions would not cause major damage to Saramaka territory and communities.”⁵²⁴

In *Belize Maya*, the Commission noted that “the right to use and enjoy property may be impeded when the State itself, or third parties acting with the acquiescence or tolerance of the State, affect the existence, value, use or enjoyment of that property.”⁵²⁵ There, the Commission found that “the State’s failure to respect [the Maya people’s communal right to property had] been exacerbated by environmental damage” to Mayan lands,⁵²⁶ which further affected the Maya people. Regarding reparations, as explained in Section V.A.4 above, the Inter-American Court has held monetary reparations to be insufficient to fully redress violations of indigenous peoples’ right to property and has included environmental protection among the necessary measures for redress, stating

Canada’s international obligations in this respect are supported by domestic commitments it has already undertaken.

After years of negotiation, several Athabaskan peoples in northern Canada have concluded Comprehensive Land Claims and Self Government Agreements—Modern Treaties—with the Crown. Each of these Agreements is unique, but all provide legal certainty to ownership of land and natural resources in traditional territories, enabling the Crown to award rights to explore for and develop oil, gas, and minerals and other natural resources to third parties without fear of legal challenge based upon assertion of aboriginal title. In exchange, these Agreements define constitutionally protected rights for aboriginal signatories. These rights concern land ownership and natural resource development, culture, economic development, wildlife and environmental conservation, and financial compensation. In the last forty years Athabaskan peoples in Canada have concluded the following modern treaties with the Crown:

- Gwich’in Comprehensive Land Claims Agreement, December 1993;
- Eleven Yukon First Nations Final Agreements (May 1993-October 2005);
- Sahtu Dene and Metis Comprehensive Land Claims Agreement, 1993;
- Tlicho Land Claims and Self-Government Agreement, August 2003.

As the key means to “reconcile” the rights and interests of aboriginal peoples with the rights and interests of Canadians generally, modern treaties are hugely important, not only for their constitutional status but also for what they promise. Modern treaties with Athabaskan peoples include fee simple ownership of land (commonly 10-20 percent of settlement areas), rights to hunt, fish and trap throughout traditional territories, and representation on institutions to manage the use and development of land, wildlife and natural resources. Since 1995 these treaties have addressed the means and mechanisms for Athabaskan peoples to govern themselves and to determine their futures.

The impacts and effects of climate change increasingly undermine the rights defined in modern treaties. These rights are also guaranteed in Canada’s Constitution. The Supreme Court of Canada characterizes modern treaties as “solemn” documents, and urges the Government of Canada to uphold the “honour of the Crown” in decision-making processes related to them. Reducing emissions of black carbon domestically and urging other countries to do likewise is needed to maintain the worth and value of these modern treaties.

that “the State shall ensure that the area is not deforested ... and that the land is not exploited in such a way as to cause irreparable damage to the area or to the natural resources found there.”⁵²⁷

International law recognizes the special significance of traditional lands to people who rely on their land for culture, well-being, or subsistence. For instance, the European Court of Human Rights (European Court) in *Dogan v. Turkey* found that the petitioners had “unchallenged rights over the common [ancestral] lands in the village, such as the pasture, grazing and the forest land” from which their livelihood depended, adding that the resulting economic resources and revenue may qualify as part of the right to property under the European human rights system.⁵²⁸ The European Court acknowledged that environmental harm may result in a breach of that right from either existing or future claims in which a petitioner “can argue that he has at least a reasonable and ‘legitimate expectation’ of obtaining effective enjoyment of a property right.”⁵²⁹

In another example, the UNDRIP specifically includes “the right to own, use, develop and control the lands, territories, and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired,”⁵³⁰ along with “the right to maintain and strengthen their distinctive spiritual relationship with ... [those] lands ... and ... resources and to uphold their responsibilities to future generations in this regard.”⁵³¹ That declaration also provides indigenous peoples with “the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources” and requires that States “give legal recognition and protection to these lands, territories and resources.”⁵³² ILO Convention 169 also recognizes indigenous peoples’ rights of ownership and possession over the lands they traditionally occupy and the natural resources pertaining to those lands, as well as access to the lands they have traditionally used for subsistence.⁵³³ That convention states that “[g]overnments shall take measures ... to protect and preserve the environment of the territories [indigenous people] inhabit,”⁵³⁴ including by assessing the “social, spiritual, cultural and environmental impact on them of planned development activities.”⁵³⁵

The broad scope of Arctic Athabaskans’ human right to use and enjoy their property extends to their tangible and intangible personal property. The Inter-American Court has expansively defined property to include “those material things which can be possessed, as well as any right which may be part of a person’s patrimony; that concept includes all movables and immovables, corporeal and incorporeal elements and any other intangible object capable of having value.”⁵³⁶ Intellectual property, such as traditional knowledge, falls within this definition.⁵³⁷ Indeed, in *Sawhoyamaxa*, the Court specified that “the close ties of indigenous peoples with their traditional lands and the native natural resources thereof, associated with their culture, *as well as any incorporeal element deriving therefrom*, must be secured under [the right to property].”⁵³⁸ In the 2011 Draft American Declaration on the Rights of Indigenous Peoples, the Parties have reached consensus on language related to traditional knowledge, guaranteeing indigenous peoples “the right to their own cultural identity and integrity and to their cultural heritage, both tangible and intangible, including historic and ancestral heritage; and to the protection, preservation, maintenance, and development of that cultural heritage for their collective continuity and that of their members and so as to transmit that heritage to future

generations.”⁵³⁹ The Parties have further agreed that “[i]ndigenous peoples have the right to preserve, use, develop, revitalize, and transmit to future generations their own histories, languages, oral traditions, philosophies, systems of knowledge, writing, and literature” and “states shall adopt adequate and effective measures to protect the exercise of this right with the full and effective participation of indigenous peoples.”⁵⁴⁰

b. The effects of black carbon in the Arctic violate Arctic Athabaskan peoples’ right to property

By failing to adequately regulate black carbon emissions, Canada is violating Arctic Athabaskan peoples’ right to property. Arctic Athabaskan peoples have a human right to the use and enjoyment of land they have traditionally used and occupied. For millennia, Arctic Athabaskan peoples have occupied and used land in the Arctic areas of Canada and the United States. This “land” includes ice used for travel, hunting, and camping. Due to their connection to land and their reliance on land and natural resources for subsistence, the scope of Arctic Athabaskans peoples’ right to property includes use and enjoyment of the land and natural resources; access to land and resources necessary for subsistence; and intellectual property, which includes traditional knowledge.



Photo courtesy of iStockphoto.

Arctic warming has harmed Arctic Athabaskan peoples’ property rights by making traditional lands unfamiliar and less valuable to Arctic Athabaskan peoples. Melting permafrost has altered the characteristics of Arctic Athabaskan land. Water resources and wetlands are drying because the permafrost no longer inhibits drainage.⁵⁴¹ This changes the look of the land, alters landmarks, and transforms critical habitat. The use of permafrost for food storage is no longer practical in some areas, eliminating a traditional use of the land. Permafrost is expected to retreat northward by hundreds of miles this century.⁵⁴² In addition, increases in rain and freezing rain—resulting in faster snowmelt, flash flooding, and ice storms—damage Arctic Athabaskan towns, including homes, riverbank camps, and the roads and rivers people use for travel on the hunt.⁵⁴³ Each of these effects is diminishing the value of Arctic Athabaskan peoples’ lands and affecting their ability to use and enjoy their property.

Some effects of accelerated Arctic warming, like floods and fires, can wipe out large swaths of land and natural resources, thereby infringing on Arctic Athabaskan peoples’ right to property. Isaac Juneby of Eagle, Alaska, observed that floods have washed away entire villages:

*A couple of years ago, there was the big flood that wiped out my village completely.*⁵⁴⁴

Cindy Dickson, Executive Director of the Arctic Athabaskan Council, noted that forest fires are increasing:

*We've heard from many people that there's been an increase in numbers and intensity of forest fires. It seems that there's a lot more forest fires than when I was growing up. Most communities are hit by forest fires. I think there's been an increase. Fires seem to be bigger and stronger. Researchers say this will be one of the effects of global warming.*⁵⁴⁵

Fires also damage caribou feeding grounds. Chief Bill Erasmus of Yellowknife, NWT commented on increasing fire and its impacts on caribou and caribou hunters:

*Our people are saying that there are more fires now.... [T]hey used to say that there weren't that many fires before. Our elders are saying that there are more fires than there used to be. If [fire] burns the caribou area, for example, they can no longer go to that area for a number of years so it affects people because access to the food becomes difficult. Fires affect the land and the animals and affects harvesting.*⁵⁴⁶

As the Arctic continues to rapidly warm, floods, fires, and resulting damage will continue to reduce the value of Arctic Athabaskan peoples' property. By degrading reliable travel routes and reducing healthy game, accelerated Arctic warming has diminished Athabaskan peoples' property interest in access to lands to which they have historically had access for their traditional activities and livelihood.⁵⁴⁷ Erosion, slumping, ponded water, and other changes to landscape have made some lands unreliable for travel to hunting, trapping, fishing, and gathering areas.⁵⁴⁸ Chief James Allen of Haines Junction observed that traditional lands are less accessible with regional warming:



Photo courtesy of Arctic Athabaskan Council.

*The lake travel in the winter is very dangerous. You don't know if the ice is thick enough anymore. So you avoid the lake and if you avoid the lake you have to make new trails to get around the lake edge. Makes travel a lot more difficult.*⁵⁴⁹

Impacts of rapid warming on infrastructure also impede Arctic Athabaskan peoples' access to lands needed for subsistence.⁵⁵⁰ Permafrost thaw and ground slumping threaten damage to all-weather roads and winter roads built on frozen lakes and rivers; airport runways; bridges; and ferries and private boats used for hunting, fishing, recreation and travel; as well as to buildings, industrial facilities, railroads, and pipelines.⁵⁵¹ Arctic warming has compromised the structural integrity of commercial and residential buildings, including by destroying foundations, causing roofs to collapse, and increasing outbreaks of fire.⁵⁵²

Accelerated Arctic warming also interferes with Arctic Athabaskan peoples' right to intellectual property. Arctic Athabaskan peoples possess intangible property in the form of traditional knowledge, as discussed under the right to culture, Section V.C.1.b. Arctic

Athabaskan peoples' educational system of passing on and building upon knowledge from one generation to the next has tremendous value to their cultural survival. Arctic Athabaskan peoples have spent millennia developing knowledge about their physical surroundings. Rapid regional warming has altered weather patterns and therefore has made Athabaskan peoples' traditional knowledge less valuable. The Inter-American Court's definition of protected property as described in the *Awasi Tingni* decision encompasses Arctic Athabaskan peoples' traditional knowledge as an "intangible object capable of having a value" that falls under the right to property.⁵⁵³ Arctic Athabaskan peoples' traditional knowledge of access to the harvest of resources constitutes an intangible property right protected under the right to property.

The impacts of rapid Arctic warming and melting described above violate Arctic Athabaskan peoples' human right to property, which is guaranteed by the American Declaration and other sources of international law. As the Arctic continues to warm more than twice as fast as the global average, these harms pose an ongoing threat to Arctic Athabaskan peoples' property rights. Due to Canada's failure to regulate black carbon emissions, "third parties acting with the acquiescence or tolerance of the State [are] affecting the existence, value, use [and] enjoyment of that property."⁵⁵⁴ This is true even outside the context of development activities because the impact of insufficient regulation or action is the same in terms of undermining property rights. Under the Inter-American human rights system, Arctic Athabaskan peoples' property rights include the rights to access to and use and enjoyment of "lands, territories and resources ... to which they have historically had access for their traditional activities and livelihood,"⁵⁵⁵ and intellectual property in the form of traditional knowledge. Canada is violating Arctic Athabaskan peoples' right to property by failing to take sufficient action to combat accelerated Arctic warming.



Photo courtesy of Arctic Athabaskan Council.

3. THE EFFECTS OF BLACK CARBON IN THE ARCTIC VIOLATE ARCTIC ATHABASKAN PEOPLES' RIGHT TO THE PRESERVATION OF HEALTH

Arctic Athabaskan peoples' right to health is guaranteed under the American Declaration and recognized under international law. Canada is thus obligated not to degrade the Arctic environment such that it infringes on Arctic Athabaskan peoples' right to health.

- a. The American Declaration guarantees Arctic Athabaskan peoples' right to the preservation of health

The American Declaration provides that "[e]very person has the right to the preservation of his health through sanitary and social measures relating to food, clothing, housing and medical care, to the extent permitted by public and community resources."⁵⁵⁶ This guarantee is interpreted in the Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights (Protocol of San Salvador) as ensuring "the enjoyment

of the highest level of physical, mental and social well-being.”⁵⁵⁷ Other major international human rights instruments safeguard the right to health, including the Universal Declaration of Human Rights,⁵⁵⁸ ICESCR,⁵⁵⁹ and the African Charter on Human and Peoples’ Rights.⁵⁶⁰ Further supporting the universal and fundamental nature of this right, at least 115 national constitutions recognize the right to health.⁵⁶¹

The Inter-American Commission has long recognized the close relationship between environmental degradation and the right to health. For instance, in *Yanomami v. Brazil*, the Commission held that the government of Brazil violated petitioners’ right to health by failing to prevent environmental degradation arising from road construction and the subsequent development of Yanomami indigenous lands, which caused an influx of pollutants and resulted in widespread disease and death.⁵⁶² In that case, the Commission found that “by reason of [the government’s failure] to take timely and effective measures [on] behalf of the Yanomami Indians, a situation has been produced that has resulted in the violation, injury to them, of the ... right to the preservation of health and to well-being.”⁵⁶³ In the *Belize Maya* case, the Commission recognized the particular impacts that environmental harm can have on indigenous peoples’ right to health and well-being, finding that indigenous people’s rights were so dependent on the integrity and condition of indigenous land that “broad violations” of indigenous property rights necessarily infringed upon the health and well-being of the Maya.⁵⁶⁴ In its 1997 Report on the Situation of Human Rights in Ecuador, the Commission observed that “damage to [traditional] lands ‘invariably leads to serious loss of life and health...of indigenous peoples.’”⁵⁶⁵ In that report, the Commission became the first authoritative international institution to recognize that human rights are implicated “where environmental contamination and degradation pose a persistent threat to human life and health,” and that governments have a responsibility to protect human rights by preventing such degradation.⁵⁶⁶

International human rights bodies and experts have recognized the close relationship between environmental protection and health. For instance, the European Commission on Social Rights, the institution within the European human rights system charged with overseeing the European Social Charter, found violations of the Charter’s right to health in *Marangopoulos Foundation for Human Rights v. Greece*, where Greece had not adequately prevented negative environmental impacts or developed an appropriate strategy to prevent and respond to the health hazards stemming from pollution and greenhouse gases emissions from lignite mining.⁵⁶⁷ In addition, the U.N. Committee on Economic and Social Rights has explained that the right to “the highest attainable standard of physical and mental health” in Article 12 of the ICESCR “extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation..., and a healthy environment.”⁵⁶⁸ The Committee has further stated that victims of a violation of the right to health should have access to remedies at both national and international levels and should be entitled to adequate reparation.⁵⁶⁹ Former U.N. Special Rapporteur on the right to health Paul Hunt also noted that the right to health gives rise to an obligation on the part of a State to ensure that environmental degradation does not endanger human health.⁵⁷⁰ Underscoring the connection between health and the environment, the definition of pollution in international environmental law is “the introduction by man of substances or energy into the environment resulting in such deleterious effects as hazards to human health or which harm/endanger human health.”⁵⁷¹

International human rights experts have also recognized the heightened effects of environmental harm on the life and health of indigenous peoples. In 2005, Special Rapporteur Rodolfo Stavenhagen of the U.N. Commission on Human Rights concluded that “the effects of global warming and environmental pollution are particularly pertinent to the life chances of Aboriginal people in Canada’s North, a human rights issue that requires urgent attention at the national and international levels, as indicated in the Arctic Climate Impact Assessment.”⁵⁷² In his 2006 report on the situation of human rights and fundamental freedoms of indigenous people, he focused attention on how crucial environmental rights are to indigenous peoples’ survival. His report highlights the importance of indigenous peoples’ right to access natural resources necessary for health and life, as well as the right to participate in environmental decision-making surrounding allocation of resources crucial for their livelihood.⁵⁷³ His successor, James Anaya, in his 2011 report on an Arctic indigenous people in Norway, Sweden, and Finland, explained in greater detail the “particular adverse effects [of climate change] on people ... who depend upon the arctic climate for their livelihoods,” including effects on their diet.⁵⁷⁴

- b. The effects of black carbon in the Arctic violate Arctic Athabaskan peoples’ right to the preservation of health

Canada’s insufficient regulation of black carbon emissions contributes to rapid Arctic regional climate change and is harming Arctic Athabaskan peoples’ health and well-being. Changing environmental conditions have affected Arctic Athabaskan peoples’ diet by diminishing populations, accessibility, and the quality of game they rely on for nutrition. These conditions have also affected water quality, increased likelihood of disease, increased potential for injury due to dangerous conditions, and caused psychological stress. The continued warming of the region from emissions of black carbon and other climate pollutants will add to these and other health risks in the future.

Impacts of accelerated warming on the nutritional value of Arctic Athabaskan diet affect their right to health. Traditional foods are the mainstay of Arctic Athabaskan peoples’ diet, and their health suffers when these foods become less available. When Athabaskan peoples are less able to obtain food through traditional means of hunting, fishing, trapping, or gathering, they must supplement their diet with store-bought foods.⁵⁷⁵ This results in greater consumption of processed, packaged foods, which are costlier⁵⁷⁶ and less healthy,⁵⁷⁷ both in terms of nutritional value and health risks. Increased incidence of cancer, obesity, cardiovascular disease and diabetes have been observed and attributed to unhealthy, non-traditional diets in Arctic communities.⁵⁷⁸ As Arctic Climate Impact Assessment (2004) noted:

A reduction or disappearance of traditional food species may result in indigenous populations switching from a traditional diet to less healthy diets; such dietary shifts are associated with an increased prevalence of chronic diseases such as diabetes, heart disease, and cancer among northern populations.... Health effects related to extreme economic hardship could also follow a decline in traditional food species.⁵⁷⁹

As Shirley Lord of Tagish, Yukon, observed:

*People don't get out on the land and they eat a lot of processed foods... I think that is the reason for a lot of the sicknesses. You see a lot of people with diabetes, high blood pressure, and the list goes on and on. And I am sure it is because of the food. People eat processed food and they eat store meat which is pumped full of chemicals. And they are not getting the nourishment in wild fish and meat.*⁵⁸⁰

Additionally, the health of species that Arctic Athabaskan peoples depend upon for food also affects the health of Arctic Athabaskan peoples themselves. When the health or populations of species decline, less food is available for Arctic Athabaskan peoples. For example, the negative impacts of Arctic warming on caribou habitat and on plants that caribou eat give rise to changes in populations and distributions of caribou herds.⁵⁸¹ Fewer available and healthy caribou means a less robust and healthy diet for Arctic Athabaskan peoples.



Photo copyright Paul Vecsei.

Impacts of regional warming on water quality are further jeopardizing Arctic Athabaskan peoples' right to health. Water quality of natural sources of drinking water is worsening and in some places is now muddy due to riverbank erosion. As Randal Tetlich of Old Crow, Yukon, explained:

*Water is getting more muddy; [it] is not as clean as it used to be. More muddy in the water I noticed, compared to 40 years ago, it was crystal clear and [now] it's muddy.*⁵⁸²

Belinda Northway Thomas of Northway, Alaska, also noted that permafrost melt is causing drinking water contamination from an old military waste site (see Section IV.D.9 Infrastructure Damage).⁵⁸³ In addition, permafrost thawing, erosion, floods, rockslides, and intense rainfall pose potential threats to water quality in the Arctic, and thus to Arctic Athabaskan peoples' health.⁵⁸⁴ These impacts may also diminish water quality by directly damaging water facilities or by limiting the efficient delivery of water.⁵⁸⁵

Disease is an increasing threat in the face of rapid warming in the Arctic.⁵⁸⁶ Warming is causing changes in insect and pest populations and the movement of new wildlife diseases, such as brain worm in deer, and tick-borne Lyme disease, brucellosis, rabies, tularemia, and echinococcus.⁵⁸⁷ Warming can exacerbate water and food-borne contamination that lead to intestinal disorders and illnesses; chemical and biological contaminants; and vector-borne and zoonotic (animal-borne) diseases, causing new patterns of diseases from bacteria, viruses and other pathogens carried by mosquitoes, ticks, and other animals experiencing habitat shifts.⁵⁸⁸ Such diseases are an increasing threat to Arctic Athabaskan peoples and thus their right to health.⁵⁸⁹

The effects of accelerated warming further threaten Arctic Athabaskan peoples' right to health by posing greater risk of injury arising from changing weather conditions. For example,

hunters attempting to intercept caribou at river crossings in conditions where freezing has been delayed face increased risk of injury as these rivers often have moving ice.⁵⁹⁰ Increased risks of injury related to weather events, such as storms, rockslides, avalanches, intense rainfalls, floods, and extreme temperature also threaten the health and well-being of Athabaskan peoples.⁵⁹¹ As the Government of Canada has recognized, weather-related natural hazards present a more serious risk of injury to populations and communities that live and travel in exposed areas, as Arctic Athabaskan peoples do.⁵⁹² The inability of elders to predict the weather accurately further increases the risk that hunters and travelers will be caught unprepared, with dangerous, even life-threatening consequences in the harsh Arctic climate.

Infrastructure damage caused by low water levels, as well as flooding from ice jamming and unusual breakup patterns of ice in rivers, also threatens Arctic Athabaskan peoples' lives and health. This damage can occur along riverbanks where Arctic Athabaskan peoples travel for hunting, trapping, gathering, and fishing.⁵⁹³ The already high rates of injury from transportation-related accidents will also likely increase due to accelerated warming, thereby infringing upon Arctic Athabaskan peoples' rights to health and well-being.⁵⁹⁴ In addition, permafrost melt and ground subsidence can also cause infrastructure damage, increasing the risk of a sudden failure of mining waste containment structures.⁵⁹⁵ If these structures were to fail, the resulting contamination could produce serious health hazards.

Beyond physical health issues, accelerated warming in the Arctic is affecting Arctic Athabaskan peoples' mental health. Elders' inability to accurately predict the weather, loss of culturally significant sites like cemeteries, more dangerous travel conditions, possibility of damage to homes, and shrinking of habitat that is vital for subsistence (described in Section V.C.1 above) are all sources of cultural and psychological stress for Athabaskan peoples,⁵⁹⁶ as is an unknown future for culture, language, and identity tied to the land.⁵⁹⁷ In addition, weather-related hazards can cause social and mental stress, even trauma, for those who must relocate.⁵⁹⁸

Glen Stevens of White River First Nation, Yukon, observed that lack of traditional hunting and gathering is causing stress as well as loss of health and culture:

*People are not going out on the land and they are unhealthy and I could see more stress being built up and we are losing are traditional culture.*⁵⁹⁹

The right to preservation of health recognized in the American Declaration necessarily includes a prohibition on degradation of the environment to the point that human health and well-being are threatened. Like the Mayan people in the *Belize Maya* case, Arctic Athabaskan peoples rely so heavily on the condition of the land for their health and well-being that the damage to their environment caused by accelerated warming violates their human right to health and well-being.⁶⁰⁰ Canada has an international obligation not to infringe upon Arctic Athabaskan peoples' human right to health and well-being through degradation of their physical environment. Canada has failed to develop an appropriate strategy to prevent and respond to the effects of accelerated warming on human health despite the fact that effective regulation of black carbon emissions could slow this environmental degradation.⁶⁰¹ Like Brazil in the *Yanomami* case, here Canada has failed to take necessary measures to prevent environmental degradation

that is harming indigenous peoples' health.⁶⁰² Canada thus has violated Arctic Athabaskan peoples' fundamental human right to the preservation of their health.

4. THE EFFECTS OF BLACK CARBON IN THE ARCTIC VIOLATES ARCTIC ATHABASKAN PEOPLES' RIGHT TO THEIR OWN MEANS OF SUBSISTENCE

Arctic Athabaskan peoples' right to their own means of subsistence is well-established in the Inter-American system's jurisprudence and recognized under international law. Canada thus has a duty not to degrade the Arctic environment such that it violates Arctic Athabaskan peoples' right to their own means of subsistence.

- a. The American Declaration guarantees Arctic Athabaskan peoples' right to their own means of subsistence

For people who depend on natural resources for their livelihood, the right to their own means of subsistence is inherent in, and a necessary component of, the American Declaration's rights to property, health, life, and culture. The ICESCR and ICCPR both provide that all peoples "may freely dispose of their natural wealth and resources," but that "[i]n no case may a people be deprived of its own means of subsistence."⁶⁰³ The UNDRIP provides the same assurance to indigenous peoples, for whom this right is particularly vital, adding that indigenous peoples have the right "to be secure in the enjoyment of their own means of subsistence and development."⁶⁰⁴ Indeed, in the context of indigenous peoples, the right to one's own means of subsistence has become a recognized principle of international human rights law. The Canadian government itself has recognized the importance of the subsistence way of life to the continued survival of the Arctic Athabaskan culture by providing explicit protection for rights to harvest fish and wildlife, including for subsistence, in the modern treaties between Athabaskan nations and the Canadian crown.⁶⁰⁵



Photo courtesy of iStockphoto.

In a number of cases involving indigenous peoples, including in *Xákmok v. Paraguay*, the Inter-American Court recognized that indigenous peoples' close relationship with their traditional lands and natural resources stems in part from the fact that "it is their main means of subsistence."⁶⁰⁶ In *Xákmok*, the Court recognized that "[h]unting, fishing, and gathering became constantly more difficult to the point that the indigenous decided to leave the [traditional land] and relocate ... in other places, fragmenting part of the Community." The Court described this as part of "the impact on the Community's subsistence practices,"⁶⁰⁷ and noted that "significant changes to the indigenous population's subsistence practices" had resulted from restrictions on indigenous peoples' access to their traditional lands.⁶⁰⁸ Ultimately, the Court found that the State's failure to guarantee indigenous peoples' access to their land effectively deprived them of access to food, water, and other basic needs.⁶⁰⁹

In a similar vein, the Commission has recognized that indigenous peoples' "special relationship [to their territories] is fundamental ... for the[ir] material subsistence."⁶¹⁰ Indigenous peoples' "lack of possession of, and access to, their territories prevents them from using and enjoying the natural resources that they need to obtain the goods necessary for their subsistence, develop their traditional cultivation, hunting, fishing or gathering activities, access traditional health systems, and other key socio-cultural functions."⁶¹¹ Notably, in *Yakye Axa*, the Court recognized that the State had "generated conditions that worsened the difficulties of access to a decent life for the Yakye Axa Community,"⁶¹² including by "depriv[ing] them of the possibility of access to their traditional means of subsistence, as well as to use and enjoyment of the natural resources necessary to obtain clean water and to practice traditional medicine to prevent and cure illnesses."⁶¹³

In his 2011 report on the situation of the indigenous Sami people in Norway, Sweden, and Finland, the U.N. Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people, James Anaya, explained the heightened effects of warming on Arctic indigenous peoples:

[C]limate change, though clearly a global problem, has particular adverse effects on people such as the Sami [an Arctic indigenous people] who depend upon the arctic climate for their livelihoods. As winter temperatures rise due to global warming, snow thaws and melts into the lichen that reindeer eat, and when temperatures then drop below freezing, the lichen is encased in ice making it very difficult for the reindeer to eat and digest. Also, summer pastures may change from open to shrub vegetation land and herders are finding it necessary to move their herds to drier ground. Thus, considerable efforts need to be directed towards reducing the vulnerability of reindeer husbandry to the effects of climate change, and research should be carried out towards this end.⁶¹⁴

- b. The effects of black carbon in the Arctic violate Arctic Athabaskan peoples' right to their own means of subsistence

By failing to sufficiently regulate black carbon emissions, Canada is depriving Arctic Athabaskan peoples of the right to their own means of subsistence, in violation of international law.⁶¹⁵ As described above in the section on right to health, subsistence activities are a primary source of livelihood among Arctic Athabaskan peoples. Regional warming and melting is impeding Arctic Athabaskan peoples' right to subsistence through impacts on their subsistence diet, including the robustness of the harvest, and means of travel, which in turn affects Arctic Athabaskan peoples' access to land and natural resources.

Already, impacts of accelerated warming on subsistence harvest have reduced Arctic Athabaskan peoples' ability to rely exclusively on the subsistence harvest. Continuing changes in the regional Arctic climate will further reduce the availability and quality of the subsistence diet and by impeding access to lands needed for subsistence activities.⁶¹⁶ For instance, animals are changing location and habits, making them less accessible, harder to find and, because of impacts on the ability to travel, sometimes impossible to hunt. Paul Birckel of Klukshu, Yukon, observed that hunters are spending more time looking for moose, for example, and fewer animals are harvested:

[Hunting] is difficult... [T]here is less moose and you have to go somewhere else usually to find moose.... It's harder to hunt when you go down to all the places where we have to hunt. They [hunters] are spending more time looking than they are successful[ly harvesting].⁶¹⁷

Louis Renigler of Beaver Creek, Yukon Territory, described overall reductions in animals:

I've been in and out of the bush throughout the whole territory so I noticed quite a bit of changes: less squirrels, less rabbit, less moose, less lynx, less wolves, less everything.⁶¹⁸

As habitats change and ecosystems move northward or shrink in size, populations of traditional subsistence species are shifting and declining, further reducing Arctic Athabaskan hunting success.⁶¹⁹ Unusually deep snow, hard-crusting atop snow, and other extreme weather events may degrade grazing conditions and cause starvation of caribou—the most significant species in terms of subsistence for most Athabaskan peoples.⁶²⁰

Joe Tetlich of Whitehorse, Yukon, remarked on how climate change affects the Porcupine Caribou herd and the people that depend on these animals:



Photo courtesy of Arctic Athabaskan Council.

I think weather patterns have made it chaotic for migration, and with the caribou we see that there are a lot of forest fires in the summer and because of forest fires the caribou will not go to that area for long periods of time. This is creating hardships for not only the caribou but for the people that depend on the Porcupine Caribou.... We feel it is because of the forest fires.... [C]limate change is having a slow burden on the harvesters and what they can get.⁶²¹

Arctic warming is also taking a toll on the species that subsistence species rely on for food and areas that they use as habitat. Like the effects of Arctic warming on the reindeer population, described above by Special Rapporteur Anaya regarding the Sami people, Arctic warming has similar impacts on vegetation that supports animals on which Arctic Athabaskan peoples depend for subsistence.⁶²² Land animals' winter food sources can become trapped below a hard, impenetrable layer of ice caused by earlier and more frequent thawing, resulting in fewer, less healthy, and less accessible land animals for harvest. Styd Klugie of Pelly Crossing, Yukon Territory, lamented the changes occurring with all animals and plants, including caribou, fish, berries, bears and insects:



Photo courtesy of Arctic Athabaskan Council.

*The caribou are gone and a lot of the traditional animals are changing as well. The fish are depleting. There is the dynamics of the animals are changing somewhat and they have to react to the changes like the bears for example and the environment is changing. And for example the berries are not there and these bears need to feed on these certain things and so the bears need that and are disturbed. ... It's like a domino effect in one sense. It's not only berries, it's all insects, animals and plants change.*⁶²³

This disruption of food webs resulting from accelerated warming further jeopardizes the quality of the harvest, for instance as warmer and longer summers cause variation in snow conditions and snow cover that will affect the growth and distribution of plants eaten by caribou.⁶²⁴ As Joe Tetlich of Whitehorse, Yukon explained:

*[I]f we had rain in the winter we can get a hard crust on top and that is hard on the caribou as they have to work harder to get food. Also, if you get rain in the fall, what that does, it freezes all vegetation. And because of that it is harder for caribou to get their food after the snow comes, too. And so climate change is affecting how animals migrate.*⁶²⁵

Snow cover affects habitat conditions of caribou, moose, salmon, hare, porcupine, and many other wildlife species on which Arctic Athabaskan peoples depend for subsistence. Permafrost melt alters the distribution of surface water and drainage of lakes and wetlands, which is important habitat for salmon.⁶²⁶ Fires and insect infestations also threaten the habitats of species Arctic Athabaskan peoples rely upon for subsistence food. Reduction and alteration of these species' habitat harms the vitality of the species themselves, and thus Arctic Athabaskan peoples' ability to rely on them for subsistence.

Because travel is an essential component of Arctic Athabaskan peoples' subsistence harvest, the deprivation of safe and reliable means of travel also deprives Arctic Athabaskan peoples of their means of subsistence. Rose Kushniruk of Champagne Aishihik First Nations, Haines Junction, Yukon, noted that erosion is compromising access to hunting, gathering, and cultural sites:

*I think that with our changing forests, like for us in our area, the forest to me is like the blanket that covers our land. And it is also home to everything we eat and harvest. With the rivers, I think that one of the effects of our changing forests is the erosion and the different channels changing on the rivers. With that, sometimes access ... to get to the special place that you go and hunt or your camp or whatever is changed. Or you may not be able to get [to] it.*⁶²⁷

As described in Sections IV.D above, Arctic Athabaskan peoples can no longer plan safe travel because the unpredictable weather has deprived them of the ability to forecast the weather. In addition, subsistence gathering for berries and other vegetation may become more difficult as Arctic warming reduces traditional food plants' ability to survive in a warmer climate or to out-compete invasive species.

Arctic Athabaskan peoples' right to their own means of subsistence is protected under international law and is an intrinsic part of the rights established in the American Declaration. Like other indigenous peoples, Arctic Athabaskan peoples' "special relationship [to their territories] is fundamental ... for the[ir] material subsistence."⁶²⁸ Indeed, Arctic Athabaskan peoples' subsistence economy and traditional activities, including hunting, fishing, and gathering are "important factors in the maintenance of their cultures and in their economic self-reliance and development."⁶²⁹ Consequently, "lack of possession of, and access to, their territories prevents them from using and enjoying the natural resources that they need to obtain the goods necessary for their subsistence, develop their traditional cultivation, hunting, fishing or gathering activities, access traditional health systems, and other key socio-cultural functions."⁶³⁰

Rapid warming is making Arctic Athabaskan peoples' subsistence harvest more dangerous, more difficult, and less reliable. Changes in ice, snow, weather, seasons and land have interfered with Arctic Athabaskan peoples' access subsistence food sources and increased food insecurity, forced them to change their diets, led to loss of income, and increased dependence on outside, nontraditional foods.⁶³¹ As the Inter-American Court observed, restrictions on indigenous peoples' access to their traditional lands can result in "significant changes to the indigenous population's subsistence practices."⁶³² By threatening Arctic Athabaskan peoples' subsistence way of life, including their traditional hunting and fishing activities, Canada is abridging Arctic Athabaskan peoples' right to their own means of subsistence.⁶³³ Like the Nordic countries which Special Rapporteur Anaya has called on to uphold the rights of the Arctic indigenous Sami people, Canada should bolster its efforts to advance Arctic Athabaskan peoples' rights to their lands, territories and resources in order to guarantee the Athabaskan people "a sustainable basis for their economic, social, and cultural development."⁶³⁴ Canada's failure to sufficiently regulate black carbon emissions violates Arctic Athabaskan peoples' human right to their own means of subsistence.



Photo courtesy of Arctic Athabaskan Council.

VI. EXCEPTION TO EXHAUSTION OF DOMESTIC REMEDIES

Article 31 of the Inter-American Commission's rules of procedure requires the Commission to "verify whether the remedies of the domestic legal system have been pursued and exhausted in accordance with the generally recognized principles of international law."⁶³⁵

Article 31 provides exceptions to the above requirement, including when “the domestic legislation of the state concerned does not afford due process of law for protection of the right or rights that have allegedly been violated.”⁶³⁶ The Commission does not merely look to the formal existence of remedies, but rather, whether the remedies are “adequate” and “suitable and effective” in redressing the violations at issue.⁶³⁷ As the Commission further states:

...the jurisprudence of the IACHR has established that a petitioner may be exempt from the requirement of having to exhaust domestic remedies with regard to a complaint, when it is evident from the case file that any action filed regarding that complaint had no reasonable chance of success based on the prevailing jurisprudence of the highest courts of the State.⁶³⁸

Canadian law offers Arctic Athabaskan peoples “no reasonable chance of success” due to the undue burden such challenges would impose, the lack of remedies under Canadian constitutional, statutory and common law to redress the harms at issue in this petition, and the lack of protection under Canadian constitutional, statutory and common law for the rights at issue in this petition.⁶³⁹ Because Canada provides no domestic remedies that are adequate, suitable, or effective to redress the rights for which the Arctic Athabaskan peoples have alleged violations, the requirement of exhausting domestic remedies does not apply in this case. Thus, the petition is admissible under the Commission’s rules of procedure.

A. PURSUING REMEDIES AT THE DOMESTIC LEVEL WOULD BE UNDULY BURDENSOME FOR ARCTIC ATHABASKAN PEOPLES.

As the Commission recognized in *Hul’Qumi’Num Treaty Group v. Canada*,

...the jurisprudence of the inter-American system has determined that with regard to indigenous peoples, the State must provide them with effective protection that takes into consideration their own traits, their social and economic condition as well as their especially vulnerable situation, their common law, values, practices and customs.⁶⁴⁰

In that case, the Commission found that the petitioners had met the exhaustion requirement where they argued they

...ha[d] been prevented from exhausting the domestic remedies because, first, there [wa]s no effective mechanism to obtain legal recognition and restitution of their ancestral lands, and second, access to Canadian courts [wa]s very costly for [the petitioners] and ma[de] it impossible to lodge the legal remedies mentioned by the State.⁶⁴¹

Like the petitioners in *Hul-Qumi’Num Treaty Group*, the Arctic Athabaskan peoples have no effective mechanism to obtain the relief sought and access to Canadian courts is so costly as to make any potentially available legal remedies an impossibility for Arctic Athabaskan peoples to obtain.

1. MULTIPLICITY OF REGULATIONS AT THE PROVINCIAL AND FEDERAL LEVELS

Regulation of air emissions in Canada is piecemeal, occurring at the federal, but also largely at the provincial level. Canada does not have one single, comprehensive statute that petitioners could challenge to obtain the remedies sought in this petition. Thus, seeking the remedy of sufficient regulation of black carbon under Canadian law would require Arctic Athabaskan peoples to challenge different air emissions regulations province by province across the country as well as federally. The Commission has found the exception to exhaustion of domestic remedies to apply in the face of such a burden. For instance, in *Hul-Qumi'Num Treaty Group*, the Commission found that:

...remedies under the Heritage Preservation Act, the interim or interlocutory measures that may be granted against violations, and to legal actions under the provisions of the Canadian Charter of Rights and Freedoms... [we]re not suitable because they c[ould] not be used to comprehensively and permanently protect all [of petitioners'] ancestral lands from the actions of third parties because their purpose is not to recognize [petitioners'] property rights to those lands or the obligation of the State to provide restitution.⁶⁴²

Thus, the petitioners “[we]re not obligated to exhaust those remedies.”⁶⁴³ In reaching this conclusion, the Commission noted that the petitioners would have had to seek remedies “each time a request for a permit or license [wa]s made that could impact their ancestral lands that are in private hands” and that this rendered those remedies ineffective.⁶⁴⁴ Like the domestic remedies presented in *Hul'Qumi'Num Treaty Group*, the remedies the Arctic Athabaskan peoples could seek under Canadian law are “not suitable because they cannot be used to comprehensively and permanently protect” the petitioners from the harms at issue.⁶⁴⁵ Indeed, it would be unreasonable and impracticable to impose the burden on Arctic Athabaskan peoples to bring actions in each Canadian jurisdiction.

2. REGULATIONS IN NUMEROUS SECTORS

Black carbon emissions come from various sources, and sufficiently regulating those emissions would require emissions controls in several sectors, such as agriculture, industry and transportation, using multiple provincial and federal laws. Challenging existing regulations of sources of black carbon emissions would pose an undue burden given the multiplicity of regulations in the various sectors. For example, Arctic Athabaskan peoples would be faced with potential regulatory challenges pertaining to agriculture, some industrial operations, transportation, and residential woodstoves and fireplaces. Furthermore, within certain sectors, like transportation, there are a number of subsectors, *e.g.*, marine vessels, aircraft, passenger vehicles, and rail, for which Arctic Athabaskan peoples would likely need to bring individual actions to obtain the remedies sought in this petition. As explained above, the Commission has found that petitioners “[we]re not obligated to exhaust those remedies” that “c[ould] not be used to comprehensively and permanently protect” the rights at issue.⁶⁴⁶

Additionally, there are variations in the level of emissions regulation both in terms of comprehensiveness and strictness of standards. Some of these sources are regulated to some extent, others not at all. Some regulations are voluntary and thus offer no means of recourse

against failure to comply with them. Additionally, some of these sources are regulated in certain provinces but not in others. There is no single federal statute that Arctic Athabaskan peoples could challenge to obtain remedies against the harms caused by the various sources of black carbon emissions.

3. FINANCIAL BURDEN

Requiring Arctic Athabaskan peoples to seek remedies under domestic law would impose an undue burden on them. Even for a wealthy petitioner, the multiplicity of laws to be challenged spanning numerous provinces and numerous sectors and emissions sources would prove unduly burdensome. This burden is even more pronounced for Arctic Athabaskan peoples, who lack financial means, and the capacity and resources, to bring such challenges. Indeed, in *Hul'Qumi'Num Treaty Group*, the Commission found the petitioners had satisfied the exhaustion requirement in part because “access to Canadian courts [wa]s very costly for [the petitioners] and ma[de] it impossible to lodge the legal remedies mentioned by the State.”⁶⁴⁷

Given the piecemeal nature of the regulation of particulate matter in Canada, the petitioners would need to bring dozens of claims in multiple Canadian jurisdictions to obtain the relief they seek in the petition. The costs of embarking on such an enterprise would be overwhelming. In light of the multiplicity of jurisdictions and sectors in which Arctic Athabaskan peoples would need to bring claims to obtain the remedies sought in this petition, as well as the additional burden they face due to their lack of financial means, Arctic Athabaskan peoples have established the exception to the requirement to exhaust domestic remedies.

B. CANADIAN LAW DOES NOT PROVIDE AN ADEQUATE OR EFFECTIVE REMEDY FOR THE HARMS CAUSED BY THE EMISSION OF BLACK CARBON.

1. ENVIRONMENTAL LAW

Canada’s air quality statutes do not provide comprehensive or sufficient regulation of black carbon emissions. Although Canada’s primary federal environmental statute, the *Canadian Environmental Protection Act, 1999* (“CEPA”) establishes a framework for regulating vehicle and engine emissions, it is by no means comprehensive.⁶⁴⁸ As explained in Section IV.B above, the great majority of regulation is done at the provincial level, and challenging these regulations—which differ by province and are specific to a sector or source of emissions, would be unduly burdensome for petitioners with wealth and resources, let alone Arctic Athabaskan peoples, who are lacking in both.

Furthermore, Arctic Athabaskan peoples would have no reasonable chance of success in challenging Canada’s insufficient regulation of black carbon emissions in Canadian courts because those courts have found that policy-related determinations concerning government regulation or the failure to regulate activities are non-justiciable. In general, Canadian courts have refused to consider:

- (1) matters which fail to raise legal issues, including (i) “purely political” disputes; (ii) disputes relating to the “legislative process”; and (iii) disputes regarding the wisdom or

desirability of legislation or government policy; (2) disputes involving constitutional conventions; (3) disputes regarding Parliamentary privileges and Crown prerogatives; (4) disputes involving intergovernmental relations; (5) disputes involving social and economic rights; and (6) disputes involving the enforcement of international agreements, the application of international law or the actions of foreign states.⁶⁴⁹

Courts would likely consider the Arctic Athabaskan peoples' challenge to Canada's insufficient black carbon regulations not justiciable as a dispute relating to the "legislative process," regarding the wisdom or desirability of legislation or government policy, or involving social and economic rights.⁶⁵⁰ In this regard, the Canadian Federal Court in 2008 strongly rejected as non-justiciable an application in *Friends of the Earth v. Minister of the Environment and Governor in Council* that sought the enforcement of legislation requiring the federal government to enact regulations relating to air emissions.⁶⁵¹

2. TORT LAW

Canadian tort law offers Arctic Athabaskan peoples no reasonable chance of success on a claim under tort law. Stemming from the federal *Crown Liability and Proceedings Act*⁶⁵² and similar legislation in the provinces,⁶⁵³ the federal and provincial governments are protected from tort liability arising from legislative and policy-making decisions.⁶⁵⁴ They are entitled to govern free of the threat of tortious liability. Therefore, tort actions against the federal, provincial or territorial governments for damages arising from the failure to adequately regulate black carbon emissions would have no reasonable chance of success.

Bringing a tort action against specific black carbon emitters would face similar difficulties. Those emitters that have statutory authorization to emit these contaminants would be protected from liability. Regarding those that do not, the petitioners would need to bring an incalculable number of claims to include all such emitters and such claims would encounter difficult challenges addressing the issues of causation and apportionment of liability. Given the number of sources of black carbon emissions, Arctic Athabaskan peoples would face considerable difficulty establishing causation with respect to a particular harm, particularly given that the chain of causation may be long and complex, and the types of harm very widespread.⁶⁵⁵ Moreover, the courts would be challenged in apportioning liability given the number, range and diversity of black carbon emitters.

3. CONSTITUTIONAL LAW

Arctic Athabaskan peoples would have no reasonable chance of success in challenging government regulation or the failure to regulate black carbon under Canadian constitutional law, *i.e.*, *Canada's Constitution Act of 1982*.⁶⁵⁶ *Canada's Constitution Act* contains the *Canadian Charter of Rights and Freedoms*, "which guarantees the rights and freedoms set out in it subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society."⁶⁵⁷ However, none of the rights and freedoms in the *Charter* addresses the violations at issue in this petition.

The *Constitution Act* also contains a section on aboriginal rights (section 35). However, Canadian courts have held that “[t]he section imposes no positive obligation on government to protect and preserve any aboriginal right.”⁶⁵⁸ For instance, in *Davis v. Canada*, the plaintiffs argued that Canada had failed to recognize their identity as an aboriginal people and consequently failed to establish programs and services as it had done for other peoples under the Indian Act.⁶⁵⁹ As the court explained,

Even assuming that aboriginal identity, as such, can represent an aboriginal right..., s. 35 as interpreted by the Supreme Court of Canada provides absolutely no basis for the imposition on government of an obligation to take any steps to preserve that right. If the right is proven to exist before European contact, and otherwise satisfies the analysis required for its acceptance, s. 35(1) operates to provide constitutional protection against its infringement by government action. That is the extent of the protection offered; it does not go so far as to oblige government to take positive measures to ensure the continued existence of the right. In my view, the claim that the plaintiffs are entitled to relief based on the assertion that government has failed to protect a s. 35(1) aboriginal right is certain to fail.⁶⁶⁰

Given Canadian courts’ view that section 35 of the *Constitution Act* imposes no positive obligation on government to protect and preserve any aboriginal right, Arctic Athabaskan peoples would have no reasonable chance of success on a section 35 claim seeking regulation of black carbon emissions.

C. CANADIAN LAW DOES NOT PROVIDE AN ADEQUATE AND EFFECTIVE REMEDY FOR THE RIGHTS TO CULTURE, PROPERTY, HEALTH, AND OWN MEANS OF SUBSISTENCE.

1. RIGHT TO CULTURE

Canadian law does not provide an adequate, effective or suitable remedy for protecting the right to culture and does not provide adequate redress for the violations alleged by Arctic Athabaskan peoples in this case. Section 27 of the *Constitution Act* states, “This Charter shall be interpreted in a manner consistent with the preservation and enhancement of the multicultural heritage of Canadians.”⁶⁶¹ However, the culture described here is *Canada’s* multicultural heritage, which does not protect a particular peoples’ right to culture. It therefore is not applicable in this case.

2. RIGHT TO PROPERTY

The Canadian Constitution does not recognize the right to property. The Canadian government has negotiated agreements, known as “modern treaties,” with certain indigenous groups, including some Arctic Athabaskan peoples. However, these agreements have failed to protect Arctic Athabaskan peoples’ right to property from the kinds of harms at issue in the petition, particularly due to the government’s failure to uphold its obligations under those treaties. For instance, in a 2009 case, the Commission found that there was no due process of law to protect the property rights of the Hul-Qumi’Num Treaty Group to its ancestral lands because the recourse available through a modern treaty regarding the Hul-Qumi’Num Treaty

Group's right to their ancestral lands was not effective.⁶⁶² In addition, to the extent that Canadian law protects Arctic Athabaskan peoples' right to property as part of its aboriginal rights, such a claim falls under section 35 of the *Constitution Act*, and would have no reasonable chance of success again because that section "imposes no positive obligation on government to protect and preserve any aboriginal right," as explained in Section IV.B.3 above.⁶⁶³

3. RIGHT TO HEALTH

Neither the *Constitution Act* nor Canadian legislation provides due process of law to protect the right to health. Thus, there are no domestic remedies to exhaust with respect to the right to health.

4. RIGHT TO THEIR OWN MEANS OF SUBSISTENCE

Neither the *Constitution Act* nor Canadian legislation provides due process of law to protect the right to one's own means of subsistence. Arctic Athabaskan peoples also would not have a reasonable chance of success on a claim under section 35 of the *Constitution Act* alleging violations of their right to their own means of subsistence. Although the impacts of the government's failure to regulate black carbon emissions will negatively affect aboriginal rights, such as subsistence hunting and fishing, section 35 of the *Constitution Act* "imposes no positive obligation on government to protect and preserve any aboriginal right."⁶⁶⁴ Thus, there are no domestic remedies to exhaust with respect to the right to subsistence.

VII. TIMELINESS

The petition is timely because the acts and omissions of Canada that form the basis for the petition are ongoing, and the human rights violations they are causing are continuing. Black carbon emissions in Canada, which accelerate Arctic warming, are increasing. Canada has failed to implement available black carbon emission reduction measures that could slow the warming and melting that violates rights guaranteed to Athabaskan peoples in the Inter-American human rights system. Canada has given no indication that it will do so in the foreseeable future. The harm to Athabaskan peoples caused by Canada's acts and omissions has not diminished but rather has worsened and will continue to worsen in the coming decades unless Canada changes its behavior. In the absence of adequate or effective domestic remedies, Petitioner in this matter, the Arctic Athabaskan Council, has attempted to use other international and domestic mechanisms to obtain Canadian protection of the rights of Arctic Athabaskan peoples harmed by accelerated Arctic warming caused in significant part by black carbon emissions.

Under article 32 of the Commission's Rules of Procedure, a petition to the Commission should be lodged within six months of notification of the final ruling that comprises the exhaustion of domestic remedies. However, article 32.2 provides that for cases in which the requirement of exhaustion does not apply, "the petition shall be presented within a reasonable period of time, as determined by the Commission. For this purpose, the Commission shall consider the date on which the alleged violation of rights occurred, and the circumstances of each case."⁶⁶⁵

The Arctic Athabaskan Council has raised the issue of the impacts of accelerated Arctic warming on Arctic Athabaskan peoples with Canadian ministers and government representatives on numerous occasions including at the annual Conferences of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC),⁶⁶⁶ Arctic Council meetings, and other fora. In addition, at the UNFCCC COPs, the AAC has held side-events highlighting the effects of accelerated warming on the rights, cultures, and economies of Arctic indigenous peoples, including Arctic Athabaskan peoples, and calling upon the Parties to the Convention to take serious actions to address the changes taking place to the Arctic environment.⁶⁶⁷ The ACC is also an authorized “Permanent Participant” at the Arctic Council, where it has pressed for action from all eight Arctic states, particularly the United States and Canada, which the AAC has described as remiss and recalcitrant in responding to the climate change crisis.

Domestically, the AAC has participated avidly and consistently in meetings involving the Assembly of First Nations and other national aboriginal organizations with Canada's Chief Negotiator on Climate Change, and has written numerous letters to the Prime Minister and various ministers urging Canada to take an assertive approach to mitigating climate change. The AAC has repeatedly brought to their attention the severe impacts of climate change on Athabaskan peoples in northern Canada and urged Canada to speak to the impacts of climate change on Athabaskan peoples and tailor its mitigation and adaptation policies and programs accordingly. The AAC has written to federal ministers on at least five occasions requesting action on climate change and short-lived climate forcers.⁶⁶⁸ Disappointingly, a reply was received to only the fifth and final letter referenced below:

1. November 17, 2006. Letter to Prime Minister Stephen Harper from Andy Carvill, Grand Chief, Council for Yukon First Nations and James Allen, AAC, titled: “*Climate Change in Northern Canada and the Canadian Delegation to the 12th Conference of Parties to the U.N. Framework Convention*”;
2. March 18, 2009. Letter to the Minister of Foreign Affairs Lawrence Cannon from Andy Carvill, Grand Chief of the Council of Yukon First Nations;
3. April 14, 2009. Letter to Prime Minister Stephen Harper from Bill Erasmus, AAC International Chair, titled: “The Arctic Council, the European Union and Canada's Arctic Policy”;
4. August 14, 2009. Letter to Prime Minister Stephen Harper, Foreign Affairs Minister Lawrence Cannon, and Indian Affairs and Northern Development Minister Chuck Strahl, from Bill Erasmus, AAC International Chair and Devon Page, Executive Director Ecojustice Canada, titled: “Urgent Call for the Government of Canada to take Action Domestically and Internationally to Combat Climate Change in the Arctic by Reducing Emissions of Black Carbon (soot)”;
5. May 7, 2010. Letter to Minister of Foreign Affairs Lawrence Cannon, from Bill Erasmus, AAC International Chair, titled: “Arctic Foreign Policy.”

All five of these letters address Canada's approach to climate change and draw connections between the rights and interests of Athabaskan peoples to the impacts of environmental change as a result of climate change. Letters 2, 3, and 4 address specifically short-lived climate forcers and urge the Government of Canada to take aggressive mitigation measures. The lack of response by the Government of Canada to AAC concerns expressed in letters, presentations, and orally in meetings with personnel in various federal agencies, has convinced the petitioners to bring the matter to the Commission.

As the petition makes clear, Canada lacks sufficient controls on black carbon emissions. Despite the significant amount of new black carbon science, Canada has failed to take adequate regulatory action. Warming in the Arctic is occurring twice as fast as the global average and undermining the Arctic Athabaskan people's enjoyment of their human rights now. For the above reasons, this petition is timely.

VIII. ABSENCE OF PARALLEL INTERNATIONAL PROCEEDINGS

The subject of this petition is not pending in any other international proceeding for settlement, nor does it duplicate any petition pending before or already examined by the Commission or any other international governmental organization.

IX. REQUEST FOR RELIEF

Canadian government action to reduce black carbon emissions can substantially remedy the rapid Arctic warming and melting that are causing the violations detailed in this petition. As such, Petitioners respectfully request that the Commission:

1. Make an onsite visit to investigate and confirm the harms suffered by Arctic Athabaskan peoples affected by accelerated Arctic warming and melting;
2. Hold a hearing to investigate the claims raised in this Petition;
3. Prepare a report setting forth all the facts and applicable law, declaring that Canada's failure to implement adequate measures to substantially reduce its black carbon emissions violates rights affirmed in the American Declaration of the Rights and Duties of Man, and recommending that Canada:
 - a. Take steps to protect the rights of Arctic Athabaskan peoples by adopting mandatory measures to limit emissions of black carbon from key Canadian emissions sectors;
 - b. Take into account the climate impacts of black carbon emissions on the Arctic and the affected Arctic Athabaskan people in evaluating, and before approving, all major government actions;

- c. Establish and implement, in coordination with Petitioners and affected Arctic Athabaskan peoples, a plan to protect Arctic Athabaskan culture and resources from the effects of accelerated Arctic warming and melting, including the land, water, snow, ice, and plant and animal species used or occupied by the Arctic Athabaskan individuals whose rights have been violated;
4. Provide any other relief that the Commission considers appropriate and just.

ENDNOTES

- 1 There are several possible definitions of the Arctic, based on physical-geographical characteristics or on political considerations within different countries. In this petition, we define the Arctic as all areas north of 60° latitude, following the definition used by the Arctic Monitoring and Assessment Program (AMAP), now a program group of the intergovernmental Arctic Council. AMAP was formed in 1991 at the request of Ministers of eight Arctic Countries (Canada, Denmark/Greenland, Finland, Iceland, Norway, Russia, Sweden and the United States) to advise the governments on matters relating to threats to the Arctic region from pollution and associated issues. The “AMAP area” was defined through a compromise among various definitions, and includes the terrestrial and marine areas north of the Arctic Circle (66°32'N), and north of 62°N in Asia and 60°N in North America, as well as the marine areas north of the Aleutian chain, Hudson Bay, and parts of the North Atlantic Ocean, including the Labrador Sea.) (Arctic Monitoring and Assessment Program, *About AMAP/Geographical Coverage*, (2011) www.amap.no)
- 2 AMAP/Patricia Quinn et al., *The Impact of Black Carbon on Arctic Climate*, AMAP Technical Report #4, Arctic Monitoring and Assessment Program (AMAP) 1 (2011); P. K. Quinn, et al., *Short-lived Pollutants in the Arctic: Their Climate Impact and Possible Mitigation Strategies*, 8 *Atmos. Chem. Phys.* 1723 (2008), <<http://www.atmos-chem-phys.net/8/1723/2008/>>; see also UNEP, *Towards an Action Plan for Near-term Climate Protection and Clean Air Benefits*, UNEP Science Policy Brief (2011) (“UNEP 2011 Towards an Action Plan”).
- 3 James Hansen et al., *Global Temperature in 2011, Trends, and Prospects*, National Aeronautics and Space Administration, Goddard Institute for Space Studies (January 18 2012), <http://data.giss.nasa.gov/gistemp/2011/>.
- 4 AMAP/Quinn et al. *supra* note 2 at 2; Song Feng et al., *Climate Change’s Impact on Arctic Regions by 2099*, *Climate Dynamics* (2011); Quinn et al. 2008, *supra* note 2, at 1723; D. Dahl-Jensen/Arctic, *Marine Assessment Program, Snow, Water, Ice and Permafrost in the Arctic Module 2: The Greenland Ice Sheet in a Changing Climate* (2009), http://arctic-council.org/filearchive/Extended_summary.pdf; American Geophysical Union, *Melting Ice Sheets Now Largest Contributor to Sea Level Rise*, *ScienceDaily* (8 March 2011), www.sciencedaily.com/releases/2011/03/110308150228.htm.
- 5 Drew Shindell et al., *Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security*, 335 *Science* 6065, 183 (13 January 2012) (“Shindell et al. 2012”); UNEP, *Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers*, United Nations Environment Program (UNEP) (2011), http://www.unep.org/dewa/Portals/67/pdf/Near_Term_Climate_Protection_&_Air_Benefits.pdf (“UNEP 2011 Near-term Climate Protection and Clean Air Benefits”).
- 6 Executive Body of the Convention on Long-range Transboundary Air Pollution, *Implications of the Reports of the Task Force on Hemispheric Transport of Air Pollution and the Ad Hoc Expert Group on Black Carbon*, UNECE, 1 (Decision 2010/2, undated) (ECE/EB.AIR/106/Add.1, December 2010), found at http://www.unece.org/fileadmin/DAM/env/documents/2010/eb/eb/eb%20decisions/Decision_2010.2.e.pdf (“CLRTAP 2010 Implications of the Reports of the Task Force”).
- 7 US Environmental Protection Agency, *Report to Congress on Black Carbon*, iii (2012) , <http://www.epa.gov/blackcarbon/2012report/fullreport.pdf> (“US EPA 2012”); Co-Chairs of the Ad Hoc Expert Group on Black Carbon, *Report by the Co-Chairs of the Ad Hoc Expert Group on Black Carbon*, UNECE Convention on Long-range Transboundary Air Pollution, *Doc: ECE/EB/AIR/2010/7* (2010) at 10 (“CLRTAP 2010 Report by the Co-Chairs”).
- 8 US EPA 2012, *supra* note 7 at iii.
- 9 UNEP 2011 Towards an Action Plan, *supra* note 2 at 6; US EPA 2012, *supra* note 7 at iii.

-
- 10 Shindell et al. 2012, *supra* note 5, at 183. Radiative forcing is generally defined as a measure of the influence that a climate forcing factor such as black carbon, CO₂, or changes in ice-albedo, or any other factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system.
- 11 Arctic Council Task Force on Short-Lived Climate Forcers, *Progress Report and Recommendations for Ministers*, Arctic Council, 3 (2011) http://arctic-council.npolar.no/accms/export/sites/default/en/meetings/2011-nuuk-ministerial/docs/3-0a_TF_SPM_recommendations_2May11_final.pdf (“Arctic Council Task Force 2011 Progress Report”)
- 12 US EPA 2012, *supra* note 7 at xx; AMAP/J. Bluestein et al., *Sources and Mitigation Opportunities to Reduce Emissions of Short term Arctic Climate Forcers*, AMAP Technical Report 2 (Arctic Monitoring and Assessment Program (AMAP) (2008), available at amap.no.
- 13 US EPA 2012, *supra* note 7 at iii; UNEP 2011 Towards An Action Plan, *supra* note 2 at 4.
- 14 US EPA 2012, *supra* note 7 at iii.
- 15 US EPA 2012, *supra* note 7 at iii.
- 16 US EPA 2012, *supra* note 7 at 11.
- 17 United States Environmental Protection Agency, *Health Assessment Document for Diesel Engine Exhaust* EPA/600/8-90/057F, 1-4 (May 2002) <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060> ; see also World Health Organization (WHO), *Indoor Air Pollution and Health, Fact Sheet 292* (2005), <http://www.who.int/mediacentre/factsheets/fs292/en/>.
- 18 G. Hoek et al., *Association between Mortality and Indicators of Traffic-related Air Pollution in the Netherlands: A Cohort Study*, 360, 9341, *The Lancet* 1184, 23 (2002).
- 19 N. Koç et al. (eds), *Melting Snow and Ice: A Call for Action*, Centre for Ice, Climate and Ecosystems, Norwegian Polar Institute 23 (2009), http://brage.bibsys.no/npolar/handle/URN:NBN:nobibsys_brage_10762.
- 20 UNEP 2011 Towards an Action Plan, *supra* note 2 at 6; Shindell et al. 2012, *supra* note 5 at 185.
- 21 UNEP 2011 Towards an Action Plan, *supra* note 2 at 6.
- 22 United Nations Environment Program/World Meteorological Organization, *Integrated Assessment of Black Carbon and Tropospheric Ozone: Summary for Decision Makers* 3 (2011), http://www.unep.org/dewa/Portals/67/pdf/Black_Carbon.pdf (“UNEP/WMO”).
- 23 CLRTAP 2010 Report by the Co-Chairs, *supra* note 7 at 7.
- 24 US EPA 2012, *supra* note 7 at iii.
- 25 AMAP/Bluestein et al., *supra* note 12 at 1.
- 26 UNEP/WMO 2011, *supra* note 22 at 6.
- 27 Arctic Council, *Tromsø Declaration of the Arctic Council, on the occasion of the Sixth Ministerial Meeting of the Arctic Council* (Tromsø, 29 April 2009), which states: “[P]rotecting the Arctic against potentially irreversible impacts of anthropogenic climate change depends mainly on substantially reducing global emissions of CO₂ and other greenhouse gases [but] reductions of [short-lived climate forcer] emissions have the potential to slow the rate of Arctic snow, sea ice and sheet ice melting in the near-term.”
- 28 US EPA 2012, *supra* note 7 at 3, which states: “The direct and snow/ice albedo effects of BC [black carbon] are widely understood to lead to climate warming. However, the globally averaged net climate effect of BC also includes the effects associated with cloud interactions, which are not well quantified and may cause either warming or cooling. Therefore, although most estimates indicate that BC has a net warming influence [globally], a net cooling effect cannot be ruled out. It is also important to note that the net radiative effect of all aerosols combined (including sulfates, nitrates, BC and OC) is widely understood to be negative (cooling) on a global average basis.”

-
- 29 Tami Bond et al., *Bounding the role of black carbon in the climate system: A Scientific Assessment*, Journal of Geophysical Research: Atmospheres 0.2.6.1(2013), <http://onlinelibrary.wiley.com/doi/10.1002/jgrd.50171/pdf> (“Bond et al. 2013”); Shindell, *supra* note 5 at 185; UNEP 2011 Near-term Climate Protection and Clean Air Benefits *supra* note 5 at 5. There have been numerous scientific assessments of black carbon’s impacts on regional and global climate change, mitigation options and the near-term climate and health benefits of emissions reductions. Although there is still outstanding uncertainty about the sign and magnitude of black carbon’s impact on global temperature (due principally to unknowns about cloud interactions) there is great certainty that black carbon emissions significantly accelerate warming and melting in the Arctic.
- 30 Bond et al. 2013, *supra* note 29 at 13.
- 31 *Id.* at section 0.2.6.1.
- 32 *Id.* at section 7.5.
- 33 UNEP/WMO, *supra* note 22 at 15.
- 34 Arctic Council Task Force 2011 Progress Report, *supra* note 11 at 2.
- 35 AMAP/Bluestein et al., *supra* note 12 at 1.
- 36 AMAP/Quinn et al., *supra* note 2 at 60; Arctic Council Task Force 2011 Progress Report, *supra* note 11 at 2.
- 37 CLRTAP 2010 Report by the Co-Chairs, *supra* note 7 at 3.
- 38 Arctic Council Task Force 2011 Progress Report, *supra* note 11 at 6-7.
- 39 US EPA 2012, *supra* note 7 at iv; CLRTAP 2010 Report by the Co-Chairs, *supra* note 7 at 13-14; *See* UNEP/ WMO 2011, *supra* note 22 at 19. The 17 most promising reduction measures for BC and the tropospheric ozone precursor methane were identified by IAASA’s GAINS model out of a universe of 2000 possible measures. If fully implemented, these measures would achieve 90% of the potential climate benefit that could be achieved by full implementation of the full set of 2000 measures. These identified measures are all being in different ways and degrees around the world, and are consonant with abatement actions recommended by LRTAP and the Arctic Council.
- 40 Shindell et al. 2012, *supra* note 5 at 183; UNEP/WMO 2011, *supra* note 5 at 3.
- 41 Arctic Climate Impact Assessment, *Impacts of a Warming Arctic: Highlights* 1-7 (2004), <http://www.acia.uaf.edu/> (“ACIA, *Highlights*”).
- 42 *Id.*, *supra* note 41 at 1-7.
- 43 United Nations Environment Program, *UNEP Year Book 2013, View From the Top*, 7 (February 2013) (“UNEP 2013”), http://www.unep.org/yearbook/2013/pdf/View_from_the_top.pdf.
- 44 US National Snow and Ice Data Center, Arctic News and Analysis Page (2012) <http://nsidc.org/arcticseaicenews/> (last accessed March 2013). On August 27th, 2012 Arctic sea ice broke the 2007 record daily extent and is now the lowest in the satellite era. With two to three more weeks left in the melt season, sea ice continues to track below 2007 daily extents. The annual sea ice minimum extent for 2012 is projected to occur in mid-September. Arctic sea ice extent fell to 4.10 million square kilometers (1.58 million square miles) on August 26, 2012. This was 70,000 square kilometers (27,000 square miles) below the September 18, 2007 daily extent of 4.17 million square kilometers (1.61 million square miles). Including this year, the six lowest ice extents in the satellite record have occurred in the last six years (2007 to 2012).
- 45 UNEP 2013, *supra* note 43 at 7.
- 46 UNEP 2013, *supra* note 43 at 7; NOAA, *Arctic Report Card 2012, Glaciers and Ice Caps*, http://www.arctic.noaa.gov/reportcard/glaciers_ice_caps.html.

- 47 NOAA, *Arctic Report Card 2012, Greenland Ice Sheet*,
http://www.arctic.noaa.gov/reportcard/greenland_ice_sheet.html (“NOAA 2012 Greenland Ice Sheet”);
American Geophysical Union, *Melting Ice Sheets Now Largest Contributor to Sea Level Rise*, ScienceDaily
(8 March 2011), <http://www.sciencedaily.com/releases/2011/03/110308150228.html>.
- 48 NOAA 2012 Greenland Ice Sheet, *supra* note 47.
- 49 See M. Vermeer and S. Rahmstorf, *Global Sea Level Linked to Global Temperature*, 51, 106 PNAS 21527
(2009). Vermeer and Rahmstorf estimate sea-level rise by 2100 of 0.8–1.9 meters. See also
Deltacommissie, *Working Together with Water: A Living Land Builds for Its Future*, Findings of the
Deltacommissie (2008), http://www.deltacommissie.com/doc/deltareport_full.pdf. The Dutch Delta
Commission recommends planning for an expected 1.3 meter sea level rise by 2100, at a cost of US\$144
billion.
- 50 Arctic Council. Technical Report of the Arctic Council Task Force on Short-Lived Climate Forcers: An
Assessment of Emissions and Mitigation Options for Black Carbon for the Arctic Council (Arctic Council,
April 2011), at 4-11 to 4-12.
- 51 *Id.* at 4-12.
- 52 *Canadian Environmental Protection Act, 1999*, ss. 149-165.
- 53 Off-Road Compression-Ignition Engine Emission Regulations, SOR/2005-32, s. 14; Off-Road Small
Spark-Ignition Engine Emission Regulations, SOR/2003-355, s. 14; On-Road Vehicle and Engine Emission
Regulations (SOR/2003-2), s. 19.
- 54 See US EPA, *Addressing Black Carbon in the Russian Arctic* (US EPA, last updated July 26, 2012),
<http://www.epa.gov/international/io/arcticblackcarbon.html>.
- 55 See Off-Road Compression-Ignition Engine Emission Regulations, s. 5(2)(h).
- 56 These regulations meet the US standards in *Code of Federal Regulations*, §86.10, 86.11, 86.410, 86.1811,
86.181656.
- 57 See *Regulatory Impact Analysis Statement: Heavy-Duty Vehicle and Greenhouse Gas Emission
Regulations, 2014–2018* (Environment Canada, undated), s. 8.2, <http://www.gazette.gc.ca/rp-pr/p1/2012/2012-04-14/html/reg1-eng.html>.
- 58 These regulations meet the US standards in *Code of Federal Regulations*, §89.112, 89.11358.
- 59 These regulations meet the US standards in *Code of Federal Regulations*, §90.103-105, 90.203(f)59.
- 60 See John G. Watson, Judith C. Chow, and Xiaoliang Wang, *Real-World Emissions from the World’s
Largest Trucks*, 2:6 WBEA@Work Newsletter (November 2012), <http://www.wbea.org/library/wbeawork-newsletter>.
- 61 Arctic Council. Technical Report of the Arctic Council Task Force on Short-Lived Climate Forcers: An
Assessment of Emissions and Mitigation Options for Black Carbon for the Arctic Council (Arctic Council,
April 2011), at TS-8.
- 62 Transport Canada, *Developing Locomotive Emissions Regulations in Canada*,
<http://www.tc.gc.ca/eng/policy/acs-consultations-menu-2155.htm>.
- 63 Arctic Council. Technical Report of the Arctic Council Task Force on Short-Lived Climate Forcers: An
Assessment of Emissions and Mitigation Options for Black Carbon for the Arctic Council (Arctic Council,
April 2011), at TS-9.
- 64 Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations
(SOR/2011-10).
- 65 *Id.* at s. 2

- 66 For Alberta, see *Substance Release Regulation*, Alta. Reg. 124/1993, ss. 6-9; for British Columbia, see *Environmental Management Act*, S.B.C. 2003, c. 53, s. 6 and *Waste Discharge Regulation*, B.C. Reg. 320/2004; for New Brunswick, see *Air Quality Regulation*, N.B. Reg. 97-133, s. 21, Schedule B; for Newfoundland and Labrador, see *Air Pollution Control Regulations, 2004*, N.L.R. 39/04, s. 3, Schedules A and C; for the Northwest Territories, see *Environmental Protection Act*, R.S.N.W.T. 1988, c. E-7, s. 5; for Nova Scotia, see *Air Quality Regulations*, N.S. Reg. 28/2005, s. 3, Schedule A and *Environment Act and Regulations Fees Regulations*, N.S. Reg. 45/2011, s. 4; for Nunavut, see *Environmental Protection Act*, R.S.N.W.T. (Nu) 1988, c. E-7, s. 5; for Ontario, see *Air Pollution – Local Air Quality*, O. Reg. 419/05, ss. 19, 20, Schedule 2; for Prince Edward Island, see *Air Quality Regulations*, P.E.I. Reg. E.C. 377/92, ss. 2, 3, and Schedules A and D; for Quebec, see *Regulation respecting the quality of the atmosphere*, R.R.Q. c. Q-2, r. 20; for Saskatchewan, see *Clean Air Regulations*, R.R.S. c. C-12.1, Reg. 1, s. 9, Appendix; and for the Yukon, see *Air Emissions Regulations*, Y.O.I.C. 1998/207.
- 67 An exception is in Saskatchewan. See *Clean Air Regulations*, R.R.S. c. C-12.1, Reg. 1, s. 9, Appendix.
- 68 Asphalt Plant Regulation, B.C. Reg. 217/97; Asphalt Paving Industry Emissions Regulations, R.R.N.W.T. 1990, c. E-23, s. 2.
- 69 Potash Refining Air Emissions Regulations, R.R.S. c. A-17, Reg. 1, s. 3.
- 70 Wood Residue Burner and Incinerator Regulation, B.C. Reg. 519/95.
- 71 See, for example: *Incinerators Regulation*, Man. Reg. 91/88 R., s. 3.
- 72 Inco Limited and Hudson Bay Mining and Smelting Co., Limited Smelting Complex Regulation, Man. Reg. 165/88.
- 73 Cessation of Coal Use – Atitokan, Lambton, Nanticoke and Thunder Bay Generating Stations, O. Reg. 496/07.
- 74 Nunavut Department of Sustainable Development, Environmental Guideline for Air Quality - Sulphur Dioxide and Suspended Particulates (January 2002), <http://env.gov.nu.ca/sites/default/files/Guideline%20Sulphur%20Dioxide.pdf>.
- 75 Solid Fuel Burning Domestic Appliance Regulation, B.C. Reg. 302/94, s. 2.
- 76 Air Pollution Control Regulations, 2004, N.L.R. 39/04, s. 15.
- 77 Certificate of Approval Exemptions – Air, O. Reg. 524/98.
- 78 Regulation respecting wood-burning appliances, 2009 G.O.Q. 2, 1657.
- 79 See, for example in British Columbia: *Solid Fuel Burning Domestic Appliance Regulation*, B.C. Reg. 302/94, s. 2; in Newfoundland and Labrador: *Air Pollution Control Regulations, 2004*, N.L.R. 39/04, s. 15; and in Quebec: *Regulation respecting wood-burning appliances*, 2009 G.O.Q. 2, 1657.
- 80 See BC Air Quality, *Provincial Wood Stove Exchange Program* (undated), <http://www.bcairquality.ca/topics/wood-stove-exchange-program>.
- 81 Arctic Council. Technical Report of the Arctic Council Task Force on Short-Lived Climate Forcers: An Assessment of Emissions and Mitigation Options for Black Carbon for the Arctic Council (Arctic Council, April 2011), at TS-8.
- 82 See Quebec Ministry of Sustainable Development, Environment, Wildlife and Parks, Canada-Quebec Investment of over \$25m in a Project Involving the Treatment of Organic Waste through Biomethanization in Saint-Hyacinthe (press release, undated), http://www.mddefp.gouv.qc.ca/communiqués_en/2012/c20120726-biomet.htm.
- 83 *Substance Release Regulation*, Alta. Reg. 124/1993, ss. 1, 4, 8.
- 84 Open Burning Smoke Control Regulation, B.C. Reg. 145/93.

- 85 Burning of Crop Residue and Non-Crop Herbage Regulation, Man. Reg. 77/93.
- 86 *Air Quality Regulation*, N.B. Reg. 97-133, s. 19.
- 87 *Environmental Protection Act*, R.S.N.W.T. 1988, c. E-7, s. 5(3).
- 88 Air Pollution – Local Air Quality, O. Reg. 419/05, s. 20.3.
- 89 *Air Quality Regulations*, P.E.I. Reg. EC 377/92, s. 3(1).
- 90 *Air Emissions Regulations*, Y.O.I.C. 1998/207, s. 5.
- 91 Arctic Council. Technical Report of the Arctic Council Task Force on Short-Lived Climate Forcers: An Assessment of Emissions and Mitigation Options for Black Carbon for the Arctic Council (Arctic Council, April 2011), at TS-9.
- 92 See Alberta Energy and Utilities Board, Directive 060 on Upstream Petroleum Industry Flaring, Incinerating, and Venting (16 November 2006).
- 93 Canadian Council of Ministers of the Environment, Guidance Document On Achievement Determination Canadian Ambient Air Quality Standards For Fine Particulate Matter And Ozone, PN 1483 (2012) http://www.ccme.ca/assets/pdf/pn_1483_gdad_eng.pdf.
- 94 Arctic Council. Technical Report of the Arctic Council Task Force on Short-Lived Climate Forcers: An Assessment of Emissions and Mitigation Options for Black Carbon for the Arctic Council (Arctic Council, April 2011), at 5-8.
- 95 Arctic Athabaskan Council (AAC), *About Us*, <http://www.arcticathabaskancouncil.com/aac/?q=about>, (last visited May 2012). Arctic Athabaskan traditional culture is closely tied to the ecosystems of the tundra and boreal forests, which include a mosaic of rivers, lakes, wetlands, black spruce forests, white spruce forests, paper birch and trembling aspen forests, and riparian forests of white spruce and balsam poplar. Gary Kofinas et al., *Resilience of Athabaskan Subsistence Systems to Interior Alaska's Changing Climate*, 40 Can. J. For. Res 1347, 1350, 1353 (2010), http://www.lter.uaf.edu/pdf/1462_Kofinas_Chapin_2010.pdf; Ronald O'Rourke, *Changes in the Arctic: Background and Issues for Congress*, Congressional Research Service 7-5700, 27, (2010) <http://openers.com/document/R41153/> (Athabaskan peoples have inhabited many of their territories for 10,000 years, though some moved to coastal regions of southern Alaska roughly 1,000 years ago.); Alaska Humanities Forum, *Alaska's History and Cultural Studies, Alaska Heritage, Chapter 2-3: Athabaskans*, <http://www.akhistorycourse.org/articles/article.php?artID=150> (last visited May 2012). In the Canadian Yukon, Athabaskan peoples include Carcross/Tagish First Nation, Champagne and Aishihik First Nations, Kaska Tribal Council, Kluane First Nation, Kwanlin Dun First Nation, Liard First Nation, Little Salmon/Carmacks First Nation, First Nation of Na-cho Nyak Dun, Ross River Dena First Nation, Selkirk First Nation, Ta'an Kwach'an First Nation, Teslin Tlingit Council, Tr'ondëk Hwëch'in First Nation, Vuntut Gwitch'in First Nation, and White River First Nation. In the NWT, there are at least 22 distinct Athabaskan peoples, including four Gwich'in, five Sahtu, nine Deh Cho, and four Dogrib communities. In Alaska, Arctic Athabaskan peoples include Gwich'in, Denaakk'e (Koyukon), Kuskokwim, Upper Tanana, Lower Tanana, Han, Deg Xinag, Dena'ina, Ahtna, Holik achuk, and Tanacross that speak eleven distinct languages. Sources: Government of Yukon, *Traditional Territories of Yukon First Nations*, http://www.environmentyukon.ca/maps/media/uploads/pdf_maps/Traditional_Territories_of_Yukon_First_Nations.pdf (last visited May 2012); 500 Nations, *Yukon First Nations*, http://500nations.com/Yukon_Tribes.asp (last visited May 2012); Assembly of First Nations, Regional Office NWT, *First Nations Directory*, <http://www.nwtafn.com/dev/directory.html> (last visited May 2012).
- 96 AAC, *About Us*, *supra* note 95.
- 97 Kofinas et al., *supra* note 95 at 1348.
- 98 AAC, *About Us*, *supra* note 95.

- 99 O'Rourke, *supra* note 95 at 28. While such displacement began for many Arctic Athabaskan peoples before or during the 1800s, some communities were only recently forced to relocate onto reserves and send their children to culturally disruptive residential schools beginning in the 1950s. Yukon Community Profiles, *supra* note 95.
- 100 See Yukon Community Profiles (2004), <http://www.yukoncommunities.yk.ca/communities> (last visited May 2012).
- 101 Kofinas et al., *supra* note 95 at 1348.
- 102 AAC, *About Us*, *supra* note 95. (The founding members of Arctic Athabaskan Council include three Athabaskan representative bodies on the Canadian side: the Council of Yukon First Nations, representing eleven Yukon First Nations; the Dene Nation, representing 30 First Nations in the NWT and northern Manitoba; and the Metis Nation of the NWT, representing 13 communities in the NWT. In Alaska, founding members of the AAC include Chickaloon Village Traditional Council, Healy Lake Traditional Council (Mendas Cha~Ag), Steven Village Tribal Government, and Northway Tribal Council.)
- 103 *Id.*
- 104 *Id.*
- 105 For access to complete interview transcripts, please contact Earthjustice at eajusintl@earthjustice.org.
- 106 AAC, *About Us*, *supra* note 95; Alaska Humanities Forum, *supra* note 95.
- 107 Arctic Climate Impact Assessment (“ACIA, *Scientific Report*”)/Mark Nutall et al., *Chapter 12: Hunting, Herding, Fishing, and Gathering: Indigenous Peoples and Renewable Resource Use in the Arctic*, 652-653 (2004) http://www.acia.uaf.edu/PDFs/ACIA_Science_Chapters_Final/ACIA_Ch12_Final.pdf; Alaska Humanities Forum, *supra* note 95; Kofinas et al., *supra* note 95 at 1350-1351; AAC, *About Us*, *supra* note 95; Robert Wolfe and Linda Ellanna Comilers, *Resource Use and Socioeconomic Systems: Case Studies of Fishing and Hunting in Alaskan Communities*, Excerpted from Alaska Department of Fish and Game Technical Paper No. 61 (1983); <http://nativeknowledge.org/db/files/tp61.htm>.
- 108 Wolfe and Ellanna Comilers, *supra* note 107 at 5.
- 109 Alaska Humanities Forum, *supra* note 95; Kofinas et al., *supra* note 95 at 1350.
- 110 Alaska Humanities Forum, *supra* note 95.
- 111 *Id.*
- 112 Yukon Community Profiles, *supra* note 100; Wolfe and Ellanna Comilers, *supra* note 95 at 5.
- 113 Alaska Humanities Forum, *supra* note 95.
- 114 AAC interview with Roger Alfred (2011) on file with Earthjustice.
- 115 AAC interview with Ruth Welsh (2011) on file with Earthjustice.
- 116 Cindy Dickson, *The impact of climate change on traditional food*, GRID Arendal Polar Environment Times 3, 3 (2003), <http://www.grida.no/files/publications/environment-times/poltimesp3.pdf>; Ashley Downing & Alain Cuerrier, *A synthesis of the impacts of climate change on the First Nations and Inuit of Canada*, 10 Indian Journal of Traditional Knowledge 1, 59,60 (2011) <http://nopr.niscair.res.in/bitstream/123456789/11066/1/IJTK%2010%281%29%2057-70.pdf>.
- 117 ACIA, *Scientific Report*, *supra* note 107 at 652-653; Downing & Cuerrier, *supra* note 116 at 57, 62.
- 118 Downing & Cuerrier, *supra* note 116 at 62, citing O. Receveur et al., *Decreasing Traditional Food Use Affects Diet Quality for Adult Dene/Metis in 16 Communities of the Canadian NWT*, 127 J. Nutr. 11, 2179 (1997).
- 119 Kofinas et al, *supra* note 95 at 1350.

- 120 ACIA, *Scientific Report*, *supra* note 107 at 652-653.
- 121 Government of Canada, Natural Resources Canada/Chris Furgal and Terry Prowse, *Northern Canada*, Chapter 3 in *From Impacts to Adaptation: Canada in a Changing Climate*, 65 (2008), [http://www.coastalchange.ca/download_files/external_reports/Furgal_\(2008\)_Ch3NorthernCanada.pdf](http://www.coastalchange.ca/download_files/external_reports/Furgal_(2008)_Ch3NorthernCanada.pdf) (“Government of Canada, Natural Resources Canada, Northern Canada”).
- 122 ACIA, *Scientific Report*, *supra* note 107 at 652-653.
- 123 Downing & Cuerrier, *supra* note 116 at 59, 60.
- 124 AAC interview with James Allen (2011) on file with Earthjustice.
- 125 *See* Yukon Community Profiles, *supra* note 100.
- 126 *Id.*
- 127 *Id.*
- 128 Kofinas et al., *supra* note 95 at 1356; *see* Arctic Borderlands Ecological Knowledge Coop, <http://www.taiga.net/coop/about.html> (last visited May 2012); *see* Climate Change North, *Basics of Climate Change, High School Backgrounder 5, How Do We Know?* http://www.climatechangenorth.ca/section-BG/BG_HS_05_O_E.html (last visited November 2011); *see e.g.* Arctic Athabaskan Council, *Climate Change and Human Rights*, <http://www.arcticathabaskancouncil.com/aac/?q=node/15>, (last visited May 2012) (“AAC Climate Change”; *see also* Devon Page and Bill Erasmus, *Letter from Ecojustice and the Arctic Athabaskan Council to Prime Minister Harper and Ministers Prentice, Cannon and Strahl, Re: Urgent Call for the Government of Canada to take Action Domestically and Internationally to Combat Climate Change in the Arctic by Reducing Emissions of Black Carbon (Soot)* (August 14, 2009), http://www.arcticathabaskancouncil.com/aac/files/correspondence/Aug2009_AAC_Ecojustice_to_GoC.pdf (“AAC Urgent Call 2009”).
- 129 Council of Yukon First Nations, Yukon Government Northern climate ExChange, *Yukon Climate Change Needs Assessment* (October 2011), 13-14 (“Council of Yukon First Nations, Yukon Climate Change Needs Assessment”).
- 130 *Id.*
- 131 AAC interview with Joe Tetlich (2011) on file with Earthjustice.
- 132 Arctic Athabaskan Council (AAC), *Climate Change and Human Rights*, *supra* note 128.
- 133 *See, e.g.* Arctic Athabaskan Council, *AAC and the Arctic Council Ministerial Meeting 2011* (last visited May 21012), <http://www.arcticathabaskancouncil.com/aac/?q=node/25>; AAC Urgent Call 2009 *supra* note 128.
- 134 AAC Climate Change, *supra* note 128.
- 135 *Id.*
- 136 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Sharing Knowledge for a Better Future: Adaptation and Clean Energy Experiences in a Changing Climate*, <http://www.ainc-Government of Canada, Indian and Northern Affairs Canada.gc.ca/enr/clc/cen/pubs/fbf/fbf-eng.asp#chp10> (last visited September 2011) (“Government of Canada, Aboriginal Affairs and Northern Development Canada, *Sharing Knowledge*”); *see, e.g.* Champagne & Aishihik First Nations & Alsek Renewable Resource Council, *Results of the Workshop Climate Change in Our Backyard 2*, (2009); ACIA Scientific Report, *supra* note 107 at 77.
- 137 Arctic Borderlands Ecological Knowledge Coop, *List of All Indicators – By Category*, <http://www.taiga.net/coop/indics/listfull.html> (last visited May 2012). (The list includes over 100 local indicators of climate change with data from specific locations.)
- 138 AAC interview with Cindy Dickson (2011) on file with Earthjustice.

- 139 ACIA, *Scientific Report*, *supra* note 107 at 77.
- 140 Kofinas et al., *supra* note 95 at 1351. (“Nineteen active subsistence harvesters and elders of Venetie, Alaska (population 202, Gwich’in Indians, no road access) were interviewed in December 2007 to document observations of social–ecological change.”); ACIA Scientific Report, *supra* note 107 at 655.
- 141 Government of Canada, Indian and Northern Affairs Canada, *Implementation Evaluation of Government of Canada, Indian and Northern Affairs Canada Climate Change Adaptation Program: Assist Northerners in Assessing Key Vulnerabilities and Opportunities*, Project No.: 1570-07/09053 Final Report, 4 (December 8, 2009), http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/aev_pubs_ev_cca_1306863778339_eng.pdf, (“Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*”).
- 142 AAC interview with Bill Erasmus (2011) on file with Earthjustice.
- 143 AAC interview with Cindy Dickson (2011) on file with Earthjustice.
- 144 ACIA, *Scientific Report*, *supra* note 107 at 79.
- 145 See Arctic Climate Impact Assessment, *Impacts of a Warming Arctic: Final Overview Report* 8 (2004), <http://www.acia.uaf.edu/> (“ACIA, *Overview*”). (The Arctic Climate Impact Assessment (ACIA) is a project of the Arctic Council and the International Arctic Science Committee, sponsored by the eight governments of the Arctic Council and six participating indigenous organizations. It was formed to evaluate and synthesize knowledge on climate variability, climate change, and increased ultraviolet radiation and their consequences.); see also Intergovernmental Panel on Climate Change Fourth Assessment Report, *Chapter 15: Polar regions (Arctic and Antarctic)*. In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Intergovernmental Panel on Climate Change 655-677 (2007), <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter15.pdf> (“IPCC Polar Regions”).
- 146 ACIA, *Highlights*, *supra* note 41 at 1-7.
- 147 *Id.*
- 148 Arctic Climate Impact Assessment, *Summary and Synthesis of the ACIA*, 992 (2004), http://www.acia.uaf.edu/PDFs/ACIA_Science_Chapters_Final/ACIA_Ch18_Final.pdf (“ACIA, *Summary*”).
- 149 *Id.*, at 1014.
- 150 See IPCC Polar Regions, *supra*.
- 151 James Overland, *The Case For Global Warming In The Arctic*, In *Influence of Climate Change on the Changing Arctic and Sub-Arctic Conditions*, NATO Science for Peace and Security Series C: Environmental Security, (2009), <http://www.springerlink.com/content/w71v674141497033/>.
- 152 Margaret Munro, *Canada hasn’t done enough to stop dangerous climate change: Study*, Postmedia News (April 7, 2011), http://www.nunatsiaqonline.ca/stories/article/667438_canada_hasnt_done_enough_to_stop_dangerous_climate_change_study/.
- 153 Downing & Cuerrier, *supra* note 116 at 57, 59.
- 154 Arctic Monitoring and Assessment Program (AMAP) *Summary – The Greenland Ice Sheet in a Changing Climate, Snow, Water, Ice and Permafrost in the Arctic (SWIPA)* 4 (2009), http://amap.no/swipa/GRIS_Layman_English_Secure.pdf.
- 155 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 68.

-
- 156 National Oceanic and Atmospheric Administration, *NOAA Arctic Report Card: Update for 2011*, 11 (2011), http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf (“NOAA, *Arctic Report Card 2011*”).
- 157 Reuters, *2010 Hottest Year On Record or Canada: Report* (January 11, 2011), <http://www.reuters.com/article/2011/01/11/us-environment-temperature-idUSTRE70A4US20110111>.
- 158 National Snow and Ice Data Center, *Media Advisory: Arctic sea ice breaks lowest extent on record* (August 27, 2012), http://nsidc.org/news/press/20120827_2012extentbreaks2007record.html; UNEP 2013, *supra* note 43 at 19.
- 159 Laurence Smith and Scott Stephenson, *New trans-Arctic shipping routes navigable by midcentury*, PNAS Online Early Edition (4-8 March 2013), <http://www.pnas.org/content/early/2013/02/27/1214212110>.
- 160 Carleton Newsroom, *Canadian Ice Shelves Breaking up at High Speed*, <http://newsroom.carleton.ca/2011/09/27/canadian-ice-shelves-breaking-up-at-high-speed/> (September 27, 2011).
- 161 *Id.*
- 162 *Id.*
- 163 IPCC, Polar Regions, *supra* note 145 at 662.
- 164 Linda Beaumont et al., *Impacts Of Climate Change On The World’s Most Exceptional Ecoregions*, Proc. Natl Acad. Sci. Early Ed., 1 (2010), <http://www.pnas.org/content/early/2011/01/18/1007217108>.
- 165 *Id.* at 3.
- 166 *Id.* at 4. (The threshold for climate extremes is defined as exceeding two significant differences departing from the mean of the 1961-1990 baseline period.)
- 167 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121, at 69.
- 168 *Id.*
- 169 AAC interview with Michael Stickman (2011) on file with Earthjustice.
- 170 AAC interview with Chief Eddy Taylor (2011) on file with Earthjustice.
- 171 AAC interview with Chief Eric Morris (2011) on file with Earthjustice.
- 172 AAC interview with Mae Andre (2011) on file with Earthjustice.
- 173 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 4; Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121, at 69.
- 174 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 4.
- 175 Government of Canada, Natural Resources Canada, *Northern Canada*, *Vulnerabilities*, *supra* note 141 at 67.
- 176 AAC interview with Grand Chief Ruth Massie (2011) on file with Earthjustice.
- 177 Kyle Hopkins, *Yukon flood destroys Eagle Village, floods Eagle*, Anchorage Daily News (2009), <http://www.adn.com/2009/05/04/783603/yukon-flood-destroys-eagle-village.html>.
- 178 *Id.*
- 179 *Id.*
- 180 *Id.*
- 181 Yereth Rosen, *Jammed river ice causes flood in Alaska village*, Reuters (2011), <http://www.reuters.com/article/2011/05/11/us-alaska-flood-idUSTRE74A02I20110511?feedType=RSS&feedName=domesticNews>.

- 182 AAC interview with Roberta Joseph (2011) on file with Earthjustice.
- 183 Government of Canada, Natural Resources Canada, Northern Canada, *supra* note 121 at 68, 74.
- 184 *Id.* at 74.
- 185 *Id.*
- 186 Government of Yukon, *Government of Yukon Climate Change Strategy*, 12 (2006),
<http://www.env.gov.yk.ca/pdf/ygclimatechangestrategy.pdf>.
- 187 NOAA, *Arctic Report Card Update 2012, Snow*, (Update Nov. 2012)
<http://www.arctic.noaa.gov/reportcard/snow.html>.
- 188 AAC interview with Ed Taylor (2011) on file with Earthjustice.
- 189 AAC interview with Chief Bill Erasmus (2011) on file with Earthjustice.
- 190 Government of Canada, Natural Resources Canada, Northern Canada, *supra* note 121, at 74.
- 191 *Id.* at 75.
- 192 NOAA *Arctic Report Card 2010*, 29 (2010), <http://www.arctic.noaa.gov/report10/> (“NOAA, *Arctic Report Card 2010*”).
- 193 Government of Canada, Natural Resources Canada, Northern Canada, *supra* note 121, at 75.
- 194 David Fisher et al., *Recent melt rates of Canadian arctic ice caps are the highest in four millennia*, Global and Planetary Change (2011).
- 195 Downing & Cuerrier, *supra* note 116 at 60.
- 196 AAC interview with Charlie James (2011) on file with Earthjustice.
- 197 Government of Canada, Natural Resources Canada, *Permafrost* (March 4, 2009),
<http://atlas.nrcan.gc.ca/site/english/maps/environment/land/permafrost/1/>.
- 198 U.S. General Accounting Office, *Flooding and Erosion in Alaska Native Villages*, GAO-04-142, 88-89(Dec. 2003); Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 3-4.
- 199 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 76; IPCC, *Polar Regions*, *supra* note 145 at 674.
- 200 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 76.
- 201 NOAA, *Arctic Report Card 2010*, *supra* note 192 at 76.
- 202 Intergovernmental Panel on Climate Change Fourth Assessment Report, Working Group I, *Summary for Policymakers 7* (2007), http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html.
- 203 NOAA, *Arctic Report Card 2010*, *supra* note 192 at 29. (The permafrost at Barrow, Alaska has been warming over the past decade up to a depth of over 40 meters.)
- 204 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 3-4.
- 205 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 75-6.
- 206 Intergovernmental Panel on Climate Change, *Observations: Changes in Snow, Ice and Frozen Ground In Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007*, Intergovernmental Panel on Climate Change 369-372 (2007),
<http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter4.pdf>.
- 207 United Nations Environment Program, *Policy Implications of Warming Permafrost* iii, 19 (2012).
- 208 *Id.*

- 209 *Id.*
- 210 *Id.*
- 211 AAC interview with Ruth Welsh (2011) on file with Earthjustice.
- 212 IPCC, *Polar Regions*, *supra* note 145 at 674.
- 213 Kofinas et al., *supra* note 95 at 1350.
- 214 AAC interview with Roberta Joseph (2011) on file with Earthjustice.
- 215 IPCC, *Polar Regions*, *supra* note 145 at 674.
- 216 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 77. (These predictions are in comparison to a baseline from 1961 to 1990.)
- 217 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Climate Change Science, Impacts by Region*, (2010) <http://www.ainc-inac.gc.ca/enr/clc/ccs/ibr-eng.asp#chp1> (“Government of Canada, Aboriginal Affairs and Northern Development Canada, *Impacts*”).
- 218 Environment Canada, *Arctic Freshwater Biodiversity Research* (2011), <http://www.ec.gc.ca/inre-nwri/default.asp?lang=En&n=5F293946-1>.
- 219 AAC interview with Mae Andre (2011) on file with Earthjustice.
- 220 AAC interview with Chief Eddie Skookum (2011) on file with Earthjustice.
- 221 Kofinas et al. *supra* note 95 at 1350.
- 222 *Id.*
- 223 Pieter Beck, *Arctic Vegetation Shows Effects of Climate Change*, Environmental Research Web (2011) <http://environmentalresearchweb.org/cws/article/news/48204>.
- 224 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 89.
- 225 *Id.* at 88.
- 226 *Id.* at 88.
- 227 Northern Climate Exchange, *Forest Management in a Changing Climate: Building the Environmental Information Base for the Southwest Yukon, Climate Change and Major Forest Disturbance in the Southwest Yukon* (2006), http://yukon.taiga.net/swyukon/extranet/disturbance_backgroundunder2.pdf.
- 228 NOAA, *Arctic Report Card 2010*, *supra* note 192 at 32.
- 229 AAC interview with Isaac Juneby (2011) on file with Earthjustice.
- 230 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 88.
- 231 *Id.* at 90.
- 232 *Id.*
- 233 Liv Vors and Mark Boyce, *Global declines of caribou and reindeer*, 15 *Global Change Biology* 2626, 2629 (2009), <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2486.2009.01974.x/abstract>.
- 234 AAC interview with Joe Migwans (2011) on file with Earthjustice.
- 235 AAC interview with Grand Chief Ruth Massie (2011) on file with Earthjustice.
- 236 *Id.*; Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 59; NOAA, *Arctic Report Card 2010*, *supra* note 192 at 97-101.
- 237 ACIA, *Scientific Report*, *supra* note 107 at 659; Ed Struzik, *How climate change leaves Arctic Caribou out in the cold*, *Edmonton Journal* (February 6, 2012),

<http://www.edmontonjournal.com/technology/climate+change+leaves+Arctic+caribou+cold/6106774/story.html>.

- 238 I-Ching Chen et al., *Rapid Range Shifts of Species Associated with High Levels of Climate Warming*, 353 Science 1024 (August 19, 2011), <http://www.sciencemag.org/content/333/6045/1024.short>.
- 239 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 78. See also University of Nebraska - Lincoln, *Shrinking Tundra, Advancing Forests: how the Arctic will look by century's end*, Science Daily (March 4, 2011), <http://www.sciencedaily.com/releases/2011/03/110303065219.htm>; Song Feng, *Evaluating Observed and Projected Future Climate Changes for the Arctic Using the Koppen-Trewarka Climate Classification*, Climate Dynamics 1 (10 Feb 2011) <http://www.springerlink.com/content/6407132h6137824g/>.
- 240 I. Myers-Smith et al., *Expansion of canopy-forming willows over the twentieth century on Herschel Island, Yukon Territories, Canada*, 40 *Ambio* 610 (2011).
- 241 Downing & Cuerrier, *supra* note 116 at 59.
- 242 *Id.*; Struzik, *supra* note 237 at 2.
- 243 Downing & Cuerrier, *supra* note 116 at 59.
- 244 Feng, *supra* note 239 at 2.
- 245 Struzik, *supra* note 237 at 2.
- 246 Downing & Cuerrier, *supra* note 116 at 59; Struzik, *supra* note 237 at 2.
- 247 AAC interview with Roy Johnson (2011) on file with Earthjustice.
- 248 NOAA, *Arctic Report Card 2010*, *supra* note 192 at 98.
- 249 AAC interview with Chief Bill Erasmus (2011) on file with Earthjustice.
- 250 AAC interview with Stanley James (2011) on file with Earthjustice.
- 251 NOAA, *Arctic Report Card 2010*, *supra* note 192 at 97.
- 252 *Id.* at 99.
- 253 *Id.* at 100.
- 254 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 4.
- 255 NOAA, *Arctic Report Card 2010*, *supra* note 192 at 31.
- 256 *Id.* at 29.
- 257 *Id.* at 6; Pieter Beck, *Arctic Vegetation Shows Effects of Climate Change*, Environmental Research Web (2011) <http://environmentalresearchweb.org/cws/article/news/48204>.
- 258 Downing & Cuerrier, *supra* note 121 at 66.
- 259 *Id.* at 64.
- 260 AAC interview with Charley James (2011) on file with Earthjustice.
- 261 AAC interview with Roberta Joseph (2011) on file with Earthjustice.
- 262 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 96.
- 263 Downing & Cuerrier, *supra* note 116 at 59.
- 264 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 78.
- 265 Downing & Cuerrier, *supra* note 116 at 61.

- 266 *Id.*
- 267 AAC interview with Charley James (2011) on file with Earthjustice.
- 268 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Impacts*, *supra* note 217.
- 269 Jeff Wells, *Caribou Survival Depends on Ancient Cultural Knowledge*, National Geographic (November 29, 2010) http://newswatch.nationalgeographic.com/2010/11/29/caribou_survival_depends_on_ancient_cultural_knowledge/; Beverly and Qamanirjuaq Caribou Board, *The Value of Caribou*, <http://www.arctic-caribou.com/value.html> (last visited May 2012).
- 270 Government of Yukon, *Caribou* (last visited May 2012), <http://www.env.gov.yk.ca/wildlifebiodiversity/mammals/caribou.php>
- 271 Wells, *supra* note 269.
- 272 *Id.*
- 273 *Id.*
- 274 Government of Yukon, *Caribou*, *supra* note 270.
- 275 ACIA, *Scientific Report*, *supra* note 107 at 682; and see Vuntut Gwitchin First Nation, *Caribou Coordination*, <http://www.oldcrow.ca/caribou.htm>.
- 276 Liv Vors and Mark Boyce, Global declines of caribou and reindeer, 15 *Global Change Biology* 11, 2631 (2009).
- 277 Beverly and Qamanirjuaq Caribou Board, *supra* note 269 (The Beverly and Qamanirjuaq caribou herds migrate between boreal forests in the NWT, Saskatchewan and Manitoba and Nunavut tundra.)
- 278 Alaska Humanities Forum, *supra* note 95.
- 279 ACIA, *Scientific Report*, *supra* note 107 at 682.
- 280 Government of Yukon, *Caribou*, *supra* note 270.
- 281 ACIA, *Scientific Report*, *supra* note 107 at 658,68.
- 282 Vors & Boyce, *supra* note 276 at 2626.
- 283 *Id.* at 2630.
- 284 Eric Post & Mads Forchhammer, *Climate change reduces reproductive success of an Arctic herbivore through trophic mismatch*, 363 *Philos. Trans. R. Soc. Lond. B. Biol. Sci.* 2369, (2008), <http://www.ncbi.nlm.nih.gov/pubmed/18006410>.
- 285 Vors & Boyce, *supra* note 276 at 2629.
- 286 Kyle Joly et al., *Changes in vegetative cover on Western Arctic Herd winter range from 1981 to 2005: potential effects of grazing and climate change*, 27 *Rangifer* 199 (2007).
- 287 *Id.* at 199.
- 288 Vors & Boyce, *supra* note 276 at 2630.
- 289 *Id.* at 2626.
- 290 Government of Yukon, *Caribou*, *supra* note 270 Tommy Leung, *Hypoderma tarandi*, Parasite of the Day, (December 22, 2010) <http://dailyparasite.blogspot.com/2010/12/december-22-hypoderma-tarandi.html>. (Similar to bot flies, warble flies (*Hypoderma tarandi*) lay eggs on caribou skin; the maggots burrow through the skin and the larvae grow up to two centimeters in length in the subcutaneous fat before gnawing their way out, leaving many holes that destroy a caribou's hide.)

- 291 Vors & Boyce, *supra* note 276 at 2629.
- 292 *Id.*
- 293 *Id.*
- 294 Thrine Heggberget et al., *Reindeer (Rangifer tarandus) and climate change: Importance of winter forage*, 22 *Rangifer* 13 (2002), <http://www.ub.uit.no/baser/septentrio/index.php/rangifer/article/viewFile/388/377>.
- 295 Vors & Boyce, *supra* note 276 at 2629.
- 296 *Id.* at 2631.
- 297 *Id.* at 2626.
- 298 *Id.* at 2630.
- 299 ACIA, *Highlights*, *supra* note 41 at 6; Beverly and Qamanirjuaq Caribou Board, *supra* note 269.
- 300 ACIA, *Scientific Report*, *supra* note 107 at 683.
- 301 *Id.* at 683 (noting the Sustainability of Arctic Communities Synthesis Model).
- 302 AAC interview with Katherine McConkey (2011) on file with Earthjustice.
- 303 AAC interview with Regional Chief Eric Morris (2011) on file with Earthjustice.
- 304 AAC interview with Joe Tetlich (2011) on file with Earthjustice.
- 305 AAC interview with Chief Bill Erasmus (2011) on file with Earthjustice.
- 306 Downing & Cuerrier, *supra* note 116 at 61.
- 307 Government of Canada, Natural Resources Canada, Northern Canada, *supra* note 121 at 97.
- 308 Downing & Cuerrier, *supra* note 116 at 64.
- 309 ACIA, *Scientific Report*, *supra* note 107 at 879.
- 310 *Id.* ACIA, *Scientific Report*, *supra* note 107 at 879.
- 311 AAC interview with Chief Bill Erasmus (2011) on file with Earthjustice.
- 312 AAC interview with Grand Chief Ruth Massie (2011) on file with Earthjustice.
- 313 Government of Canada, Health Canada, *Understanding the Health Effects of Climate Change*, last visited September 7, 2011, <http://www.hc-sc.gc.ca/ewh-semt/climat/impact/index-eng.php#how> (“Government of Canada, Health Canada, *Health Effects of Climate Change*”)
- 314 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Climate Change*, <http://www.aadnc-aandc.gc.ca/eng/1100100034249> (last visited May 2012).
- 315 Government of Canada, Environment Canada, *Ways of Knowing and Understanding: Towards the Convergence of Traditional and Scientific Knowledge of Climate Change in the Canadian North*, (2006) at xv (“Government of Canada, Environment Canada, *Ways of Knowing*”).
- 316 ACIA, *Scientific Report*, *supra* note 107 at 682.
- 317 *Id.* at 655.
- 318 Downing & Cuerrier, *supra* note 116 at 64.
- 319 ACIA, *Scientific Report*, *supra* note 107 at 658, 683, 892-897; Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141; Downing & Cuerrier, *supra* note 116 at 63.
- 320 Downing & Cuerrier, *supra* note 116 at 60.
- 321 *Id.* at 59.

- 322 *Id.* at 60-5.
- 323 *Id.* at 59, 60.
- 324 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 15.
- 325 AAC interview with Janet Dickson Dubois (2011) on file with Earthjustice.
- 326 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 15.
- 327 ACIA, *Scientific Report*, *supra* note 107 at 683.
- 328 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 15.
- 329 Downing & Cuerrier, *supra* note 116 at 60.
- 330 Kofinas et al. 2010, *supra* note 95 at 1351; Downing & Cuerrier, *supra* note 116 at 65.
- 331 ACIA, *Scientific Report*, *supra* note 107 at 683.
- 332 Downing & Cuerrier, *supra* note 116 at 61, 65.
- 333 *Id.* at 61.
- 334 *Id.* at 60.
- 335 *Id.* at 60.
- 336 *Id.* at 61.
- 337 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Impacts*, *supra* note 217;
Government of Canada, Aboriginal Affairs and Northern Development Canada, *Vulnerabilities*, *supra* note
141 at 5.
- 338 ACIA, *Scientific Report*, *supra* note 107 at 77.
- 339 Downing & Cuerrier, *supra* note 116 at 62.
- 340 *Id.*
- 341 *Id.*
- 342 O'Rourke, *supra* note 95 at 29.
- 343 ACIA, *Scientific Report*, *supra* note 107 at 79-82.
- 344 AAC interview with Chief Peter Johnson (2011) on file with Earthjustice.
- 345 AAC interview with Louis Renigler (2011) on file with Earthjustice.
- 346 Dickson, *supra* note 116.
- 347 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 15.
- 348 Government of Canada, Natural Resources Canada, Northern Canada, *supra* note 121, 66; Josh Wingrove,
Grocery bills spike after Ottawa scraps food mail subsidies to North, Edmonton Globe and Mail (February
13, 2011); Chris Windeyer, *Arctic communities choking on sky-high food prices*, Nunatsiaq News and the
Vancouver Sun, (February 16 2011),
<http://www.vancouversun.com/news/Arctic+communities+choking+high+food+prices/4296921/story.html>.
- 349 ACIA, *Scientific Report*, *supra* note 107 at 879.
- 350 *Id.*
- 351 Downing & Cuerrier, *supra* note 116 at 62, *citing* H. Kuhnlein, *Arctic Indigenous Peoples Experience the
Nutrition Transition with Changing Dietary Patterns and Obesity*, J. Food Compos. Anal. 134, 1147
(2004).

- 352 *Id.*
- 353 *Id.*
- 354 *Id.*
- 355 AAC interview with Grand Chief Ruth Massie (2011) on file with Earthjustice.
- 356 AAC interview with Roberta Joseph (2011) on file with Earthjustice.
- 357 Downing & Cuerrier, *supra* note 116 at 62, citing H. Kuhnlein et al, *Arctic Indigenous Peoples Experience the Nutrition Transition with Changing Dietary Patterns and Obesity*, 124 J. Nutr. 1447 (2004) at 1447.
- 358 *Id.*
- 359 *Id.*
- 360 Dickson, *supra* note 116.
- 361 Dickson, *supra* note 116.
- 362 J. Lambden et al., *Traditional and Market Food Access in Arctic Canada is Affected by Economic Factors*, 65 International Journal of Circumpolar Health 4 (2006) at 1, 337.
- 363 Downing & Cuerrier, *supra* note 116 at 64, 65.
- 364 AAC interview with Ruth Welsh (2011) on file with Earthjustice.
- 365 AAC interview with Shirley Lord (2011) on file with Earthjustice.
- 366 Downing & Cuerrier, *supra* note 116 at 64.
- 367 Government of Canada, Health Canada, “*Health Effects of Climate Change*,” *supra* note 313.
- 368 *Id.*
- 369 *Id.*
- 370 Government of Canada, Natural Resources Canada, *Northern Canada*, *supra* note 121 at 59.
- 371 Downing & Cuerrier, *supra* note 116 at 64, 66; Y. Nakazawa et al., *Climate change effects on plague and tularemia in the United States*, 7 Vector Borne Zoonotic Diseases 4, 529 (2007), <http://www.ncbi.nlm.nih.gov/pubmed/18047395>; U.S. Centers for Disease Control, *Frequently Asked Questions about Tularemia* (last visited October 2011), <http://www.bt.cdc.gov/agent/tularemia/faq.asp>; G. Wobeser et al., *Tularemia, Plague, Yersinosis, and Tyzzer’s Disease in Wild Rodents and Lagomorphs in Canada: A Review*, 50 Canadian Veterinary Journal 1251 (2009).
- 372 Downing & Cuerrier, *supra* note 116 at 66; U.S. Centers for Disease Control, *Frequently Asked Questions about Tularemia* (last visited October 2011), <http://www.bt.cdc.gov/agent/tularemia/faq.asp>; G. Wobeser et al., *Tularemia, Plague, Yersinosis, and Tyzzer’s Disease in Wild Rodents and Lagomorphs in Canada: A Review*, 50 Canadian Veterinary Journal 1251 (2009).
- 373 Kofinas et al., *supra* note 95 at 1352.
- 374 AAC interview with Chief James Allen (2011) on file with Earthjustice.
- 375 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Impacts*, *supra* note 217.
- 376 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 15.
- 377 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Impacts*, *supra* note 217.
- 378 ACIA, *Scientific Report*, *supra* note 107 at 883-889.
- 379 National Round Table on the Environment and the Economy, *True North: Adapting Infrastructure to Climate Change in Northern Canada* (2009) (“NRTEE, *Infrastructure*”), <http://nrtee-trnee.ca/wp->

-
- [content/uploads/2011/08/true-north-eng.pdf](#); see also Government of Canada, Natural Resources Canada, Northern Canada, *supra* note 121 at 59.
- 380 NRTEE, *Infrastructure*, *supra* note 379 at 48.
- 381 ACIA, *Scientific Report*, *supra* note 107 at 883-889.
- 382 AAC interview with Janice Dickson Dubois (2011) on file with Earthjustice.
- 383 AAC interview with Michael Stickman (2011) on file with Earthjustice.
- 384 NRTEE, *Infrastructure*, *supra* note 379 at 61.
- 385 *Id.* at 51.
- 386 *Id.* at 48-64.
- 387 *Id.* at 59.
- 388 *Id.*
- 389 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 at 16.
- 390 NRTEE, *Infrastructure*, *supra* note 379 at 5, 62, 94.
- 391 NRTEE, *Infrastructure*, *supra* note 379 at 40.
- 392 AAC interview with Belinda Northway Thomas (2011) on file with Earthjustice.
- 393 Government of Canada, Aboriginal Affairs and Northern Development Canada, *Impacts*, *supra* note 217.
- 394 Inter-Am. Ct. H.R., *Advisory Opinion OC-10/89, Interpretation of the American Declaration of the Rights and Duties of Man Within the Framework of Article 64 of the American Convention on Human Rights*, 1989 Inter-Am. Court H.R. (ser. A) No. 10, ¶¶ 35, 45 (July 14, 1989) (“Inter-Am. Court, *Interpretation of the American Declaration*”).
- 395 *Case of Grand Chief Michael Mitchell v. Canada*, Case 12.435, Inter-Am. C.H.R., Report No. 61/08, OEA/Ser.L/V/II.118, doc. 70 rev. 2, ¶ 64 (Jul. 25, 2008) (“*Grand Chief Michael Mitchell v. Canada*”); *Case of Mary and Carrie Dann v. United States*, Case 11.140, Inter-Am. C.H.R., Report No. 75/02, ¶¶ 97, 124 (2002) (“*Dann*”); *Maya Indigenous Communities of the Toledo District v. Belize*, Case 12.053, Inter-Am. C.H.R. Report No. 40/04, OEA/Ser.L/V/II.122, doc. 5 rev. 1, ¶ 87 (2004) (“*Belize Maya*”).
- 396 Organization of American States, American Convention on Human Rights, Nov. 22, 1969, O.A.S.T.S. No. 36, 1144 U.N.T.S. 123 (“American Convention”), art. 29.
- 397 *Grand Chief Michael Mitchell v. Canada*, *supra* note 395, ¶ 63 (citing Inter-Am. Court, *Interpretation of the American Declaration*, *supra* note 394, ¶ 37).
- 398 U.N. Econ. & Soc. Council (“ECOSOC”), *Report of the Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people*, ¶ 71, U.N. Doc. E/CN.4/2006/78 (Feb. 16, 2006) (prepared by Rodolfo Stavenhagen), available at <http://www2.ohchr.org/english/bodies/chr/sessions/62/listdocs.htm> (then scroll down to E/CN.4/2006/78) (“Stavenhagen Report”).
- 399 U.N. Human Rights Council, *Res. 18/22, Human Rights and Climate Change*, A/HRC/ 18/L.26/Rev.1 (Oct. 17, 2011) (“U.N. H.R.C., *Res. 18/22, Human Rights and Climate Change*”); U.N. Human Rights Council, *Res. 10/4, Human rights and climate change*, in U.N. Human Rights Council, *Draft Report of the Human Rights Council on its Tenth Session* 13, 15, A/HRC/10/L.11 (Mar. 31, 2009) (“U.N. H.R.C., *Res. 10/4, Human rights and climate change*”).
- 400 U.N. H.R.C., *Res. 18/22, Human Rights and Climate Change*,” *supra* note 399, pmb.; U.N. H.R.C., *Res. 10/4, Human Rights and Climate Change*, *supra* note 399, pmb.

-
- 401 U.N. H.R.C., *Res. 18/22, Human Rights and Climate Change*, *supra* note 399, pmb.; U.N. H.R.C., *Res. 10/4, Human rights and climate change*, *supra* note 399, pmb.
- 402 U.N. H.R.C., *Res. 18/22, Human Rights and Climate Change*, *supra* note 399, pmb.; U.N. H.R.C., *Resolution 10/4, Human Rights and Climate Change*, *supra* note 399, pmb.
- 403 U.N. H.R.C., *Res. 18/22, Human Rights and Climate Change*, *supra* note 399, pmb.; U.N. H.R.C., *Resolution 10/4, Human Rights and Climate Change*, *supra* note 399, pmb.
- 404 See Office of the High Comm’r for Human Rights (OHCHR), *Report of the Office of the United Nations High Commissioner for Human Rights on the Relationship Between Climate Change and Human Rights*, U.N. Doc. A/HRC/10/61 (Jan. 15, 2009) (“OHCHR, *Report on Climate Change and Human Rights*”).
- 405 *Id.* ¶ 71.
- 406 *Case of the Mayagna (Sumo) Awas Tingni Community v. Nicaragua*, 2001 Inter-Am. Ct. H.R. (ser. C) No. 79, ¶ 146 (Aug. 31, 2001) (“*Awas Tingni*”).
- 407 *Case of Coard et al. v. United States*, Case 10.951, Inter-Am. C.H.R., Report No. 109/99, ¶ 40 (Sept. 29, 1999).
- 408 Inter-Am. Court H.R., *Advisory Opinion OC-16/99, The Right to Information on Consular Assistance in the Framework of the Guarantees of the Due Process of Law*, Inter-Am. Court H.R. (ser. A) No. 10, ¶ 76 (1999); Inter-Am. Court, “*Other Treaties*” *Subject to the Advisory Jurisdiction of the Court (Art. 64 American Convention on Human Rights)*, *Advisory Opinion OC-1/82*, Sept. 24, 1982, (Ser. A) No. 1, opinion ¶ 1, (“Inter-Am. Court, “*Other Treaties*”).
- 409 Inter-Am. Court, “*Other Treaties*,” *supra* note 408, ¶¶ 34, 43; *see also id.* ¶ 52 (“[T]he advisory jurisdiction of the Court can be exercised, in general, with regard to any provision dealing with the protection of human rights set forth in any international treaty applicable in the American States, regardless of whether it be bilateral or multilateral, whatever be the principal purpose of such a treaty, and whether or not non-Member States of the inter-American system are or have the right to become parties thereto.”).
- 410 *Grand Chief Michael Mitchell v. Canada*, *supra* note 395, ¶ 63 (citing Inter-Am. Court, *Interpretation of the American Declaration*, *supra* note 394); *Belize Maya*, *supra* note 395, ¶ 86 (same).
- 411 Inter-Am. C.H.R., *Report on the Human Rights Situation in Ecuador* (“Inter-Am. C.H.R., *Ecuador Report*”), OEA/Ser.L/V/II.96, ch. VIII, available at <http://cidh.org/countryrep/ecuador-eng/index%20-%20ecuador.htm>.
- 412 See David Hunter, James Salzman & Durwood Zaelke, *International Environmental Law and Policy* 472-75 (4th ed. 2010).
- 413 Declaration of the United Nations Conference on the Human Environment, G.A. Res. 2997, princ. 21, U.N. GAOR, 27th Sess., U.N. Doc. A/ Conf.48/14/Rev/1, 11 I.L.M. 1416 (June 16, 1972) (hereinafter *Stockholm Declaration*); Rio Declaration on Environment and Development, U.N. ESCOR, princ. 2, U.N. Doc. A/CONF.151/26 (Vol. I) (1992) (“*Rio Declaration*”). The Heavy Metals Protocol to the Convention on Long-Range Transboundary Air Pollution, which Canada has ratified, echoes the *Rio Declaration*’s agreement that States must prevent transboundary harm. Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Heavy Metals, pmb., June 24, 1998, U.N. Doc. E/ECE/EB.AIR/66/1999, U.N. Sales No. E.99.II.E.21 (1999) (hereinafter *LRTAP Protocol on Heavy Metals*). U.N. Framework Convention on Climate Change, pmb., May 9, 1992, 31 I.L.M. 849 (“*Framework Convention*”) (ratified by Canada on Dec. 4, 1992).
- 414 North American Agreement on Environmental Cooperation (NAAEC), U.S.-Can.-Mex., pmb., Sept. 8, 1993, 32 I.L.M. 1480 (entered into force Jan. 1, 1994) (“[r]eaffirming...[States] responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction”); International Maritime Organization, *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*, pmb., Dec. 29, 1972, 1046 U.N.T.S. 120 (ratified by Canada on Nov. 13, 1975) (“Recognizing that States have ... the responsibility to

- ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction”).
- 415 ACIA, *Highlights*, *supra* note 41, at 1-7.
- 416 Rio Declaration, *supra* note 413, princ. 15.
- 417 Canadian Environmental Protection Act, 1999 SC, ch. 33 (Can.), pmb. Although it is not as strong a commitment as the precautionary principle embraced in Canadian domestic law, Canada’s ratification of multilateral environmental agreements endorsing the precautionary approach also echoes Canada’s support for taking precautionary steps in the face of serious environmental threats. *See, e.g.*, Framework Convention, *supra*, 1992, art. 3.3 (“The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects”; “lack of full scientific certainty should not be used as a reason for postponing [cost-effective] measures” in the face of “threats of serious or irreversible damage”); LRTAP Protocol on Heavy Metals, *supra* note 413, pmb., ¶¶ 2-3; Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, arts. 5-6, Annex II, Aug. 4, 1995, 2167 U.N.T.S. 88 (ratified by Canada on Aug. 3, 1999).
- 418 *See 114957 Canada Ltée (Spraytech, Société d’arrosage) v. Hudson (Town)*, [2001] 2 SCR 241.
- 419 Canadian Environmental Protection Act, *supra* note 417, ¶2(1)(a).
- 420 *See American Convention*, *supra* note 396, art. 63(1) (if the Court finds that there has been a violation of a right or freedom protected by that Convention, “the Court shall rule ... that the consequences of the measure or situation that constituted the breach of such right or freedom be remedied and that fair compensation be paid to the injured party.”); *see also Velásquez Rodríguez Case*, 1990 Inter-Am. Ct. H.R. (ser. C) No. 7, ¶ 54 (July 21, 1989) (ordering compensation for human rights violations: “the obligation to indemnify is not derived from internal law [of the violating nation], but from violation of the American Convention. It is the result of an international obligation.”).
- 421 *Case of Xákmok Kásek Indigenous Community v. Paraguay*, 2010 Inter-Am. Ct. H.R. (ser. C) No. 214, ¶ 291 (Aug. 24, 2010) (“Xákmok”); *see also* Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights over their Ancestral Lands and Natural Resources: Norms and Jurisprudence of the Inter-American Human Rights System*, OEA/Ser.L/V/II, doc. 56/09 ¶ 394 (Dec. 30, 2009) (“Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights*”) (when environmental contamination infringed upon indigenous peoples’ right to life, State was “obliged to respond with appropriate measures of investigation and redress”) (citing Inter-Am. C.H.R., *Ecuador Report*, *supra* note 411).
- 422 *Xákmok*, *supra* note 421, ¶ 291.
- 423 *Id.* ¶ 277.
- 424 *See id.* ¶ 291.
- 425 Canadian Environmental Protection Act, *supra* note 417, pmb.
- 426 *Id.* art. 2(1)(a.1) (“Administrative Duties”); *see also id.* art. 1 (“endeavour to act with regard to the intent of intergovernmental agreements and arrangements entered into for the purpose of achieving the highest level of environmental quality throughout Canada”).
- 427 Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights*, *supra* note 421, ¶ 385 (quoting United Nations Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, pmb., U.N. Doc. A/RES/61/295 (Sept. 13, 2007) (“UNDRIP”), art. 40).
- 428 UNDRIP, *supra* note 427, art. 20(2) (subsistence), arts. 8, 11, 30 (culture), arts. 28, 30 (property); art. 21 (health).
- 429 *Id.* art. 30; *see also id.* art. 21.

- 430 U.N. Human Rights Council, *Report of the Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people, James Anaya, Addendum, The situation of the Sami people in the Sápmi region of Norway, Sweden and Finland*, ¶ 79, A/HRC/18/XX/Add.Y (Jan. 12, 2011) (“U.N. Human Rights Council, *Anaya Addendum – Sami People*”).
- 431 *Awias Tingni*, *supra* note 406, ¶ 39.
- 432 *See, e.g.*, International Covenant on Economic, Social and Cultural Rights (ICESCR), art. 1(2), Dec. 16, 1966, 6 I.L.M. 360, 365, 993 U.N.T.S. 3, (signed by Canada on May 19, 1976); Convention on the Rights of the Child, arts. 24, 27, and 30, Nov. 20, 1989, 28 I.L.M. 1448, 1577 U.N.T.S. 3 (ratified by Canada on Dec. 13, 1991); Organization of American States (OAS), Additional Protocol to the American Convention on Human Rights in the Area of Economic Social and Cultural Rights (“Protocol of San Salvador”), art. 11, Nov. 14, 1988, O.A.S.T.S. No. 69, 28 I.L.M. 156; Organization of African Unity, African Charter on Human and Peoples’ Rights, art. 23, June 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (entered into force Oct. 21, 1986) (“African Charter”) (“[a]ll peoples shall have the right to a generally satisfactory environment favorable to their development.”); Organization of African Unity, African Charter on the Rights and Welfare of the Child, July 1990, art. 14, OAU Doc. CAB/LEG/24.9/49, (entered into force Nov. 29, 1999) (“to ensure the provision of . . . safe drinking water.”); Final Draft Charter of Fundamental Rights of the European Union, Sept. 28, 2000, art. 37, 2000 O.J. (C 364) 1, 17 (“A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development.”); Convention on Biological Diversity, pmbl., (June 5, 1992) 31 I.L.M. 818, 1760 U.N.T.S. 79 (entered into force Dec. 29, 1993); North American Agreement on Environmental Cooperation, *supra* note 413, pmbl. clause 8; Rio Declaration, *supra* note 413, princ. 1 (“[h]uman beings . . . are entitled to a healthy and productive life in harmony with nature”); Rio Declaration, *supra* note 413, princ. 14 (recognizing the importance of controlling “any activities and substances that cause severe environmental degradation”); G.A. Res. 45/94, ¶ 1, U.N. GAOR, 45th Sess., U.N. Doc. A/45/749 (1990) (“all individuals are entitled to live in an environment adequate for their health and well-being”); G.A. Res. 55/107, ¶ 3(k), U.N. GAOR, 55th Sess., U.N. Doc. A/RES/55/107 (2000) (“affirm[ing] that a democratic and equitable international order requires, inter alia, the realization of . . . the entitlement of every person and all peoples to a healthy environment”); OHCHR, ¶ 3(k), CHR Res. 2000/62, U.N. ESCOR, 56th Sess., U.N. Doc. E/CN.4/RES/2000/62 (2000) (“a democratic and equitable international order requires, inter alia, the realization of . . . [t]he right to a healthy environment for everyone.”).
- 433 Inter-Am. C.H.R., *Ecuador Report*, *supra* note 411, ch. IX.
- 434 OAS, G.A. Res. 2429 (XXXVIII-O/08), OAS Doc. AG/RES. 2429 (June 3, 2008); *see* OAS, Summit I, Dec. 1994, *Plan of Action*, available at http://www.summit-america.org/i_summit/i_summit_poa_en.pdf; OAS, Summits of the Americas (Secretariat), http://www.summit-america.org/previous_summits.html (last visited May 1, 2012) (Declarations and Plans of Action for Summits I-IV, Summit on Sustainable Development, and Special Summit are available on the right side of the page).
- 435 OAS, Summit I, Dec. 1994, *Plan of Action*, available at http://www.summit-america.org/i_summit/i_summit_poa_en.pdf, ¶ 23.
- 436 ECOSOC, Sub-Comm. on Prevention of Discrimination & Prot. of Minorities, *Review Of Further Developments In Fields With Which The Sub-Commission Has Been Concerned: Human Rights And The Environment*, ¶ 88, U.N. Doc. E/CN.4/Sub.2/1994/9 (July 6, 1994) (*prepared by Fatma Zohra Ksentini* (“Ksentini Final Report”).
- 437 U.N. Human Rights Council, *Anaya Addendum – Sami People*, *supra* note 430, ¶ 79.
- 438 *Id.*
- 439 Protocol of San Salvador, *supra* note 432, art. 21; African Charter, *supra* note 432, art. 24 (“All peoples shall have the right to a general satisfactory environment favourable to their development.”); CHR Res. 2000/62, *supra*; G.A. Res. 45/94, *supra* note 432, ¶ 1; *see also* G.A. Res. 55/107, *supra* note 432, ¶ 3(k) (“affirming that a democratic and equitable international order requires, inter alia, the realization of . . . the

- entitlement of every person and all peoples to a healthy environment.”); Rio Declaration, *supra* note 413, princ. 1 (“[h]uman beings ... are entitled to a healthy and productive life in harmony with nature”).
- 440 OHCHR, *Report on Climate Change and Human Rights*, *supra* note 404, ¶ 18.
- 441 *Gabčíkovo-Nagymaros (Hungary v. Slovakia)*, 1997 I.C.J. 91-92, (Sept. 25) (separate opinion of Vice-President Weeramantry).
- 442 Inter-Am. C.H.R., *Ecuador Report*, *supra* note 411, ch. VIII. The Commission further noted, “the absence of regulation, inappropriate regulation, or a lack of supervision in the application of extant norms may create serious problems with respect to the environment which translate into violations of human rights protected by the American Convention [on Human Rights].” *Id.*, ch. VIII. Addressing development activities, the Commission underscored the State’s obligation to require “appropriate and effective measures to ensure that they do not proceed at the expense of the fundamental rights of persons who may be particularly and negatively affected, including indigenous communities and the environment upon which they depend for their physical, cultural and spiritual well-being.” *Belize Maya*, *supra* note 395, ¶ 150.
- 443 OHCHR, *Report on Climate Change and Human Rights*, *supra* note 404, ¶ 73.
- 444 *Id.* ¶ 74 (citing *Budayeva and Others v. Russia*, App. No. 15339/02, Eur. Ct. H.R., (Mar. 20, 2008)).
- 445 *See, e.g., Xákmok*, *supra* note 421; *Case of the Saramaka People v. Suriname*, 2007 Inter-Am. Ct. H.R. (ser. C) No. 172 (Nov. 28, 2007) (“*Saramaka*”); *Case of the Sawhoyamaya Indigenous Community v. Paraguay*, 2006 Inter-Am. Ct. H.R. (ser. C) No. 146 (Mar. 29, 2006) (“*Sawhoyamaya*”); *Case of the Yakye Axa Indigenous Community v. Paraguay*, 2005 Inter-Am. Ct. H.R. (ser. C) No. 125 (June 17, 2005) (“*Yakye Axa*”); *Awás Tingni*, *supra* note 406, ¶ 149.
- 446 *Xákmok*, *supra* note 421, ¶ 86; *Yakye Axa*, *supra* note 445, ¶ 131; *Awás Tingni*, *supra* note 406, ¶ 149 (“[I]ndigenous peoples, as a matter of survival, have the right to live freely on their own territory; the close ties of indigenous people with the land must be recognized and understood as the fundamental basis of their cultures, their spiritual life, their integrity, and their economic survival. For indigenous communities, [their relationship with] the land is not merely a matter of possession and production but a material and spiritual element, which they must fully enjoy to preserve their cultural legacy and transmit it to future generations.”). *See also Saramaka*, *supra* note 445, ¶¶ 90, 96; *Sawhoyamaya*, *supra* note 445, ¶ 118.
- 447 Inter-Am. C.H.R., *Ecuador Report*, *supra* note 411, ch. IX (citing generally *Ksentini Final Report*, *supra* note 434, ¶¶ 77, 78-93, 88-89).
- 448 *Id.* (quoting *Ksentini Final Report*, *supra* note 434, ¶ 77).
- 449 *See, e.g., Case of Yanomami Indians v. Brazil*, Case 7615, Inter-Am. C.H.R., OEA/Ser.L/V/II.66, doc. 10 rev. 1, ¶ 7 (1985) (“*Yanomami*”) (“[I]nternational law in its present state ... recognizes the right of ethnic groups to special protection ... for all those characteristics necessary for the preservation of their cultural identity.”).
- 450 *See Dann*, *supra* note 395, ¶ 125 (citing Inter-Am. C.H.R., *The Human Rights Situation of the Indigenous People in the Americas*, OEA/Ser.L/V/II.108, Doc. 62 (2000), at 21-25); *see also Belize Maya*, *supra* note 395, ¶ 95 (citing same).
- 451 *See, e.g., Xákmok*, *supra* note 421, ¶ 174, *Sawhoyamaya*, *supra* note 445, ¶ 118; *Yakye Axa*, *supra* note 445, ¶ 135.
- 452 *Saramaka*, *supra* note 445, ¶ 85; *see also Case of the Moiwana Community v. Suriname*, 2005 Inter-Am. Ct. H.R. (ser. C) No. 124 (June 15, 2005) (“*Moiwana*”), ¶ 133.
- 453 “Both the Inter-American Court and the Inter-American Commission on Human Rights have held that, although originally adopted as a declaration and not as a legally binding treaty, the American Declaration is today a source of international obligations for the OAS member States.” Inter-Am. Court, *Interpretation of the American Declaration*, *supra* note 394, ¶¶ 35, 45.

- 454 *See, e.g., Awas Tingni, supra* note 406; *Yakye Axa, supra* note 445; *Xákmok, supra* note 421 (Inter-American Court cases). *See, e.g. Dann, supra* note 395, ¶ 125; *Belize Maya, supra* note 395, ¶ 95; *Yanomami, supra* note 450, ¶¶ 7-8 (Inter-American Commission cases).
- 455 *See, e.g., Dann, supra* note 395, ¶ 126 (“[T]he Commission has since its establishment in 1959 recognized and promoted respect for the rights of indigenous peoples of this Hemisphere.”).
- 456 *See, e.g., Awas Tingni, supra* note 406, ¶ 151 (American Convention’s protection of “property” means protection of property rights as understood by the indigenous community involved); *Case of Aloeboetoe v. Suriname, Reparations*, 1993 Inter-Am. Ct. H.R. (ser. C) No. 15, ¶ 58 (Sept. 10, 1993) (disregarding the State’s domestic family law for purposes of determining which persons were the next-of-kin of the victims and awarding reparations based on the matrilineal and polygamist customs of the Saramaka people to which the victims belonged).
- 457 *Yakye Axa, supra* note 445, ¶ 124; *see also Xákmok, supra* note 421, ¶ 321 (special meaning of land for indigenous peoples “means that all denial of the enjoyment or exercise of land rights does damage to values that are very important for those peoples, as they experience the risk of losing their identities and cultural heritage that they would pass on to future generations, or of experiencing damage that would be irreparable within their lifetimes”); *Saramaka, supra* note 445, ¶ 86.
- 458 *Dann, supra* note 395, ¶ 125.
- 459 Permanent Council of the OAS, Record of the Current Status of the Draft American Declaration on the Rights of Indigenous Peoples (Outcomes of the Thirteenth Meetings of Negotiations in the Quest for Points of Consensus), OEA/Ser.K/XVI/GT/DADIN/doc.334/08 rev. 6, art. XVIII(1), (Jan. 20, 2011) (“OAS, *Draft Declaration on the Rights of Indigenous Peoples* (2011)”).
- 460 “Every person has the right to take part in the cultural life of the community, to enjoy the arts, and to participate in the benefits that result from intellectual progress, especially scientific discoveries.” American Organization of American States, American Declaration of the Rights and Duties of Man, O.A.S. Res. XXX (1948), *reprinted in* Basic Documents Pertaining to Human Rights in the Inter-American System, OAS/Ser.L/V/I.4 Rev. 9 (2003) (“American Declaration”), art. XIII.
- 461 Charter of the Organization of American States, arts. 2(f), 3(m), 30, 48, *reprinted in* Basic Documents Pertaining to Human Rights in the Inter-American System, OAS/Ser.L/V/I.4 rev. 9 (Jan. 2003) (Member States are “individually and jointly bound to preserve and enrich the cultural heritage of the American peoples”).
- 462 American Convention, *supra* note 396, art. 16 (“Everyone has the right to associate freely for ideological, religious, political, economic, labor, social, cultural, sports, or other purposes.”).
- 463 *Id.* art. 26 (“The States Parties undertake to adopt measures ... with a view to achieving progressively... the full realization of the rights implicit in the economic, social, educational, scientific, and cultural standards set forth in the Charter of the Organization of American States as amended by the Protocol of Buenos Aires.”).
- 464 Universal Declaration of Human Rights, G.A. Res. 217A, at 72, U.N. GAOR, 3rd Sess., 1st plen. mtg., U.N. Doc A/810 (Dec. 12, 1948), art. 27.1 (“Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.”)
- 465 International Covenant on Civil and Political Rights, art. 27, Dec. 16, 1966, 6 I.L.M. 368, 999 U.N.T.S. 171 (“ICCPR”) (acceded to by Canada on May 19, 1976) (members of minority groups “shall not be denied the right, in community with other members of their group, to enjoy their own culture, to profess and practice their own religion, or to use their own language”).
- 466 ICESCR, *supra* note 432, art. 15(1) (“The States Parties to the present Covenant recognize the right of everyone [t]o take part in cultural life.”). *See also Saramaka, supra* note 445, ¶ 85, n. 76 (citing, *inter alia*, the following instruments stating that indigenous peoples require special measures to safeguard their physical and cultural survival: U.N. Committee on the Elimination of Racial Discrimination, *General*

Recommendation No. 23, Annex V: Rights of indigenous peoples, at 122, ¶ 4, U.N. Doc. A/52/18 (Aug. 18, 1997) (calling upon States to take certain measures in order to recognize and ensure the rights of indigenous peoples).

- 467 “It has been the Commission’s longstanding view that the protection of the culture of indigenous peoples encompasses the preservation of ‘the aspects linked to productive organization, which includes, among other things, the issue of ancestral and communal lands.’” *Belize Maya*, *supra* note 395, ¶ 120 (quoting Inter-Am. C.H.R., Report on the Situation of Human Rights of a Segment of the Nicaraguan Population of Miskito Origin, OEA/Ser.L/V/II.62, Doc. 10 rev. 3 81 Part II (1983) (“Miskito Report”), ¶ 15).
- 468 *Awes Tingni*, *supra* note 406, ¶ 39.
- 469 *Moiwana*, *supra* note 452, ¶ 101.
- 470 *Yakye Axa*, *supra* note 445, ¶ 154.
- 471 *Sawhoyamasa*, *supra* note 445, ¶ 131; *see also Xákmok*, *supra* note 421, ¶ 113.
- 472 *Saramaka* is a separate case from *Aloeboetoe*, cited *supra*, which also involved the Saramaka people.
- 473 *Saramaka*, *supra* note 445, ¶¶ 90, 86.
- 474 *Chitay Nech v. Guatemala Case*, Inter-Am. Ct. H.R. (ser. C) No. 212, ¶ 147 (May 25, 2010).
- 475 *See Belize Maya*, *supra* note 395, ¶¶ 154-155.
- 476 *Id.* ¶ 154.
- 477 Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights*, *supra* note 421, ¶ 56.
- 478 *Id.* ¶ 78.
- 479 *Id.* ¶ 74 (citing U.N. Office of the High Commissioner for Human Rights, General Comment No. 23: The Rights of Minorities (Art. 27), ¶ 6.2, CCPR/C/21/Rev.1/Add.5 (Apr. 8, 1994) (“OHCHR, Gen. Comment No. 23”), ¶ 7); *see also Dann*, *supra* note 395, ¶ 130, n.97 (same).
- 480 *See* Inter-Am. C.H.R., *Ecuador Report*, *supra* note 411, ch. IX (citing *Ksentini Final Report*, *supra* note 436, ¶¶ 77, 78-93) (“Certain indigenous peoples maintain special ties with their traditional lands, and a close dependence upon the natural resources provided therein – respect for which is essential to their physical and cultural survival.”); Inter-Am. C.H.R., *Miskito Report*, *supra* note 467, ¶ II.B.15 (“[S]pecial legal protection is recognized for the use of their language, the observance of their religion, and in general, all those aspects related to the preservation of their cultural identity. To this should be added the aspects linked to productive organization, which includes, among other things, the issue of the ancestral and communal lands. Non-observance of those rights and cultural values leads to a forced assimilation with results that can be disastrous.”).
- 481 *See, e.g., Centre for Minority Rights Development v. Kenya*, Case 276/2003, Afr. Comm’n on Human and Peoples’ Rights, ¶ 156 (2009) (citing extensively the Inter-American Court’s jurisprudence in *Awes Tingni*, *Moiwana*, and *Saramaka* in observing that indigenous peoples’ “culture, religion, and traditional way of life are intimately intertwined with their ancestral lands [] and the surrounding area” and that “without access to their ancestral land, [they] are unable to fully exercise their cultural and religious rights, and feel disconnected from their land and ancestors.”).
- 482 *Belize Maya*, *supra* note 395, ¶ 141.
- 483 U.N. Human Rights Committee, *Bernard Ominayak and the Lubicon Lake Band v. Canada*, Communication No. 167/1984, U.N. Doc. CCPR/C/38/D/167/1984 (Mar. 26, 1990) (“*Lubicon Lake Band*”).
- 484 *Id.*; *see also* U.N. Human Rights Committee, *Apirana Mahuika et al. v. New Zealand*, Communication No. 547/1993, ¶ 9.5, U.N. Doc. CCPR/C/70/D/547/1993 (Nov. 16, 2000) (noting that, according to general comment to Article 27, “especially in the case of indigenous peoples, the enjoyment of the right to one’s

- own culture may require positive legal measures of protection by a State party and measures to ensure the effective participation of members of minority communities in decisions which affect them”).
- 485 *Lubicon Lake Band*, *supra* note 483, ¶ 33.
- 486 OHCHR, Gen. Comment No. 23, *supra* note 479, ¶¶ 7, 9.
- 487 U.N. Human Rights Committee, *Ilmari Lämsman v. Finland*, Communication No. 511/1992, ¶ 9.3, U.N. Doc. CCPR/C/52/D/511/1992 (Nov. 8, 1994).
- 488 U.N. Economic and Social Council, General Comment No. 21, Right of everyone to take part in cultural life, (art. 15, para. 1 (a), of the International Covenant on Economic, Social and Cultural Rights), ¶ 36, E/C.12/GC/21 (Nov. 20, 2009) (“ECOSOC, Gen. Comment No. 21”) (citing International Labour Organisation, Convention concerning Indigenous and Tribal Peoples in Independent Countries, June 27, 1989 (“ILO, Conv. No. 169”), arts. 13-16. *See also* UNDRIP, *supra* note 427, arts. 20 and 33. The Committee added that “States parties must take measures to recognize and protect the rights of indigenous peoples to own, develop, control and use their communal lands, territories and resources.” ECOSOC, Gen. Comment 21, *supra* note 488, ¶ 36.
- 489 UNDRIP, *supra* note 427, art. 8.
- 490 *Id.* art. 13.
- 491 ACIA, *Scientific Report*, *supra* note 107, at 652-655.
- 492 Beverly and Qamanirjuaq Caribou Board, *supra* note 269 .
- 493 AAC interview with Chief Bill Erasmus (2011) on file with Earthjustice.
- 494 AAC interview with Grand Chief Ruth Massie (2011) on file with Earthjustice.
- 495 *See, e.g.*, Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 , at 3-5.
- 496 ACIA, *Overview*, *supra* note 145, at 100.
- 497 UNDRIP, *supra* note 427, art. 31.
- 498 *See* Downing & Cuerrier, *supra* note 116, at 62.
- 499 Government of Canada, Environment Canada, *Ways of Knowing*, *supra* note 315, at xv.
- 500 AAC interview with Don Trudeau (2011) on file with Earthjustice.
- 501 *See* ACIA, *Scientific Report*, *supra* note 107, at 682.
- 502 AAC interview with Cindy Dickson (2011) on file with Earthjustice.
- 503 AAC interview with Roberta Joseph (2011) on file with Earthjustice.
- 504 *See* *Yakye Axa*, *supra* note 445, ¶ 135; *Xákmok*, *supra* note 421, ¶ 174; *see also* *Sawhoyamaxa*, *supra* note 445, ¶ 118; OHCHR, Gen. Comment No. 23, *supra* note 479, ¶ 7.
- 505 *Moiwana*, *supra* note 452, ¶ 101.
- 506 *Saramaka*, *supra* note 445, ¶¶ 90, 86.
- 507 American Declaration, *supra* note 460, art. XXIII.
- 508 American Convention, *supra* note 396, art. 21.
- 509 *Annual Report of the Inter-American Commission on Human Rights*, Inter-Am. C.H.R., OEA/Ser.L/V/II.85, doc. 9 rev. ch. IV, ¶ VII(A) (1994) (Nicaragua, Right to Property).
- 510 Universal Declaration of Human Rights, *supra* note 464, art. 17.

-
- 511 Council of Europe, Protocol [1] to the Convention for the Protection of Human Rights and Fundamental Freedoms, art. 1, Nov. 4, 1950, 213 U.N.T.S. 221 (“Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principle of international law.”).
- 512 African Charter, *supra* note 432, art. 14 (“The right to property shall be guaranteed. It may only be encroached upon in the interest of public need or in the general interest of the community and in accordance with the provisions of appropriate laws.”).
- 513 *See, e.g., Xákmok, supra* note 421, ¶¶108-09; *Moiwana, supra* note 452, ¶ 133; *Yakye Axa, supra* note 445, ¶¶ 131, 135, 137; *Sawhoyamaxa, supra* note 445, ¶¶ 127, 131; *Awás Tingni, supra* note 406, ¶ 149. This right “extend[s] in principle over all of those lands and resources that indigenous peoples currently use, and over those lands and resources that they possessed and of which they were deprived, with which they preserve their internationally protected special relationship – i.e. a cultural bond of collective memory and awareness of their rights of access or ownership, in accordance with their own cultural and spiritual rules.” Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights, supra* note 421, ¶ 78.
- 514 *Awás Tingni, supra* note 406, ¶ 149; *see also Xákmok, supra* note 421, ¶ 86; *Yakye Axa, supra* note 445, ¶ 131; *Saramaka, supra* note 445, ¶¶ 90, 96; *Sawhoyamaxa, supra* note 445, ¶ 118.
- 515 *Awás Tingni, supra* note 406, ¶ 149.
- 516 *Dann, supra* note 395, ¶ 129 (citing OAS, Draft American Declaration on the Rights of Indigenous Peoples, art. XVIII, OEA/Ser.L/V/II.95, doc. 7 rev., 1997, at 654-676 (Feb. 26, 1997) (“OAS, *Draft Declaration on the Rights of Indigenous Peoples* (1997).”
- 517 *See, e.g., Xákmok, supra* note 421, ¶ 85 (citing *Yakye Axa, supra* note 445, ¶ 137; *Sawhoyamaxa, supra* note 445, ¶ 118; *Saramaka, supra* note 445, ¶ 88; *see also Xákmok, supra* note 421, ¶ 175 (“When it comes to indigenous tribes or peoples, the traditional possession of their lands and the cultural patterns that arise from this close relationship form part of their identities.”).
- 518 *Saramaka, supra* note 445, ¶ 123.
- 519 *Id.* ¶¶ 155, 158.
- 520 *Xákmok, supra* note 421, ¶ 182.
- 521 *Id.* ¶171. Although the Court made this statement in the context of logging and prior informed consent, it applies outside that context as well; indeed, the Court has used similar language in other cases involving violations of indigenous peoples’ property rights, *e.g.*, when they were denied access to their land due to non-indigenous peoples’ claims to legal title. *See Yakye Axa, supra* note 445, ¶¶ 164, 50.12-50.16; *see also* Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights, supra* note 421, ¶ 57 (indigenous peoples’ “lack of possession of, and access to, their territories prevents them from using and enjoying the natural resources that they need to obtain the goods necessary for their subsistence, develop their traditional cultivation, hunting, fishing or gathering activities, access traditional health systems, and other key socio-cultural functions”) (citations omitted).
- 522 *Id.* ¶ 154; *Belize Maya, supra* note 3945394, ¶¶ 149-150 (citing with approval Afr. Comm’n on Human and Peoples’ Rights, *Social and Economic Rights Action Center and the Center for Economic and Social Rights v. Nigeria*, Communication No. 155/96 (Oct. 27, 2001)).
- 523 *Saramaka, supra* note 445, ¶ 154.
- 524 *Id.*
- 525 *Belize Maya, supra* note 395, ¶ 140.
- 526 *Id.* ¶ 148.
- 527 *Xákmok, supra* note 421, ¶¶ 277, 291.

- 528 *See Dogan and Others v. Turkey*, App. Nos. 8803-8811/02, 8813/02 and 8815-8819/02, Eur. Ct. H.R., ¶ 138-39 (June 29, 2004); *see also* Convention for the Protection of Human Rights and Fundamental Freedoms, Nov. 4, 1950, 213 U.N.T.S. 221, Protocol 1, art. 1; *Oneryildiz v. Turkey*, App. No. 48939/99, Eur. Ct. H.R., ¶ 129 (June 18, 2002) (“applicant’s proprietary interest in his dwelling was of a sufficient nature and sufficiently recognised to constitute a substantive interest and hence a ‘possession’ within the meaning of the rule laid down in the first sentence of Article 1 of Protocol No. 1”).
- 529 *See, e.g., Dogan, supra* note 5268526, ¶ 138; *Oneryildiz, supra* note 5268526, ¶¶ 124, 129.
- 530 UNDRIP, *supra* note 427, art. 26.
- 531 *Id.* art. 25.
- 532 *Id.* arts. 29(1), 26(3).
- 533 ILO, Conv. No. 169, *supra* note 488, art. 14.1 (“measures shall be taken ... to safeguard the right... to use lands not exclusively occupied by them, but to which they have traditionally had access for their subsistence and traditional activities”); *id.* art. 15.1.
- 534 *Id.* art. 7.4.
- 535 *Id.* arts. 4(1), 7(3)-7(4).
- 536 *Awas Tingni, supra* note 406, ¶ 144; *Sawhoyamaxa, supra* note 445, ¶ 121; *Yakye Axa* note 445, *supra*, ¶ 137; and *Ivcher-Bronstein Case*, 2001 Inter-Am. Ct. H.R. (ser. C) No. 74, ¶ 122 (Feb. 6, 2001). The European Court of Human Rights has also expansively defined property to cover both movable and immovable property. *See* Council of Europe, *The European Convention on Human Rights and property rights*, Human rights files, No. 11 rev., at 11 (1999) (citing *Wiggins v. UK*, App. No. 7456/76, Feb. 8, 1977)).
- 537 *See* UNDRIP, *supra* note 427, art. 31 (“Indigenous peoples have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.”).
- 538 *Sawhoyamaxa, supra* note 445, ¶ 121; *see also Yakye Axa, supra* note 445, ¶ 137.
- 539 OAS, *Draft American Declaration on the Rights of Indigenous Peoples* (2011), *supra* note 459, art. XII; *see also* UNDRIP, *supra* note 427, art. 31 (“Indigenous peoples have the right to maintain control, protect, and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts...[and] the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.”); *see also* Convention on Biological Diversity, *supra* note 432, arts. 8(j), 10(c).
- 540 OAS, *Draft American Declaration on the Rights of Indigenous Peoples* (2011), *supra* note 459, art. XIII.
- 541 Government of Canada, Natural Resources Canada, *Northern Canada, supra* note 121, at 76.
- 542 *See Dann, supra* note 395, ¶ 129 (citing OAS, *Draft Declaration on the Rights of Indigenous Peoples* (1997), *supra* note 5146514, art. XVIII; ACIA, *Overview, supra* note 145, at 12.
- 543 *See, e.g.,* Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities, supra* note 141, at 3-5.
- 544 AAC interview with Isaac Juneby (2011) on file with Earthjustice.
- 545 AAC interview with Cindy Dickson (2011) on file with Earthjustice.
- 546 AAC interview with Chief Bill Erasmus (2011) on file with Earthjustice.

- 547 *See* Downing & Cuerrier, *supra* note 116, at 60.
548 *Id.* at 59-60.
549 AAC interview with James Allen (2011) on file with Earthjustice.
550 NRTEE, *Infrastructure*, *supra* note 379, at 48-64.
551 *Id.*
552 ACIA, *Scientific Report*, *supra* note 107, at 685; Downing & Cuerrier, *supra* note 116, at 60-65; Kofinas et al., *supra* note 95, at 1350-1353.
552 NRTEE, *Infrastructure* note 379, *supra*, at 48-64.
553 *Awas Tingni*, *supra* note 406, ¶ 144.
554 *Belize Maya*, *supra* note 395, ¶ 140.
555 *Dann*, *supra* note 395, ¶ 129 (citing OAS, *Draft American Declaration on the Rights of Indigenous Peoples* (1997), *supra* note 5146514, art. XVIII).
556 American Declaration, *supra* note 460, art. XI.
557 Protocol of San Salvador, *supra* note 432, art. 10.
558 Article 25(1) of the Universal Declaration of Human Rights, *supra* note 464, assures the right to “a standard of living adequate for the health and well-being of himself and his family, including...medical care and necessary social services.”
559 Pursuant to Article 12 of the ICESCR, *supra*, note 432: “1. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. 2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for: ... (b) the improvement of all aspects of environmental and industrial hygiene; (c) the prevention, treatment and control of epidemic ... and other diseases.”
560 African Charter, *supra* note 432, art. 16 (“Every individual shall have the right to enjoy the best attainable state of physical and mental health.”).
561 OHCHR, World Health Organization, *The Right to Health: Fact Sheet No. 31* (June 2008), p. 10.
562 *Yanomami*, *supra* note 450, ¶ 10(b).
563 *Id.* “Resolves” ¶ 1. Though the facts in that case demonstrated an extreme circumstance, the case affirmed the principle of state responsibility for violations of indigenous peoples’ human rights under the Inter-American system.
564 *Belize Maya*, *supra* note 395, ¶¶ 154-156.
565 Inter-Am. C.H.R., *Ecuador Report*, note 411 (quoting *Ksentini Final Report*, *supra* note 434, ¶ 77).
566 *Id.*, ch. VIII.
567 *Marangopoulos Found. for Human Rights v. Greece*, App. No. 30/2005, Eur. Comm’n Soc. Rights, ¶¶ 203, 240 (2006). (“*Marangopoulos*”).
568 U.N. Committee on Economic, Social and Cultural Rights, *Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights*, ICESCR General Comment 14, at ¶ 4, U.N. Doc. E/C.12/2000/4 (Aug. 11, 2000).
569 *Id.* ¶ 59.
570 U.N. Comm’n on Human Rights, *Right of Everyone to the Highest Standard of Physical and Mental Health: Addendum, Mission to Peru*, ¶ 54, U.N. Doc. E/CN.4/2005/51/Add.3 (Feb. 4, 2005) (*prepared by Paul Hunt*).

- 571 Ksentini Final Report, *supra* note 434, ¶ 183 (citations omitted).
- 572 U.N. Comm'n on Human Rights, *Human Rights and Indigenous Issues: Report of the Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous people, Rodolfo Stavenhagen Addendum, Mission to Canada*, ¶ 94, U.N. Doc. E/CN.4/2005/88/Add.3 (Dec. 2, 2004); *see* ACIA, *Impacts of a Warming Arctic* (2004), p. 125; *see also* ACIA, *Impacts of a Warming Arctic* (2004), pp. 92-97.
- 573 U.N. Comm'n on Human Rights, *Stavenhagen Report*, *supra* note 398, ¶ 21.
- 574 U.N. Human Rights Council, *Anaya Addendum – Sami People*, *supra* note 430, ¶ 59.
- 575 Dickson, *supra* note 116.
- 576 *Id.*
- 577 *Id.*
- 578 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141 (citing ACIA *Impacts of a Warming Arctic* (2004), p. 864).
- 579 ACIA, *Scientific Report*, *supra* note 107, at 864; *see also* Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141, at 5.
- 580 AAC interview with Shirley Lord (2011) on file with Earthjustice.
- 581 ACIA, *Scientific Report*, *supra* note 107, 658, 660, 683.
- 582 AAC interview with Randall Tetlich (2011) on file with Earthjustice.
- 583 AAC interview with Belinda Northway Thomas (2011) on file with Earthjustice.
- 584 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141, at 5.
- 585 *Id.*
- 586 ACIA, *Scientific Report*, *supra* note 107, at 879.
- 587 *Id.* at 879-881.
- 588 Government of Canada, Health Canada, *Health Effects of Climate Change*, *supra* note 313; Arctic Climate Impact Assessment, Henry Huntington & Sheri Fox, *The Changing Arctic: ACIA, Indigenous Perspectives*, 59 (2004), http://www.acia.uaf.edu/PDFs/ACIA_Science_Chapters_Final/ACIA_Ch03_Final.pdf.
- 589 ACIA, *Scientific Report*, *supra* note 107, at 879.
- 590 *Id.* at 683.
- 591 *Id.* at 658, 683, 892-897; Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141, at 5; Downing & Cuerrier, *supra* note 116, at 63.
- 592 Government of Canada, Health Canada, *Health Effects of Climate Change*, *supra* note 313.
- 593 *See* NRTEE, *Infrastructure*, *supra* note 379, at 51.
- 594 *See* Kofinas et al., *supra* note 95, at 1351; Downing & Cuerrier, *supra*, at 65; Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141, at 15.
- 595 NRTEE, *Infrastructure*, *supra* note 379, at 56, 57, 60.
- 596 ACIA *Scientific Report*, *supra* note 107, at 77.
- 597 Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141, at 5-6.
- 598 Government of Canada, Health Canada, *Health Effects of Climate Change*, *supra* note 313.
- 599 AAC interview with Glenn Stephens (2011) on file with Earthjustice.

- 600 *See Belize Maya, supra* note 395, ¶¶ 154-156.
- 601 *See Marangopoulos, supra* note 567565.
- 602 *See Yanomami, supra* note 450, “Resolves” ¶ 1.
- 603 ICESCR, *supra* note 432, art. 1(2); ICCPR, *supra* note 463465463, art. 1(2).
- 604 UNDRIP, *supra* note 427, art. 20.
- 605 *See, e.g.,* Gwitch’in Land Claims Agreement, ¶ 12.4(b); *see also id.*, App. C, ¶¶ 12.3.1(b), 12.5.1.
- 606 *Xákmok, supra* note 421, ¶ 174; *see also Yakyé Axa, supra* note 445, ¶ 135.
- 607 *Xákmok, supra* note 421, ¶ 180.
- 608 *Id.* ¶ 171; *see also id.* ¶ 157 (“[T]he State must ensure the effective participation of the members of the Community, in keeping with their customs and traditions, regarding any plans or decisions that might affect their traditional lands that can bring restrictions of use and enjoyment of said lands in order to prevent those plans or decisions from denying an indigenous people from their subsistence.”).
- 609 *Id.* ¶ 183; *see also Yakyé Axa, supra* note 445, ¶ 168 (concluding that the State had infringed upon petitioners right “to a decent life, because it ha[d] deprived them of the possibility of access to their traditional means of subsistence”).
- 610 Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights, supra* note 421, ¶ 56 (citing *Dann, supra* note 395, ¶ 128 (noting connection between subsistence and the right to property, stating that the American Convention’s right to property “refers ... [to] its capacity for providing the resources which sustain life”).
- 611 Inter-Am. C.H.R., *Indigenous and Tribal Peoples’ Rights, supra* note 421, ¶ 57 (citing *id.*).
- 612 *Yakyé Axa, supra* note 445, ¶¶ 163, 176.
- 613 *Id.* ¶ 168.
- 614 U.N. Human Rights Council, *Anaya Addendum – Sami People, supra* note 430, ¶ 59.
- 615 *See* ICCPR, *supra* note 463465463, art. 1(2); ICESCR, *supra* note 432, art. 1(2); UNDRIP, *supra* note 427, art. 20;
- 616 *See* Downing & Cuerrier, *supra* note 116, at 60-61
- 617 AAC interview with Paul Birckel (2011) on file with Earthjustice.
- 618 AAC interview with Louis Renigler (2011) on file with Earthjustice.
- 619 Government of Canada, Natural Resources Canada, *Northern Canada, supra* note 121, at 59; NOAA, *Arctic Report Card 2010, supra* note 192, at 65 (“Populations of vertebrate high arctic species declined 26% between 1970 and 2004.”).
- 620 *See* Heggberget, *supra* note 293294293, at 13; Alaska Humanities Forum, *supra* note 95.
- 621 AAC interview with Joe Tetlichich (2011) on file with Earthjustice.
- 622 *See* U.N. Human Rights Council, *Anaya Addendum – Sami People, supra* note 430, ¶ 59.
- 623 AAC interview with Styd Klugie (2011) on file with Earthjustice.
- 624 ACIA, *Scientific Report, supra* note 107, at 658, 683.
- 625 AAC interview with Joe Tetlichich (2011) on file with Earthjustice.
- 626 Government of Canada, Natural Resources Canada, *Northern Canada, supra*, note 121., at 76.
- 627 AAC interview with Rose Kushniruk (2011) on file with Earthjustice.

- 628 Inter-Am. C.H.R., *Indigenous and Tribal Peoples' Rights*, *supra* note 421, ¶ 56 (citing *Dann*, *supra* note 395, ¶ 128 (noting connection between subsistence and the right to property, stating that the American Convention's right to property "refers ... [to] its capacity for providing the resources which sustain life").
- 629 *See* UNDRIP, *supra* note 427, art. 23.1; *see also* *Xákmok*, *supra* note 421, ¶ 180.
- 630 Inter-Am. C.H.R., *Indigenous and Tribal Peoples' Rights*, *supra* note 421, ¶ 57 (citing *Yakye Axa*, *supra* note 445, ¶ 164).
- 631 *See* O'Rourke, *supra* note 95, at 29; Government of Canada, Indian and Northern Affairs Canada, *Vulnerabilities*, *supra* note 141, at 5-6; *Xákmok*, *supra* note 421, ¶ 171; *see also* Dickson, *supra* note 116.
- 632 *Xákmok*, *supra* note 421, ¶ 171; *see also id.* ¶ 157 ("[T]he State must ensure the effective participation of the members of the Community, in keeping with their customs and traditions, regarding any plans or decisions that might affect their traditional lands that can bring restrictions of use and enjoyment of said lands in order to prevent those plans or decisions from denying an indigenous people from their subsistence.").
- 633 *See* *Lubicon Lake*, *supra* note 483, ¶ 33.
- 634 U.N. Human Rights Council, *Anaya Addendum – Sami People*, *supra* note 430, ¶ 79. *See also* U.N. Human Rights Committee, *Consideration of Article 40 reports (Sweden)*, *supra*, ¶ 20 ("The State party should take further steps to involve the Sami in the decisions concerning the natural environment and necessary means of subsistence for the Sami people.").
- 635 Organization of American States, Inter-American Commission on Human Rights's Rules of Procedure, art. 31(1).
- 636 *Id.* art. 31(2).
- 637 The Inter-American Court of Human Rights has explained that adequate remedies are those "suitable to address an infringement of a legal right." *Velásquez Rodríguez Case*, Inter-Am. Ct. H.R., Judgment of July 29, 1988, Series C. No. 4, ¶ 64. *See also* IACHR, Report No105/09, P592-07, Admissibility, *Hul'Qumi'Num Treaty Group v. Canada*, October 30, 2009, ¶ 31 ("The jurisprudence of the inter-American system clearly indicates that only those remedies that are suitable and effective, if pertinent, in resolving the matter in question, must be exhausted."); IACHR, Report No 69/04, P504/03, Community of San Mateo de Huanchor and its members (Peru), Admissibility, October 15, 2004, ¶ 56 ("In all domestic law systems, there are many remedies, but they are not all applicable to all circumstances."); *Juan Carlos Bayarri v. Argentina*, Case No. 11.280, Commission Report No. 2/01, January 19, 2001, OEA/ser. L/V/II.111 doc.20 rev., ¶ 27 fn.12 ("If a remedy is not adequate in a specific case, it obviously need not be exhausted") (citing *Velásquez Rodríguez Case*, *supra* note 637, at ¶ 63 ("[The exhaustion requirement] speaks of 'generally recognized principles of international law.' Those principles refer not only to the formal existence of such remedies, but also to their adequacy and effectiveness, as shown by the exceptions.")); *Gilson Nogueira Carvalho v. Brazil*, Case No. 12,058, Ann. Rpt. Inter-Am. C.H.R. 145, OEA/ser. L/V/II.111 doc. 20 rev. Report No. 61/00, ¶ 60 ("[T]he merely theoretical existence of legal remedies is not sufficient for this objection to be invoked: they have to be effective.").
- 638 *Hul'Qumi'Num Treaty Group v. Canada*, *supra* note 637, ¶ 41 (citing IACHR, *Tracy Lee Housel v. United States*, Report No. 16/04, Petition 129-02 (Admissibility), February 27, 2004, ¶ 36); *see also* IACHR Report No 51/00, Case 11.193, *Gary Graham v. United States*, ¶ 60 (finding exception to exhaustion in the case of a juvenile petitioner sentenced to death in the U.S., alleging violations of right to life and equality, because "prevailing jurisprudence in the United States suggests that any proceedings instituted on these issues would have no reasonable prospect of success").
- 639 *Hul'Qumi'Num Treaty Group v. Canada*, ¶ 41.
- 640 IACHR, Report No105/09, P592-07, Admissibility, *Hul'Qumi'Num Treaty Group v. Canada*, *supra* note 637, ¶ 36 (citing *Yakye Axa*, *supra* note 445, ¶ 63; *Sahoyamaxa*, *supra* note 445, ¶ 83; *Saramaka*, *supra* note 445, ¶ 178; *Case Tiu Tojin*. Judgment issued November 28, 2008. Series C No. 190, ¶ 96); and

-
- IACHR, Report No. 58/09 (Admissibility), Petition 12.354, *Kuna de Madungandi y Emberá de Bayano Indigenous Peoples and their Members (Panama)*, April 21, ¶ 37).
- 641 *Hul'Qumi'Num Treaty Group v. Canada*, *supra* note 637, ¶ 33. In that case, in addition to finding that the first exception to the exhaustion requirement applied “because there [wa]s no due process of law to protect the property rights of the HTG to its ancestral lands,” the Commission also found that the third exception (unwarranted delay on the part of the State) applied because the HTG had tried for years to negotiate with the government but the government refused to respond to its requests. *Id.* ¶ 37. Regardless, the Commission has found the first exception to apply in several other cases where petitioners had “no reasonable prospect of success” due to lack of due process even when unwarranted delay was not at issue. *See, e.g., Tracy Lee Houselsupra* note 638, ¶ 36 (exception applied to U.S. petitioner’s contention that detention on death row was contrary to Article XXVI of the American Declaration because raising a claim “where it is apparent from the record before [the Commission] that any proceedings instituted on that claim would have no reasonable prospect of success in light of prevailing jurisprudence of the state’s highest courts, ... would not be considered ‘effective’ in accordance with general principles of international law”); *Gary Graham, supra* note 638, ¶ 60; *see also Velásquez Rodriquez, supra* note 637, ¶ 72 (exhaustion should not be understood to require mechanical attempts at formal procedures; but rather to require a case-by-case analysis of the reasonable possibility of obtaining a remedy”).
- 642 *Hul'Qumi'Num Treaty Group v. Canada*, *supra* note 637, ¶ 43.
- 643 *Id.* ¶ 43.
- 644 *Id.* ¶ 43, n. 13.
- 645 *Id.* ¶ 43.
- 646 *Id.*
- 647 *Id.* ¶ 33.
- 648 Canadian Environmental Protection Act, *supra* note 417, §§ 149-165.
- 649 Lorne Sossin, *The Boundaries of Judicial Review: the Law of Justiciability in Canada* 145 - 146 (1999). *See also Canada (Auditor General) v. Canada (Minister of Energy, Mines and Resources)*, [1989] 2 S.C.R. 49; and *Reference re Canada Assistance Plan (B.C.)*, [1991] 2 S.C.R. 525.
- 650 *See id.; Friends of the Earth v. Canada (Governor in Council)*, [2008] FC 1183.
- 651 *Friends of the Earth v. Canada (Governor in Council)*, [2008] FC 1183.
- 652 *Crown Liability and Proceedings Act*, R.S.C., 1985, c. C-50.
- 653 *See, e.g., in Manitoba: The Proceedings Against the Crown Act*, CCSM c. P140; in Ontario: *Proceedings Against the Crown Act*, RSO 1990, c P.27; and in Newfoundland and Labrador: *Proceedings Against the Crown Act*, RSNL 1990, c. P-26.
- 654 *See Just v. British Columbia*, [1989] 2 S.C.R. 1228.
- 655 Joseph Smith and David Shearman, *Climate Change Litigation: Analysing the law, scientific evidence and impacts on the environment, health and property* 11 (2006).
- 656 *See Hul'Qumi'Num Treaty Group v. Canada*, *supra* note 637, ¶41. Included in the remedies Canada had proposed in that case was “legal action under the provisions of the Canadian Charter of Rights and Freedoms.”
- 657 Constitution Act of 1982 [Canada], § 1.
- 658 *Davis v. Canada (Attorney General)*, [2004] N.J. No. 274 (T.D.), ¶ 92, and [2007] N.J. No. 42 (T.D.), *aff'd* [2008] N.J. No. 280 (C.A.); *see also Brown v. Canada (Attorney General)* [2010] O.J. No. 2253 (S.C.J.), ¶ 118 (citing *id.*).

- 659 *Davis v. Canada*, *supra* note 658, ¶ 2.
- 660 *Id.* ¶ 94; *see also Brown v. Canada*, *supra* note 658, ¶ 118 (citing *id.*).
- 661 Constitution Act of 1982 [Canada], § 27.
- 662 *Hul-Qumi'Num Treaty Group v. Canada*, *supra* note 637, ¶ 37.
- 663 The common law predicated dealings with aboriginals on two fundamental principles: (1) that the Crown asserted title subject to existing aboriginal interests in their traditional lands and adjacent waters, and (2) that those interests were to be removed only by solemn treaty with due compensation to the people and its descendants.
- This right to use the land and adjacent waters as the people had traditionally done for their sustenance is a fundamental aboriginal right which is supported by the common law and by the history of this country and which is enshrined in s. 35(1) of the *Constitution Act, 1982*. *R. v. Van der Peet*, [1996] 2 S.C.R. 507.
- 664 *Davis v. Canada*, *supra* note 658, ¶ 92.
- 665 Organization of American States, Inter-American Commission on Human Rights's Rules of Procedure, art. 32(1).
- 666 *See Arctic Athabaskan Council*, United Nations Framework Convention on Climate Change, <http://www.arcticathabaskancouncil.com/aac/?q=node/14>.
- 667 *See id.*
- 668 These letters are available on AAC's web site, found at www.arcticathabaskancouncil.com.